Jazz Pharmaceuticals®

Jazz Pharmaceuticals plc
Proxy Statement
2019 Annual Report

June 2, 2020

DEAR FELLOW SHAREHOLDERS,

On behalf of Jazz and our Board of Directors, I hope you and your families are staying healthy and safe. As the world continues to deal with the healthcare, economic and human challenges of the COVID-19 pandemic, I would like to extend my sincere appreciation to the first responders, healthcare workers and others who have been selflessly caring for patients and their communities on the front lines. Given the highly fluid and uncertain outlook of this pandemic, this letter will focus on the unwavering mission of our company and what we are doing to remain well-positioned to support our patients, employees and communities through this unprecedented time and beyond.

UNWAVERING MISSION

Jazz Pharmaceuticals provides essential medicines to patients with serious and life-threatening diseases. We are committed to delivering on this important mission, now more than ever. To that end, we implemented a comprehensive COVID-19 response strategy and mitigation efforts to ensure patients continue to have access to our medicines, commercially or through clinical studies, and to protect the health and safety of our employees and the communities in which we operate.

2019 ACHIEVEMENTS POSITION US FOR RESILIENCE AND LONG-TERM GROWTH

Looking back at 2019, we achieved record top- and bottom-line growth while making substantial progress on our key strategic objectives with three product launches, multiple R&D milestones and four significant transactions that added several new early- to late-stage development medicines to our R&D portfolio. These transactions broadened our hematology and oncology therapeutic area into solid tumors, and our sleep and neuroscience therapeutic area into movement disorders.

- Product launches in 2019 included: Xyrem® (sodium oxybate) oral solution in the U.S. for the treatment of cataplexy and excessive daytime sleepiness (EDS) in children and adolescents with narcolepsy; Sunosi® (solriamfetol) in the U.S. to treat EDS in adults with narcolepsy or obstructive sleep apnea (OSA); and Defitelio® (defibrotide sodium), launched in Japan by our partner, Nippon Shinyaku, for the treatment of hepatic veno-occlusive disease (VOD).
- Our key R&D achievements included: the advancement of JZP-458, a recombinant *Erwinia* asparaginase product candidate, from pre-clinical to a Phase 2/3 pivotal study; presentation of positive Phase 3 data for JZP-258, our novel oxybate formulation; and the initiation of multiple Jazz-sponsored and cooperative group studies for Vyxeos® (daunorubicin and cytarabine) liposome for injection.
- Through strategic acquisitions, we obtained exclusive U.S. development and commercialization rights to lurbinectedin, a late-stage candidate for the treatment of patients with relapsed small cell lung cancer (SCLC) and acquired JZP-385, a Phase 2 candidate for the treatment of patients with essential tremor, the most common movement disorder. We also broadened our early stage oncology pipeline with a pan-RAF inhibitor program for the potential treatment of hematological malignancies and solid tumors as well as a collaboration exploring cutting-edge exosome technology to identify potential therapeutic candidates.
- At the same time, we delivered record financial results with total revenues of $2.2 billion and adjusted net income of $934 million[1] in 2019 while significantly increasing our R&D investment.

These exceptional achievements, along with our solid cash balance and access to significant liquidity, put us in a strong position to invest in our business and build additional value for our shareholders in 2020 as we manage through the impact of this global healthcare crisis on our business.

OUR LONG-TERM GROWTH DRIVERS

Over the past year, we were pleased to welcome multiple senior leaders to our executive management team, strengthening our capabilities to innovate and execute on our commitments to patients and our shareholders. We are committed to our goal of building sustainable shareholder value for the long-term through disciplined investments in our portfolio and further diversification of our revenue base. Given the uncertainty related to the global impact of the COVID-19 pandemic, in 2020 we are proactively managing our operating expenses and prioritizing investments in our most important current and future revenue drivers, including new product launches and multiple key clinical program advancements.

- **Four new product launches in 2020–2021.**
  - Sunosi. In May, we initiated a European rolling launch for EDS in narcolepsy beginning in Germany, following approval earlier this year for the treatment of EDS in adults with OSA or narcolepsy.

[1] Reconciliations of GAAP net income to non-GAAP adjusted net income can be found on pages 57 to 59 of the enclosed Proxy Statement.

We are also continuing our disease education and awareness efforts to support the U.S. launch of Sunosi.

- o Lurbinectedin. We are preparing for the potential approval for relapsed SCLC and launch of lurbinectedin, which is currently under priority FDA review for accelerated approval with a Prescription Drug User Fee Act (PDUFA) action date of August 16, 2020.
- o JZP-258. We are preparing for the potential approval and launch of JZP-258, for the treatment of cataplexy and EDS in narcolepsy patients 7 years of age and older. JZP-258 is under priority FDA review with a PDUFA action date of July 21, 2020.
- o JZP-458. Given the urgent patient need for a reliable and consistent supply of non-*E. coli* derived asparaginase products, we are focused on completing enrollment in our pivotal single-arm Phase 2/3 study and submitting a biologics license application to the FDA as early as the fourth quarter of 2020.

- **Key Clinical Programs.** We are continuing to make strategic investments through the addition of new molecules and broadened indications or data generation for current molecules. Although we anticipate some timelines may be delayed due to COVID-19, we look forward to the progress we will make in thoughtfully growing our R&D pipeline this year.
  - o JZP-258. We are evaluating JZP-258 in patients with idiopathic hypersomnia and completed enrollment of the Phase 3 study in the first quarter of this year.
  - o Defitelio. We are evaluating Defitelio for the prevention of acute graft-versus-host (aGvHD) disease and expect top-line data from a Phase 2 study later this year. We are also providing Defitelio to multiple investigator studies for evaluation in patients with coronavirus and acute respiratory distress syndrome.
  - o Vyxeos. We are continuing to advance our broad Vyxeos development program in new patient populations and in combination with other approved therapies. These data generation activities will be important to support the growth and global expansion of Vyxeos.

In closing, I would like to thank our shareholders for your continued investment and support. I would also like to recognize the extraordinary dedication of our employees, who work passionately every day to serve patient needs. I am very proud of our culture, which is exemplified by our dedication to patients and a diverse and inclusive community that unites employees as we carry out our common mission. I believe our unique culture is instrumental in our ability to thrive during these challenging times and has always been, and will continue to be, the foundation of our continued success.

Sincerely,

BRUCE C. COZADD
Chairman and Chief Executive Officer

MEET MEAGHAN

Our patient story highlights Meaghan.

From a young age, Meaghan struggled with excessive daytime sleepiness. As an adult, Meaghan's symptoms worsened and shortly after having her second child, she had difficulty getting out of bed and needed to sleep most of the day. For the following four years, Meaghan and her family actively sought treatment for her symptoms. Meaghan eventually participated in a sleep study that led to a diagnosis of narcolepsy and she learned her symptoms could be treated. With her symptoms under control, Meaghan has returned to spending time with her children, working in the family business and appreciating the small joys of life.

Narcolepsy is a chronic neurological condition where the brain is not able to control sleep-wake cycles normally. Symptoms include excessive daytime sleepiness, which means patients may be overcome by an irresistible need to sleep, often at inappropriate times, and may feel tired all the time. The symptoms can make it difficult to perform everyday tasks and may impact home, school, or work activities. Narcolepsy is often misdiagnosed, and for some, it can take more than a decade to get an accurate diagnosis.[1,2] Through disease education, we remain committed to helping patients with undiagnosed narcolepsy reduce their time to diagnosis. Please visit www.NarcolepsyLink.com to learn more about the signs and symptoms of narcolepsy.

[1] Thorpy, M. and Krieger, A. (2014). Delayed diagnosis of narcolepsy: characterization and impact. Sleep Medicine, 15(5), pp.502-507.
[2] Morrish E, King M, et al. Factors associated with a delay in the diagnosis of narcolepsy. Sleep Medicine. 2004;5(1):37-41.

GROWING R&D PIPELINE

PRE-CLINICAL	PHASE 1	PHASE 2	PHASE 3	REGULATORY
JZP-324 Oxybate once-nightly formulation	**Vyxeos** Low Intensity Dosing for higher risk MDS[3]	**JZP-385**[4] Essential tremor (Phase 2b)	**JZP-258** Idiopathic hypersomnia	**JZP-258** Cataplexy & EDS in narcolepsy
CombiPlex Hem/Onc exploratory activities	**Vyxeos + other approved therapies** • R/R AML or HMA Failure MDS[3] • First-line, fit AML (Phase 1b) • Low Intensity Therapy for first-line, unfit AML (Phase 1b)	**Defitelio** • Prevention of aGvHD • Prevention of CAR-T associated neurotoxicity	**JZP-458** (recombinant *Erwinia* asparaginase) ALL/LBL (pivotal Phase 2/3)	**Lurbinectedin**[6] Relapsed SCLC
JZP-341 (Long-acting *Erwinia* asparaginase)[2] ALL/other hematological malignancies		**Vyxeos** • HR-MDS (EMSCO)[5] • Newly diagnosed older adults with HR-AML[4,5]	**Lurbinectedin**[6] Relapsed SCLC (ATLANTIS)	
Recombinant pegaspargase[1] Hematological malignancies	**IMGN632**[1] • R/R CD123+ Hematological malignancies • +/- venetoclax/azacitidine in CD123+ AML (Phase 1b/2)	**Vyxeos + venetoclax** *de novo* or R/R AML[3]	**Vyxeos** • AML or HR-MDS >60 yrs (AML18)[5] • AML or HR-MDS >18 yrs (AML19)[5] • Newly diagnosed adults with standard- and HR-AML (AMLSG)[5] • Newly diagnosed pediatric patients with AML (COG)[4,5]	
Pan-RAF Inhibitor Program RAF & RAS mutant tumors				
Exosome targets (NRAS, STAT3 and 3 others)[2] Hematological malignancies/solid tumors				
Defitelio Exploratory activities				

Sleep and Neuroscience

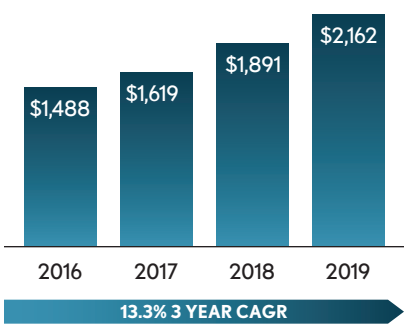
Hematology and Oncology

[1] Opt-in opportunity. [2] Partnered collaboration. [3] Jazz & MD Anderson Cancer Center collaboration study. [4] Planned. [5] Cooperative group study. [6] Exclusive U.S. license.

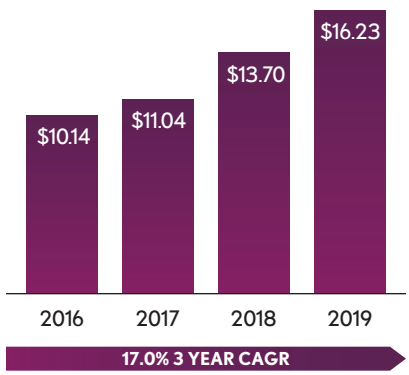
ALL = Acute Lymphoblastic Leukemia, AML = Acute Myeloid Leukemia, AMLSG = AML Study Group, ATLANTIS = Phase 3 Clinical Study of lurbinectedin in SCLC, CAR-T = Chimeric Antigen Receptor T-cell Therapy, COG = Children's Oncology Group, EMSCO = European Myelodysplastic Syndromes Cooperative Group, HMA = Hypomethylating Agent, HR-AML = High-Risk AML, HR-MDS = High-Risk MDS, LBL = Lymphoblastic Lymphoma, MDS = Myelodysplastic Syndrome, R/R = Relapsed/Refractory

STRONG FINANCIAL EXECUTION

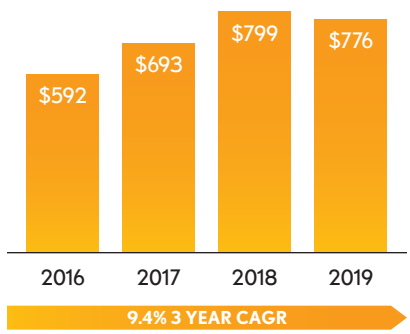
TOTAL REVENUES
$ in millions
(audited)



NON-GAAP ADJUSTED NET INCOME PER DILUTED SHARE[1]
(unaudited)



NET CASH PROVIDED BY OPERATING ACTIVITIES
$ in millions
(unaudited)



[1] Reconciliations of GAAP net income per diluted share to non-GAAP adjusted net income per diluted share can be found on pages 57 to 59 of the enclosed Proxy Statement.
CAGR = Compound Annual Growth Rate

Jazz Pharmaceuticals®

NOTICE OF 2020 ANNUAL GENERAL MEETING OF SHAREHOLDERS

TO BE HELD ON JULY 30, 2020

Proxy

Dear Shareholder:

The 2020 annual general meeting of shareholders (the "annual meeting") of Jazz Pharmaceuticals plc, a public limited company formed under the laws of Ireland (the "company"), will be held on Thursday, July 30, 2020, at 3:00 p.m. local time at our corporate headquarters located at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland, for the following purposes:

1. To elect by separate resolutions each of the four nominees for director named in the accompanying proxy statement (the "proxy statement") to hold office until the 2023 annual meeting of shareholders (Proposal 1).
2. To ratify, on a non-binding advisory basis, the appointment of KPMG, Dublin, or KPMG, as the independent auditors of the company for the fiscal year ending December 31, 2020 and to authorize, in a binding vote, the board of directors, acting through the audit committee, to determine the independent auditors' remuneration (Proposal 2).
3. To approve, on a non-binding advisory basis, the compensation of the company's named executive officers, or NEOs, as disclosed in the accompanying proxy statement (Proposal 3).
4. To approve an amendment and restatement of the company's Amended and Restated 2007 Non-Employee Directors Stock Award Plan (the "Directors Plan") in order to, among other things, increase the number of ordinary shares authorized for issuance under the Directors Plan by 500,000 shares (Proposal 4).
5. To approve a capital reduction and creation of distributable reserves under Irish law (Proposal 5).

To conduct any other business properly brought before the annual meeting.

Proposals 1, 2, 3 and 4 are ordinary resolutions, requiring the affirmative vote of a majority of the votes cast (in person or by proxy) at the annual meeting. Proposal 5 is a special resolution, requiring the approval of not less than 75% of the votes cast (in person or by proxy) at the annual meeting.

In addition to the above proposals, the annual meeting will also receive and consider the company's Irish statutory financial statements for the fiscal year ended December 31, 2019 and the reports of the directors and auditors thereon. There is no requirement under Irish law that the Irish statutory financial statements be approved by the shareholders, and no such approval will be sought at the annual meeting. Under the company's Amended and Restated Constitution, or our constitution, and the Irish Companies Act 2014, or the 2014 Act, Proposals 1 and 2 are deemed to be ordinary business, and Proposals 3, 4 and 5 are deemed to be special business.

The record date for the annual meeting is June 3, 2020. Only shareholders of record at the close of business on that date may vote at the annual meeting or any adjournment or postponement thereof.

A shareholder entitled to attend and vote at the annual meeting is entitled to appoint one or more proxies to attend, speak and vote instead of him or her at the annual meeting, using the proxy card provided (or the form of proxy contained in section 184 of the 2014 Act) or using an electronic proxy card by telephone or via the internet in the manner described in this proxy statement. A proxy need not be a shareholder of record.

Whether or not you expect to attend the meeting, please vote as soon as possible. You may vote your shares:

Over the Telephone
1-800-690-6903

Via the Internet
www.proxyvote.com

By Mail
Complete, sign and return proxy card

In Person
Attend Annual Meeting

If you received a proxy card or voting instruction card by mail, you may submit your proxy card or voting instruction card by completing, signing, dating and mailing your proxy card or voting instruction card in the envelope provided. Proxy cards must be received by July 29, 2020. Electronic proxy cards submitted via the internet or by telephone must be received by 11:59 p.m., U.S. Eastern Time, on July 29, 2020. It may not be possible to count proxy cards received after the relevant time towards voting. Proxy cards received will be forwarded to the company's registered office electronically before commencement of the annual meeting to comply with Irish law. Even if you have voted by proxy, you may still vote in person if you attend the meeting. Please note, however, that if the record holder of your ordinary shares is a broker, bank or other agent, and you wish to vote at the meeting, you must obtain a proxy issued in your name from that record holder.

Important Notice Regarding the Availability of Proxy Materials for the annual meeting of shareholders to be held on July 30, 2020, at 3:00 p.m. local time at our corporate headquarters located at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

The proxy statement, our letter to shareholders and our 2019 Annual Report on Form 10-K are available at https://materials.proxyvote.com/G50871.

By order of the board of directors,

/s/ Aislinn Doody
Aislinn Doody,
Company Secretary

Dublin, Ireland | June 12, 2020

Potential Impacts of the COVID-19 Pandemic on the Annual General Meeting

In light of the ongoing COVID-19 pandemic, the company would like to emphasize that we consider the health of our shareholders, employees and other attendees a top priority. We are monitoring guidance issued by appropriate governmental health agencies, including the Irish Health Service Executive, or the HSE, the Irish government, the U.S. Center for Disease Control and Prevention and the World Health Organization, collectively, the Health Authorities, and we have implemented, and will continue to implement the measures advised by the relevant Health Authorities to minimize the spread of COVID-19. Information on such measures and on COVID-19 generally is available on the HSE's website at https://www.hse.ie/eng/services/news/newsfeatures/covid19-updates/.

As such, shareholders are strongly encouraged to vote their shares by proxy in advance at the annual meeting, as personal attendance at the annual meeting may present a health risk to themselves and others and is therefore not recommended. The annual meeting will be held in accordance with HSE and relevant Health Authority guidance.

In the event that alternative arrangements are necessitated due to public health recommendations regarding containment of COVID-19, which may include a change in date or time of the meeting, a change in venue due to the closure of or restrictions on access to the meeting venue and/or holding the meeting primarily by means of remote electronic communication, we will communicate this to shareholders by an announcement, which will be published on the investor relations page of the company's website found at https://investor.jazzpharma.com/news and filed with the Securities and Exchange Commission as additional soliciting materials. We advise shareholders to monitor the investor relations page regularly, as circumstances may change at short notice and we recommend that shareholders keep up-to-date with HSE and relevant Health Authority guidance regarding travel, self-isolation and health and safety precautions.

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Index of Frequently Requested Information

PROXY OVERVIEW

This overview highlights certain information contained elsewhere in this proxy statement and does not contain all of the information that you should consider. You should read the entire proxy statement carefully before voting. For more complete information regarding our business and 2019 performance, please review our Annual Report on Form 10-K for the year ended December 31, 2019 that we filed with the Securities and Exchange Commission, or SEC, on February 25, 2020, which we refer to throughout this proxy statement as the 2019 Annual Report on Form 10-K.

In this proxy statement, unless otherwise indicated or the context otherwise requires, all references to "Jazz Pharmaceuticals," "the company," "we," "us" and "our" refer to Jazz Pharmaceuticals plc and its consolidated subsidiaries, except when the context makes clear that the time period being referenced is prior to January 18, 2012, in which case such terms are references to Jazz Pharmaceuticals, Inc. and its consolidated subsidiaries. On January 18, 2012, the businesses of Jazz Pharmaceuticals, Inc. and Azur Pharma Public Limited Company, or Azur Pharma, were combined in a merger transaction, or the Azur Merger, in connection with which Azur Pharma was renamed Jazz Pharmaceuticals plc, and we became the parent company of and successor to Jazz Pharmaceuticals, Inc., with Jazz Pharmaceuticals, Inc. becoming our wholly owned subsidiary.

Meeting and Voting Information

Time and Date:

3:00 p.m., local time on
Thursday, July 30, 2020

Place:

Our corporate headquarters
Fifth Floor, Waterloo Exchange
Waterloo Road Dublin 4, Ireland

In light of the COVID-19 pandemic, we strongly recommend that you vote your shares by proxy in advance of the meeting. Whether or not you expect to attend the meeting, please vote as soon as possible. Please see "Questions and Answers About These Proxy Materials and Voting—How do I vote?" beginning on page 105 below. Please also see "Questions and Answers About These Proxy Materials and Voting—What are the potential impacts of the COVID-19 pandemic on the annual meeting?" beginning on page 103 below.

Business Overview

Jazz Pharmaceuticals is a global biopharmaceutical company dedicated to developing and commercializing life-changing medicines for people with serious diseases—often with limited or no options. We have a diverse portfolio of marketed medicines and novel product candidates, from early- to late-stage development, in key therapeutic areas. Our focus is in neuroscience, including sleep medicine and movement disorders, and in oncology, including hematologic and solid tumors. We actively explore new options for patients including novel compounds, small molecule advancements, biologics and innovative drug delivery technologies.

Our lead marketed products are:

- **Xyrem® (sodium oxybate) oral solution**, the only product approved by the U.S. Food and Drug Administration, or FDA, and marketed in the U.S. for the treatment of both cataplexy and excessive daytime sleepiness, or EDS, in both adult and pediatric patients with narcolepsy;
- **Sunosi® (solriamfetol)**, a product approved by FDA and marketed in the U.S. to improve wakefulness in adult patients with EDS associated with narcolepsy or obstructive sleep apnea and also approved in Europe in January 2020 by the European Commission;
- **Defitelio® (defibrotide sodium)**, a product approved in the U.S. for the treatment of adult and pediatric patients with hepatic veno-occlusive disease, or VOD, also known as sinusoidal obstruction syndrome, with renal or pulmonary dysfunction following hematopoietic stem cell transplantation, or HSCT, and in Europe (where it is marketed as Defitelio® (defibrotide)) for the treatment of severe VOD in adults and children undergoing HSCT therapy;

- **Erwinaze® (asparaginase *Erwinia* chrysanthemi)**, a treatment approved in the U.S. and in certain markets in Europe (where it is marketed as Erwinase®) for patients with acute lymphoblastic leukemia, or ALL, who have developed hypersensitivity to *E. coli*-derived asparaginase; and
- **Vyxeos® (daunorubicin and cytarabine) liposome for injection**, a product approved in the U.S. and in Europe (where it is marketed as Vyxeos® liposomal 44 mg/100 mg powder for concentrate for solution for infusion) for the treatment of adults with newly-diagnosed therapy-related acute myeloid leukemia, or AML, or AML with myelodysplasia-related changes.

Over the last five years, we achieved multiple significant regulatory approvals and executed multiple product launches. Over the next two years, we look forward to additional potential regulatory approvals and related product launches in the U.S. (lurbinectedin for relapsed small cell lung cancer, JZP-258 for cataplexy and EDS in narcolepsy containing 92% less sodium than Xyrem, and JZP-458 for ALL or lymphoblastic lymphoma in patients who are hypersensitive to *E. coli*-derived asparaginase).

Our strategy to create shareholder value is focused on:

- Strong financial execution through growth in sales of our current lead marketed products;
- Building a diversified product portfolio and development pipeline through a combination of our internal research and development efforts and obtaining rights to clinically meaningful and differentiated on- or near-market products and early- to late-stage product candidates through corporate development transactions; and
- Maximizing the value of our products and product candidates by continuing to implement our comprehensive global development plans, including through generating additional clinical data and seeking regulatory approval for new indications and new geographies.

Information About Our Board of Directors

Director Nominees and Continuing Directors

The following table provides summary information about each director nominee and continuing director as of June 1, 2020. See pages 13 to 16 and 81 to 87 for more information.

Name	Age	Director Since	Principal Position	Independent	Other Current Public Boards
2020 Director Nominees					
Bruce C. Cozadd	56	2003[1]	Chairman and Chief Executive Officer, Jazz Pharmaceuticals plc	No	0
Heather Ann McSharry	58	2013	Director, CRH plc, Greencore Group plc and Uniphar plc	Yes	3
Anne O'Riordan	52	2019	Group Director of Digital, Jardine Matheson Limited	Yes	0
Rick E Winningham	60	2010[1]	Chairman and Chief Executive Officer, Theravance Biopharma, Inc.	Yes	1
Continuing Directors					
Paul L. Berns	53	2010[1]	Venture Partner, ARCH and Executive Chair, BlackThorn Therapeutics	Yes	1
Patrick G. Enright	58	2009[1]	Managing Director, Longitude Capital	Yes	2
Peter Gray	65	2013	Chairman, UDG Healthcare plc	Yes	1
Seamus Mulligan	59	2012	Director, Jazz Pharmaceuticals plc	Yes	0
Kenneth W. O'Keefe	53	2004[1]	Managing Director, Beecken Petty O'Keefe & Company	Yes	0
Norbert G. Riedel, Ph.D	62	2013	Chief Executive Officer and President, Aptinyx, Inc.	Yes	2
Elmar Schnee	61	2014	Chairman, Calliditas Therapeutics AB and Santhera Pharmaceuticals Holding AG	Yes	2
Catherine A. Sohn, Pharm.D.	67	2012	Chairperson, BioEclipse Therapeutics Inc., and Director, Axcella Health Inc., Landec Corporation and Rubius Therapeutics	Yes	3

(1) Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

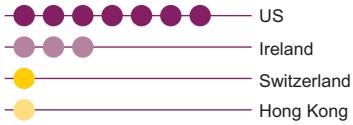
Director Skills, Experience and Diversity

We examine the experience and expertise of our board as a whole to ensure alignment between the abilities and contributions of our board and our strategic priorities and long-term plans, emphasizing, among other things, expertise in global and U.S. sales and marketing, in product development, in financial management and in corporate development transactions. All of our directors exhibit high integrity, collegiality, innovative thinking, sound business judgment and a knowledge of corporate governance requirements and practices. The following charts show the key skills, experience, and attributes that our directors bring to our boardroom:

Skills	Total of 12
Pricing and Market Access	5
Scientific/Medical/Clinical Development Expertise	5
Supply Chain	5
Sales and Marketing	6
Accounting/Audit	7
Risk Oversight and Risk Management	7
Talent Development/Culture/ HR/Compensation	9
Partner/Alliance Management	10
Senior Leadership/CEO	10
Corporate Development/Capital Deployment	11

Our board is substantially independent and has a mix of relatively newer and longer-tenured directors. The charts below show board makeup by various characteristics:

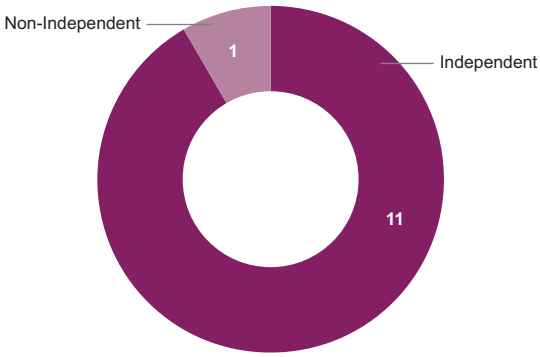
Residency



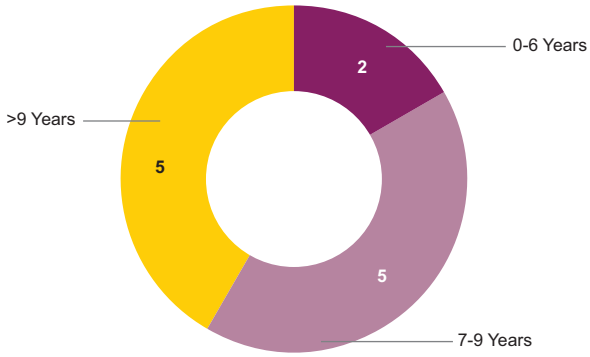
Gender

3 of 12
Directors are Women

Director Independence



Tenure



Shareholder and Other Stakeholder Engagement

A priority for our board of directors is soliciting and listening to the views of our shareholders on a variety of topics, including our business and growth strategy, corporate governance practices, executive compensation matters, and various other environmental, social and governance (ESG) matters. Discussions with our shareholders have been productive and informative and have provided valuable feedback to our board of directors to help ensure that our board's decisions align with shareholder objectives. The graphic under the section entitled "*Executive Compensation—Compensation Discussion and Analysis—How We Determine Executive Compensation—2019 Advisory Vote on Executive Compensation and Shareholder Engagement"* on page 41 below describes our typical shareholder outreach and engagement cycle.

Following our 2019 annual meeting and through the first quarter of 2020, we reached out to shareholders who collectively held approximately 45% of our then-outstanding shares to request meetings, and held meetings by phone with shareholders who collectively held approximately 22% of our then-outstanding shares, as well as with Glass Lewis.

While our outreach efforts touched on a wide range of topics, we heard a number of themes, including the following:

- Multiple shareholders highlighted that culture, diversity in leadership, turnover rates and ethics can be drivers of long-term value, and they encouraged us to continue proactively focusing on programs in those areas. Some of these programs and initiatives are highlighted below.
- We received feedback on the topic of director service on multiple public company boards as well as questions about other governance practices, including our classified board structure and our views on its continued utility; compensation practices, including market peer use of performance-based vesting for equity awards; and ESG practices, including strategic efforts and non-financial reporting.

- Shareholders appreciated that our Lead Independent Director participated in engagement meetings.

Our board and senior management also seek out the views of other stakeholders on an ongoing basis, including employees, customers, suppliers and communities in which we are located. We recognize that all of our stakeholder constituencies are important to the long term success of our company.

ESG Highlights

We view Environmental, Social and Governance (ESG) factors as long-term value drivers for the company. We take a focused approach to ESG that leverages Jazz's unique capabilities and expertise, striving to identify and manage the most meaningful opportunities based on their likelihood of positively impacting society and driving shareholder value.

Commitment to Purpose

Jazz Pharmaceuticals is dedicated to developing and commercializing life-changing medicines for people with serious diseases—often with limited or no options.

We were founded on a commitment to our patients and our employees, and have always been a purpose-driven company. We chose the name Jazz because it reflects not only how we approach our business but also—and more importantly—how we approach our commitment to transforming patients' lives. In music, jazz is the art of harnessing individual talents through collaboration, improvisation and constant evolution. It is unique in its sound and composition, and the connections it creates are personal. In health care, it is much the same. We blend the lessons of art with our deep understanding of patients' needs and the power of science to develop, innovate upon and introduce medicines for people who often do not have other options. We believe it is this unique philosophy and our commitment to those we serve that define Jazz.

ESG Strategy and Oversight

ESG oversight—which includes a focus on shaping and monitoring our strategy, purpose and culture—is exercised by both the board and our executive leadership. The nominating and corporate governance committee has oversight responsibility over our ESG strategy and policies and is regularly briefed by management on matters related to ESG. In 2020, we established cross-functional ESG working groups made up of leaders in the organization to guide the development of our ESG strategy and social impact initiatives. A wide range of departments is involved in our ESG strategy and work, including corporate affairs, corporate strategy, supply chain management, research and development, commercial, patient support services, human resources and legal, among others.

As part of our ongoing identification and assessment of ESG risks and opportunities, Jazz, in conjunction with outside experts, is conducting internal and external stakeholder interviews and continuing to evaluate the available options for non-financial reporting, including existing frameworks such as Sustainability Accounting Standards Board (SASB), Global Reporting Initiative and the Task Force on Climate-related Financial Disclosures. We plan to use this feedback in continuing to refine our ESG priorities. In response to shareholder feedback received to date, the following sections provide information related to certain of the top-level SASB topics for the pharmaceutical industry, including access to medicines, patient safety and human capital management.

COVID-19 Response

Especially during this time of uncertainty, Jazz remains dedicated to its purpose and focused approach to ESG. In response to the COVID-19 pandemic, that has meant taking both a short-term and a long-term view of ESG risks and opportunities, selected aspects of which are discussed below.

Leadership and Oversight
We have established a COVID-19 response team comprised of senior leadership that is particularly focused on addressing the impacts to our employees, our sites, our patients, our customers and our suppliers. Our board of directors is receiving regular updates from our senior management and is involved in strategy decisions and oversight of evolving business continuity plans.

Employee Health, Safety and Well-being
We support broad public health strategies designed to prevent the spread of COVID-19 and are focused on the health and welfare of our employees. In accordance with guidance issued by the Centers for Disease Control and Prevention, the World Health Organization and local authorities, in March 2020, our global workforce, including field-based teams, transitioned to working remotely. Our global organization has mobilized to enable our employees to accomplish our most critical goals in new ways, leveraging positivity, innovation and prioritization of resources to overcome new obstacles. We have rolled out new technologies and collaboration tools to enable our employees to engage with each other and also with healthcare providers through digital platforms and other remote access activities to continue to support and educate them as they care for patients. For our employees, we have implemented processes and resources to support them in the event an employee receives a positive COVID-19 diagnosis. We are now implementing plans related to reopening our sites and enabling our employees to return to work in our global offices, the field, our lab and our manufacturing facilities, which plans will take into account applicable public health authority and local government guidelines and which are designed to ensure employee and patient safety.

Product Supply to Our Patients and Access to Medicines
We are executing on a continuity plan in response to the pandemic that is designed to enable us to deliver on our mission to provide essential medicines to patients around the world. We currently expect to have adequate global supply of Xyrem, Sunosi, Defitelio and Vyxeos in 2020, as well as adequate commercial product availability for lurbinectedin and JZP-258 (if approved) to support planned U.S. launches. We are working closely with our third-party manufacturers, distributors and other trusted partners to manage supply chain activities and mitigate potential disruptions to our product supply as a result of COVID-19.

In responding to this pandemic, we are prioritizing patient access to our medications, including through our JazzCares program, which is designed to help patients access medications and services they need. In addition, we are focusing efforts on driving innovation and adaptive strategies across key business operations, including customer engagement and research and development, to ensure Jazz responds to the impact of COVID-19 in an agile, efficient and effective manner for our near term and longer term success. The rapid spread of COVID-19 has caused a significant burden on health systems globally and has highlighted the need for companies to evaluate existing therapies to assess if they can be utilized beyond their current indications to treat COVID-19 as well as consider developing new therapies. We have accelerated our efforts to study, build expertise and generate data around defibrotide in the treatment of acute respiratory distress syndrome, a severe and relatively common symptom of COVID-19. We have been receiving and have granted requests for investigator-sponsored trials to evaluate the use of defibrotide in COVID-19 patients experiencing respiratory distress.

Support of Our Local Communities
We are supporting local communities and patient-focused organizations in COVID-19 relief efforts including through corporate donations to charitable organizations providing food and medical relief to our communities in which we operate in Italy, Philadelphia and the San Francisco Bay Area, and other localities where the needs related to the impact of COVID-19 are greatest such as the New York metro area, Italy and Spain. We are engaging with patient advocacy organizations to better understand the impact of COVID-19 and working to ensure that patients living with sleep disorders and hematology and oncology conditions continue to have access to treatments and that their other needs are addressed given the impact of COVID-19 on the healthcare system. We are committed to enabling our employees to give back, including allowing licensed healthcare practitioners employed by us to support local response efforts.

Culture and Human Capital Management

Our "One Jazz" Culture

We strive to excel in three things: put patients first, be a great place to work, and live our values of integrity, collaboration, passion, innovation and pursuit of excellence. We are committed to creating a company where the work culture reflects these goals.

We make a point each year to recognize, through our "Jazz Master" award, individuals who have been leaders in modeling and contributing to our culture by living our mission and demonstrating Jazz's values throughout their career at our company. We also have programs to recognize individuals who have gone above and beyond expected performance to achieve outstanding results that have had a significant impact on business or patients.

Diversity and Inclusion

We strive to create a workplace culture that supports a diverse, multi-cultural workforce, treats individuals fairly, and provides an inclusive environment where all employees are empowered to contribute and succeed.

Our board of directors is diverse not only in terms of experience, skills and tenure, but also in terms of gender and sexual orientation. At the management level, women comprise half of our executive committee, which also includes diverse members in terms of race, age, ethnicity and national origin.

Our Employee Diversity and Inclusion program is designed to empower employees to guide and support our strategy and programs related to hiring diverse talent and using education and communication to continue fostering an inclusive environment. We also have a Diversity and Inclusion Delegation, a committee of employees focused on helping to embed diversity and inclusion into all we do.

In 2020, we launched Jazz ConcERTos, or employee resource teams. These groups are self-led teams of employee volunteers with diverse backgrounds who come together to promote innovation through inclusion and to increase awareness of all dimensions of diversity. We believe that these groups will contribute positively to Jazz's culture and business success by working cross-functionally, helping to decrease unconscious bias, and encouraging employees to be their whole selves so they can perform at their best.

Employee Engagement

Each year, we conduct an employee feedback survey designed to help us measure overall employee engagement. The feedback employees provide during the survey helps us measure our performance in building a great company to work for, and it provides important insight into the areas where we need to focus in the year ahead for several key components of our company objectives, such as decision-making and diversity and inclusion. In 2019, our participation rate in the employee feedback survey was approximately 90%. Our 2019 survey informed programs and activities aligned with achieving our 2020 corporate objectives, among other things, in particular around the goal of evolving our operating culture for agility and scalability. The survey will continue to be leveraged to support measuring our progress on these important initiatives.

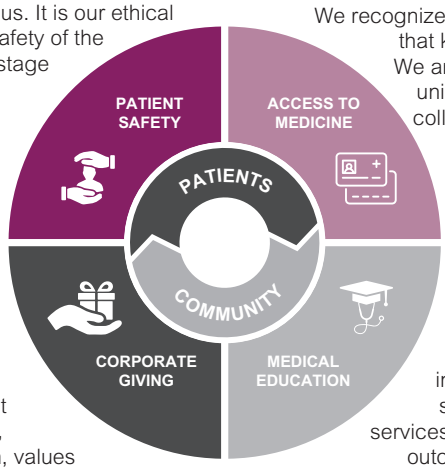
Patients and Community

Patient Safety:

Patient safety is of paramount importance to us. It is our ethical and regulatory responsibility to monitor the safety of the medicines we develop from their preclinical stage through clinical testing and prescribing.

Access to Medicine:

We recognize that many patients today face financial obstacles that keep them from accessing important medications. We are committed to improving patient access through unique patient and physician programs and ongoing collaboration with patients, physicians and advocacy groups, as well as access to investigational medicines through expanded/early access programs when available and appropriate.



Corporate Giving:

We view our global corporate giving as an opportunity for us to help improve patients' lives by addressing unmet needs, demonstrating our commitment to the communities we serve and making an impact through meaningful support to organizations, initiatives and causes that reflect our mission, values and strategic focus.

Medical Education:

We provide disease-focused resources that support healthcare providers, patients and caregivers along their journey by helping to increase the understanding of disease risk factors, signs and symptoms, diagnosis and other support services. As part of our ongoing efforts to improve patient outcomes, we support medical education through our grant-making program.

Environmental Sustainability

We seek to operate our manufacturing facilities in an environmentally responsible way to protect our people, our business, our environment and the local communities in which we operate. In light of the potential impact of our business on the environment, we have adopted a number of internal environmental policies and management systems designed to manage our operations in compliance with applicable laws, directives and regulations on environmental protection and in support of environmental sustainability and local biodiversity. Our environmental policies and management systems include procedures for assessing compliance with applicable environmental laws and regulations and reporting incidents of non-compliance to applicable governmental authorities. For example, we have environmental policies governing both of our manufacturing facilities in Athlone, Ireland and Villa Guardia (Como), Italy, which demonstrate our commitment to environmental sustainability and require us to minimize resource use (e.g., energy and water) and waste generation, optimize the use of raw materials, and undertake continuous improvement in environmental performance, with an emphasis on pollution prevention.

Summary of Shareholder Voting Matters and Board Recommendations

For the reasons set forth below and in the rest of this proxy statement, our board of directors recommends that you vote your shares "FOR" each of the nominees named below for director to hold office until the 2023 annual meeting of shareholders and "FOR" each of the other proposals.

Proposal 1 — Election of Directors

The board of directors recommends a vote "FOR" each of the named nominees.

Vote required to elect each nominee to hold office until the 2023 annual meeting of shareholders: Affirmative vote of a majority of the votes cast on his or her election.

For more information, see Proposal 1 starting on page 81.

We are asking our shareholders to vote, by separate resolutions, on the election of each of Bruce C. Cozadd, Heather Ann McSharry, Anne O'Riordan and Rick E Winningham to hold office until the 2023 annual meeting of shareholders. Detailed information about each nominee's background and experience can be found beginning on page 82.

Each of the nominees for director was nominated for election by the board of directors upon the recommendation of our nominating and corporate governance committee. Our board of directors believes that each nominee has the specific experience, qualifications, attributes and skills to serve as a member of the board of directors and has demonstrated the ability to devote sufficient time and attention to board duties and to otherwise fulfill the responsibilities required of directors.

Proposal 2 — Ratify, on a Non-Binding Advisory Basis, the Appointment of Independent Auditors and Authorize, in a Binding Vote, the Board of Directors, Acting Through the Audit Committee, to Determine the Independent Auditors' Remuneration

The board of directors recommends a vote "FOR" this proposal.

Vote required for approval: Affirmative vote of a majority of the votes cast on the proposal.

For more information, see Proposal 2 starting on page 88.

Under Irish law, KPMG will be deemed to be reappointed as our independent auditors for the financial year ending December 31, 2020, without needing a shareholder vote at the annual meeting. However, our shareholders are being asked to ratify KPMG's appointment on a non-binding advisory basis because we value our shareholders' views on the company's independent auditors. The board of directors and the audit committee intend to consider the results of this vote in making determinations in the future regarding the appointment of the company's independent auditors.

Our shareholders are also being asked to authorize the board of directors, acting through the audit committee, to determine KPMG's remuneration. This authorization is required by Irish law.

Less than 2% of the total fees that KPMG billed us for services last year were for services other than audit, audit-related and tax compliance services.

Proposal 3 — Non-Binding Advisory Vote on Executive Compensation

The board of directors recommends a vote "FOR" this proposal.

Vote required for approval: Affirmative vote of a majority of the votes cast on the proposal.

For more information, see Proposal 3 starting on page 90.

We are asking our shareholders for advisory approval of our NEOs' compensation. This non-binding advisory vote is commonly referred to as a "say-on-pay" vote. Our executive compensation program is aligned with our business strategy and priorities and encourages executive officers to work for meaningful shareholder returns consistent with our pay-for-performance philosophy. Our executive compensation program focuses on *total compensation*, combining short- and long-term components, cash and equity, and fixed and variable payments, in the proportions that we believe are the most appropriate to incentivize and reward our executive officers for achieving our corporate goals while minimizing incentives for excessive risk taking or unethical conduct. Our annual bonus awards are not earned unless pre-determined levels of performance are achieved against annual corporate objectives approved by our board of directors at the beginning of the year. Likewise, our stock option awards will not provide realizable value and our restricted stock unit, or RSU, awards will not provide increased value unless there is an increase in the value of our shares, which benefits all shareholders. We also have executive share ownership guidelines to further support our ownership culture and align the interests of executive officers and shareholders. Our 2019 advisory say-on-pay proposal was approved by approximately 90% of total votes cast.

Proposal 4 — Approve an Amendment and Restatement of the Company's Amended and Restated 2007 Non-Employee Directors Stock Award Plan

The board of directors recommends a vote "FOR" this proposal.

Vote required for approval: Affirmative vote of a majority of the votes cast on the proposal.

For more information, see Proposal 4 starting on page 92.

We are seeking shareholder approval of an amendment and restatement of our Amended and Restated 2007 Non-Employee Directors Stock Award Plan, or the Directors Plan, in order to, among other things, increase the number of ordinary shares authorized for issuance under the Directors Plan by 500,000 shares. If Proposal 4 is not approved by our shareholders, we anticipate potentially running out of shares for stock awards that may be granted to our non-employee directors by 2021.

Proposal 5 — Approve a Capital Reduction and Creation of Distributable Reserves under Irish Law

The board of directors recommends a vote "FOR" this proposal.

Vote required for approval: Affirmative vote of 75% of the votes cast on the proposal.

For more information, see Proposal 5 starting on page 102.

Under Irish law we need sufficient "distributable reserves" to repurchase or redeem our shares or to make other distributions to our shareholders in the form of dividends.

As a result of repurchasing and redeeming shares under our share repurchase program our "distributable reserves" have been reduced and, as at December 31, 2019, the "distributable reserves" of the Company were $880 million. However, we have accumulated significant share premium (approximately $870 million as of December 31, 2019), which is not considered part of "distributable reserves" under Irish law.

In this proposal, shareholders are being asked to approve a reduction of our share capital by the cancellation of up to the entire balance of our share premium account (which is analogous to additional paid in capital in the U.S.) as at December 31, 2019 (approximately $870 million), together with any additional sums added to share premium account in the intervening period and prior to the effective date of the capital reduction (the "Authorized Amount"), to create additional "distributable reserves" in order to maintain our ability to continue to repurchase or redeem shares and to make distributions to shareholders under our share repurchase program.

If approved by shareholders and confirmed by the Irish High Court, this proposal will result in the reduction of the balance of our share premium account by up to the Authorized Amount, with the final amount within the Authorized Amount to be determined by the Board of Directors in its discretion, and the creation of a reserve in an equal amount to be treated as a "distributable reserve."

PROXY STATEMENT

FOR THE 2020 ANNUAL GENERAL MEETING OF SHAREHOLDERS TO BE HELD ON JULY 30, 2020

GENERAL

Purpose of this Proxy Statement and Other General Information

Our board of directors is soliciting proxies for use at our 2020 annual general meeting of shareholders, or the annual meeting. This proxy statement contains important information for you to consider when deciding how to vote on the matters brought before the annual meeting. Please read it carefully. The Notice of Internet Availability of Proxy Materials and our proxy materials, which include this proxy statement, our annual letter to shareholders and our 2019 Annual Report on Form 10-K, are first being mailed to shareholders on or about June 16, 2020. Our proxy materials are also available online at https://materials.proxyvote.com/G50871. The specific proposals to be considered and acted upon at the annual meeting are summarized in the accompanying Notice of 2020 Annual General Meeting of Shareholders. Each proposal is described in more detail in this proxy statement.

This solicitation is made on behalf of our board of directors and all solicitation expenses, including costs of preparing, assembling and mailing proxy materials and notices, will be borne by us. In addition to these proxy materials, our directors and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks and other agents for the cost of forwarding proxy materials to beneficial owners. In addition, we have retained Alliance Advisors, a proxy solicitation firm, to assist in the solicitation of proxies for a fee of approximately $15,000 plus reimbursement of expenses.

Our board of directors has set the close of business on June 3, 2020 as the record date for the annual meeting. Shareholders of record who owned our ordinary shares on that date are entitled to vote at and attend the annual meeting. Each ordinary share is entitled to one vote. There were 55,346,861 of our ordinary shares outstanding and entitled to vote on the record date.

CORPORATE GOVERNANCE AND BOARD MATTERS

Overview

We are committed to exercising good corporate governance practices. In furtherance of this commitment, we regularly monitor developments in the area of corporate governance and review our processes, policies and procedures in light of such developments. Key information regarding our corporate governance initiatives can be found on our website, *www.jazzpharmaceuticals.com*, including our Corporate Governance Guidelines, Code of Conduct, and the charters for our audit, compensation and nominating and corporate governance committees. We believe that our strong corporate governance policies and practices, including the substantial percentage of independent directors on our board of directors and the robust duties of our Lead Independent Director, empower our independent directors to effectively oversee our management—including the performance of our Chief Executive Officer—and provide an effective and appropriately balanced board governance structure. In addition, we believe that our directors are all actively and constructively engaged in the exercise of their duties and responsibilities, with each independent director serving on at least one board committee and engaging with management between board meetings to remain well-informed of our strategy and our business.

Independence of the Board of Directors

As required under the Nasdaq listing standards, a majority of the members of a listed company's board of directors must qualify as "independent," as affirmatively determined by the board of directors. Our board of directors consults with counsel to ensure that the board's determinations are consistent with relevant securities and other laws and regulations regarding the definition of "independent," including those set forth in the applicable Nasdaq listing standards, as in effect from time to time. Consistent with these considerations, after review of all relevant transactions or relationships between each director, or any of his or her family members, and our company, our senior management and our independent registered public accounting firm, the board of directors affirmatively determined that all of our current directors are independent directors within the meaning of the applicable Nasdaq listing standards, except that Mr. Cozadd, our Chairman and Chief Executive Officer, is not independent by virtue of his employment with our company. In addition, our board of directors has determined that each member of the audit committee, compensation committee and nominating and corporate governance committee meets the applicable Nasdaq and SEC rules and regulations regarding "independence" and that each member is free of any relationship that would impair his or her individual exercise of independent judgment with regard to the company.

Board Leadership Structure and Risk Oversight

Mr. Cozadd has served as our Chairman and Chief Executive Officer since the closing of the Azur Merger in January 2012. He co-founded Jazz Pharmaceuticals, Inc. in 2003 and served as its Chairman and Chief Executive Officer since April 2009 and, prior to that, as Executive Chairman.

The board of directors believes that the Chief Executive Officer is best suited to serve as our Chairman because he is the member of the board of directors who is most familiar with our business as a whole, and the most capable of identifying and bringing to the attention of the full board of directors the strategic priorities and key issues facing the company. The board of directors also believes that having Mr. Cozadd in particular in a combined Chairman/Chief Executive Officer role helps provide strong, unified leadership for our management team and optimizes communication with our board of directors. In addition, having previously served for many years as a director of other publicly-traded and privately-held companies, as well as in executive management roles, Mr. Cozadd brings both a strategic and operational perspective to this combined position.

To counterbalance concerns regarding our board's decision to have a combined Chairman and Chief Executive Officer, our Corporate Governance Guidelines require that the independent directors elect a Lead Independent Director when the roles of Chairman and Chief Executive Officer are held by the same person. Since 2014, Rick Winningham has served as our Lead Independent Director. A critical function of the Lead Independent Director is to help to ensure the effective independent functioning of the board of directors in its oversight responsibilities and to provide an appropriate balance in the company's leadership.

Specific roles and responsibilities of the Lead Independent Director, which are detailed in our Corporate Governance Guidelines, include:

- serving as the principal liaison between the independent directors and the Chairman;
- coordinating the activities of the independent directors, including developing agendas for and presiding at executive sessions of the independent directors;
- advising the Chairman on board and committee agendas, meeting schedules and information provided to other board members, including the quality, quantity and timeliness of such information that is necessary or appropriate for the directors to effectively and responsibly perform their duties;
- discussing the results of the Chief Executive Officer's performance evaluation with the chairperson of the compensation committee; and
- presiding at all meetings of the board of directors at which the Chairman is not present.

The Lead Independent Director also has the authority to call meetings of the independent directors of the board of directors and is available for consultation and communication with significant shareholders. In addition to fulfilling the basic requirements of his role as Lead Independent Director, Mr. Winningham attends meetings of committees where he is not a member to remain informed and engaged, communicates with the Chief Executive Officer on matters involving the company on a regular basis, regularly seeks input from other independent directors relating to significant developments at the company between regular board meetings, attends certain meetings at the company involving strategic portfolio and/or scientific reviews, and makes himself available for direct communication with significant shareholders as necessary.

In addition, our board of directors is currently comprised of 12 directors, of whom 11 are independent. At meetings of our board of directors, the independent directors regularly convene executive sessions without the presence of our Chairman and Chief Executive Officer and other members of management.

We believe that our directors provide effective oversight of risk management for our company (including financial, operational, business, intellectual property, information technology (including cybersecurity), reputational and governance risks), particularly as a result of the work of our committees and the ongoing dialogue between the full board, our Chairman and Chief Executive Officer and our active and engaged Lead Independent Director. Our audit committee is responsible for overseeing our financial reporting process on behalf of our board of directors and reviewing with management and our auditors, as appropriate, our major financial risk exposures and the steps taken by management to monitor and control these exposures. In 2018, our board of directors formalized our audit committee's role in oversight of risks related to information security, including cybersecurity. In its oversight role, the audit committee receives quarterly updates on information security developments, cybersecurity incidents and the steps taken by management to monitor and mitigate risk exposures in these areas. Our compensation committee approves compensation of executive officers and all material compensation plans for our company and reviews our compensation practices to ensure that they do not encourage excessive risk taking and provide appropriate incentives for meeting both short-term and long-term objectives and increasing shareholder value over time. Our compensation committee also works with our full board of directors to oversee matters related to human capital management, which includes reviewing workforce trends, executive succession plans and talent risk and maintaining compensation objectives and corporate policies that appropriately incentivize creating and maintaining a positive workplace and corporate culture. Our nominating and corporate governance committee oversees the company's risk management, other than with respect to the company's major financial, business or cybersecurity risk exposures or risks related to our compensation programs and policies, on behalf of our board of directors. At its meetings, our full board of directors receives reports concerning the management of the relevant risks from each committee, in addition to reports concerning material risks and concerns or significant updates on such matters from our General Counsel and other executive officers, as necessary.

Meetings of the Board of Directors

The board of directors met five times during 2019 and did not act by written consent during the year. All directors attended at least 75% of the aggregate number of meetings of the board of directors and of the committees on which they served that were held during 2019. As required under applicable Nasdaq listing standards, in 2019, the independent directors generally met at each regular board meeting in scheduled executive sessions at which only independent directors were present.

Director Commitments

Our board of directors believes that all members of the board should have sufficient time and attention to devote to board duties and to otherwise fulfill the responsibilities required of directors. In assessing whether directors and nominees for director have sufficient time and attention to devote to board duties, the nominating and corporate governance committee and our board of directors consider, among other things, whether directors may be "overboarded," which refers to the situation where a director serves on an excessive number of boards. Our Corporate Governance Guidelines also require that directors seek approval from the Chairman, the Lead Independent Director and the chairperson of the nominating and corporate governance committee prior to accepting an invitation to serve on any additional corporate boards.

Our board of directors believes that each of our directors, including each of our director nominees, has demonstrated the ability to devote sufficient time and attention to board duties and to otherwise fulfill the responsibilities required of directors. However, we understand that certain institutional investors and proxy advisory firms may have deemed Dr. Riedel overboarded last year based on the number of public company boards on which he serves, which likely resulted in his receiving a lower level of support than our other director nominees at the 2019 annual meeting. In our shareholder engagement following the 2019 annual meeting, shareholders acknowledged Dr. Riedel's unique value and contribution to the company's board based on his deep industry and scientific expertise and leadership experience, which would be difficult to replace. Shareholders also recognized Dr. Riedel's demonstrated commitment to board and committee duties, evidenced by his attendance and meaningful participation in meetings. As a result, the shareholders we spoke with did not expect any immediate action or change on the part of the company or Dr. Riedel, but encouraged us to maintain an open dialogue with respect to his time commitments and ability to fulfill his responsibilities at multiple companies.

Classified Board Structure

Our board of directors is divided into three classes, designated Class I, Class II and Class III. Our nominating and corporate governance committee has discussed the shareholder feedback received on the topic of our classified board structure and continues to believe that this structure is appropriate for our company and beneficial to our shareholders. In particular, the nominating and corporate governance committee believes that the classified board structure:

- promotes stability and continuity, allowing our board and management to remain focused on our long-term strategy and value generation for our shareholders;
- allows for the development of institutional knowledge at the board level, which is particularly important in our industry, given the multi-year life cycles of our product development programs; and
- enhances director independence by decreasing pressures from special interest groups that might have short-term agendas contrary to the long-term interests of our shareholders.

Moreover, a classified board for an Irish company does not present the same entrenchment risk as for a typical U.S. company due to the ability of shareholders to refresh the board at any time under Irish law.

Information About Board Committees

The standing committees of the board of directors include an audit committee, a compensation committee and a nominating and corporate governance committee. Each of these committees is comprised solely of independent

directors, has a chairperson and has a written charter approved by the board of directors reflecting applicable standards and requirements adopted by the SEC and Nasdaq. A copy of each committee charter can be found on our website, *www.jazzpharmaceuticals.com*, in the section titled "About" under the subsection titled "Board of Directors."

The following table provides membership information for 2019 for each of the audit, compensation, and nominating and corporate governance committees of our board of directors:

Name	Audit	Compensation	Nominating and Corporate Governance
Paul L. Berns		●	
Patrick G. Enright	●	●	
Peter Gray	C		
Heather Ann McSharry	●		C
Kenneth W. O'Keefe	●		
Anne O'Riordan	●		
Norbert G. Riedel, Ph.D.		C	
Elmar Schnee			●
Catherine A. Sohn, Pharm.D.		●	●
Rick E Winningham			●

C = committee chairperson ● = committee member

Audit Committee

The audit committee of the board of directors oversees our corporate accounting and financial reporting processes, our systems of internal control over financial reporting and audits of our financial statements, the quality and integrity of our financial statements and reports, the qualifications, independence and performance of the auditors engaged as our independent registered public accounting firm for purposes of preparing or issuing an audit report or performing audit services and certain enterprise risk issues. Specific responsibilities of the audit committee include:

- evaluating the performance of and assessing the qualifications of the independent auditors;
- determining and approving the engagement and remuneration of the independent auditors;
- determining whether to retain or terminate the existing independent auditors or to appoint and engage new independent auditors;
- determining and approving the engagement of the independent auditors to perform any proposed permissible non-audit services;
- monitoring the rotation of partners of the independent auditors on our audit engagement team as required by applicable laws and rules;
- reviewing and advising on the selection and removal of the head of our internal audit function, the activities and organizational structure of the internal audit function and the results of internal audit activities;
- reviewing and approving the internal audit charter at least annually and the annual internal audit plan and budget;
- meeting to review our annual audited financial statements, our quarterly financial statements and our financial press releases with management and the independent auditors, including reviewing our disclosures under "Management's Discussion and Analysis of Financial Condition and Results of Operations" included in our annual and quarterly reports filed with the SEC;

- reviewing, overseeing and approving transactions between our company and any related persons;
- conferring with management, the internal audit function and the independent auditors regarding the scope, adequacy and effectiveness of our internal control over financial reporting;
- reviewing with management, the internal audit function and the independent auditors, as appropriate, major financial risk exposures, including reviewing, evaluating and approving our hedging and other financial risk management policies, as well as the steps taken by management to monitor and control these exposures;
- establishing procedures, when and as required under applicable laws and rules, for the receipt, retention and treatment of any complaints received by our company regarding accounting, internal accounting controls or auditing matters and the confidential and anonymous submission by employees of concerns regarding questionable accounting or auditing matters; and
- reviewing with management our information security (including cybersecurity) risk exposures and the steps taken by management to monitor and mitigate these exposures.

The audit committee was during all of 2019 composed of Mr. Gray, Mr. Enright, Ms. McSharry and Mr. O'Keefe. In August 2019, Ms. O'Riordan was appointed as the fifth member of the audit committee. Our board of directors has determined that each of Mr. Gray, Mr. Enright, Ms. McSharry, Mr. O'Keefe and Ms. O'Riordan meets the independence requirements of Rule 10A-3 of the Securities Exchange Act of 1934, as amended, or the Exchange Act, and the Nasdaq listing standards with respect to audit committee members. Our board of directors has also determined that each of Mr. Gray, Mr. Enright, Ms. McSharry and Mr. O'Keefe qualifies as an "audit committee financial expert" within the meaning of SEC regulations. In making this determination, our board of directors considered the overall knowledge, experience and familiarity of each with accounting matters, analyzing and evaluating financial statements, and, in the case of Mr. O'Keefe, managing private equity investments, and, in the case of Mr. Enright, managing venture capital investments. Mr. Gray serves as chairperson of the audit committee.

The audit committee met four times during 2019 and did not act by written consent during the year. The audit committee also had a number of informal discussions and consultations with one another, with our former Chief Financial Officer, our Principal Accounting Officer and our Head of Internal Audit and with Mr. Cozadd during 2019.

Report of the Audit Committee of the Board of Directors[1]

The audit committee has reviewed and discussed the company's audited financial statements for the fiscal year ended December 31, 2019 with management of the company. The audit committee has discussed with KPMG, the independent registered public accounting firm that audited the company's financial statements for the fiscal year ended December 31, 2019, the matters required to be discussed by the applicable requirements of the Public Company Accounting Oversight Board, or PCAOB, and the SEC. The audit committee has also received the written disclosures and the letter from KPMG required by applicable requirements of the PCAOB regarding the independent accountants' communications with the audit committee concerning independence, and has discussed with KPMG that firm's independence. Based on the foregoing, the audit committee recommended to the board of directors that the audited financial statements be included in the 2019 Annual Report on Form 10-K filed with the SEC.

Respectfully submitted,
The Audit Committee of the Board of Directors

Mr. Peter Gray (Chairperson)
Mr. Patrick Enright
Ms. Heather Ann McSharry
Mr. Kenneth W. O'Keefe
Ms. Anne O'Riordan

(1) The material under the heading "*Report of the Audit Committee of the Board of Directors*" in this proxy statement is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of the company under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

Compensation Committee

The compensation committee of the board of directors reviews and oversees our compensation policies, plans and programs and reviews and generally determines the compensation to be paid to the executive officers and directors, and prepares and reviews the compensation committee report included in our annual proxy statement. Specific responsibilities and authority of our compensation committee include:

- reviewing, modifying (as needed) and approving overall compensation strategy and policies;
- recommending to our board of directors for determination and approval the compensation and other terms of employment of our Chief Executive Officer and evaluating our Chief Executive Officer's performance in light of relevant goals and objectives;
- reviewing and approving the goals and objectives of our other executive officers and determining and approving the compensation and other terms of employment of these executive officers, as appropriate;
- reviewing and recommending to our board of directors the type and amount of compensation to be paid or awarded to the members of our board of directors;
- having the full power and authority of our board of directors regarding the adoption, amendment and termination of our compensation plans and programs and administering these plans and programs;
- having direct responsibility for appointing, and providing compensation and oversight of the work of, any compensation consultants and other advisors retained by the compensation committee and considering the independence of each such advisor;
- reviewing our practices and policies of employee compensation as they relate to risk management and risk-taking incentives, to determine whether such compensation policies and practices are reasonably likely to have a material adverse effect on our company;
- periodically reviewing with our Chief Executive Officer the plans for succession to the offices of our executive officers and making recommendations to our board of directors with respect to the selection of appropriate individuals to succeed to these positions; and
- reviewing and discussing with management our disclosures contained under the caption "*Compensation Discussion and Analysis*" in our annual proxy statement.

The compensation committee was during all of 2019 and is currently composed of four directors: Mr. Berns, Mr. Enright, Dr. Riedel and Dr. Sohn. Dr. Riedel currently serves as the chairperson of the compensation committee. Each member of the compensation committee meets the independence requirements of the Nasdaq listing standards with respect to compensation committee members. In determining whether Mr. Berns, Mr. Enright, Dr. Riedel and Dr. Sohn are independent within the meaning of the Nasdaq listing standards pertaining to compensation committee membership, our board of directors determined, based on its consideration of factors specifically relevant to determining whether any such director has a relationship to us that is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, that no member of the compensation committee has a relationship that would impair that member's ability to make independent judgments about compensation of our executive officers.

Compensation Committee Processes and Procedures

Our compensation committee meets as often as it determines necessary to carry out its duties and responsibilities through regularly scheduled meetings and, if necessary, special meetings. The agenda for each compensation committee meeting is usually developed by members of our human resources department and our Chief Executive Officer, with input from members of our legal department, and is reviewed and finalized with the chairperson of the compensation committee. Members of our human resources and legal departments also attend compensation committee meetings. From time to time, various other members of management and other employees as well as outside advisors or consultants may be invited by the compensation committee to make presentations, provide financial or other background information or advice or otherwise participate in the compensation committee meetings.

In making executive compensation determinations (other than for our Chief Executive Officer), the compensation committee considers recommendations from our Chief Executive Officer. In making his recommendations, our Chief Executive Officer receives input from our human resources department and from the individuals who manage or report directly to the other executive officers, and he reviews various third party compensation surveys and compensation data provided by the independent compensation consultant to the compensation committee, as described in the section of this proxy statement entitled "*Executive Compensation—Compensation Discussion and Analysis*." While our Chief Executive Officer discusses his recommendations for the other executive officers with the compensation committee, he does not participate in the deliberations and recommendations to our board of directors concerning, or our board of directors' determination of, his own compensation. The charter of the compensation committee grants the compensation committee full access to all books, records, facilities and personnel of the company, as well as authority to obtain, at our expense, advice and assistance from compensation consultants and internal and external legal, accounting or other advisors and consultants and other external resources that the compensation committee considers necessary or appropriate in the performance of its duties. In particular, the compensation committee has the authority, in its sole discretion, to retain or obtain, at the expense of the company, compensation consultants to assist in its evaluation of executive compensation, and is directly responsible for the appointment, compensation and oversight of the work of its compensation consultants. The compensation committee engages an independent compensation consultant each year to provide a competitive compensation assessment with respect to the executive officers to assist the compensation committee in making annual compensation decisions. Since 2010, Radford, a business area within Aon plc, or Aon, has been engaged by the compensation committee each year to provide peer company and industry compensation data and provide the compensation committee with advice regarding executive officers' compensation, including base salaries, performance-based bonuses and long-term equity compensation, and similar advice regarding non-employee director compensation.

The charter of the compensation committee provides that the compensation committee may delegate any responsibility or authority of the compensation committee under its charter to the chairperson of the committee or to one or more committee members, including subcommittees, except to the extent inconsistent with any applicable laws and rules, including the Nasdaq listing standards. Our compensation committee does not, however, delegate any of its functions to others in determining or recommending executive or director compensation.

For additional information regarding our processes and procedures for the consideration and determination of executive compensation, including the role of Radford in determining and recommending executive compensation, see the section of this proxy statement entitled "*Executive Compensation—Compensation Discussion and Analysis*." With respect to director compensation matters, our compensation committee recommends to our board of directors and our board of directors determines and sets non-employee director compensation. Our compensation arrangements for our non-employee directors are described under the section of this proxy statement entitled "*Director Compensation.*"

Compensation Committee Interlocks and Insider Participation

None of the members of our compensation committee was at any time our officer or employee during 2019. None of our executive officers serve, or in the past fiscal year served, as a member of the board of directors or the compensation committee of any entity that has one or more of its executive officers serving on our board of directors or compensation committee.

Compensation Consultant Fees

As described above, since 2010, Radford has been engaged by the compensation committee each year to provide peer company and industry compensation data and provide the compensation committee with advice regarding executive officers' compensation, including base salaries, performance-based bonuses and long-term equity incentives, advice regarding directors' compensation as well as other matters under the compensation committee's charter. In 2019, the cost of Radford's consulting services directly related to compensation committee support was approximately $172,000. In addition, in 2019, our human resources department participated in various human resources and compensation surveys and obtained general benchmarking survey data from Radford at a cost of approximately $12,300.

Management also engaged with Aon affiliates of Radford, for various insurance-related products and services, covering health and benefits, pension-related services, other insurance brokerage services and risk services to the business. The aggregate Aon revenue from these additional services in 2019 (not related to Radford's compensation committee consulting services) was approximately $809,000. Although the compensation committee was aware of the nature of the services performed by Aon affiliates and the non-executive employee compensation survey data provided by Radford, the compensation committee did not review and approve such services, surveys and insurance premiums and policies, as those were reviewed and approved by management in the ordinary course of business.

Aon maintains certain policies and practices to protect the independence of the executive compensation consultants engaged by the compensation committee. In particular, Radford provides an annual update to the compensation committee on the financial relationship between Aon and the company, and provides written assurances that, within Aon, the Radford consultants who perform executive compensation services for the compensation committee have compensation determined separately from Aon's other lines of business and from the other services it provides to the company. These safeguards were designed to help ensure that the compensation committee's executive compensation consultants continued to fulfill their role in providing independent, objective advice.

Compensation Committee Report[(1)]

The compensation committee has reviewed and discussed with management the Compensation Discussion and Analysis contained herein. Based on this review and discussion, the compensation committee has recommended to the board of directors that the Compensation Discussion and Analysis be included in our proxy statement for the 2020 annual general meeting of shareholders and be included in the company's Annual Report on Form 10-K we filed with the SEC for the fiscal year ended December 31, 2019.

Respectfully submitted,
The Compensation Committee of the Board of Directors

Dr. Norbert G. Riedel, Ph.D. (Chair)
Mr. Paul L. Berns
Mr. Patrick G. Enright
Dr. Catherine A. Sohn, Pharm.D.

(1) The material under the heading "*Compensation Committee Report*" in this proxy statement is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of the company under the Securities Act of 1933, as amended, or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

Nominating and Corporate Governance Committee

The nominating and corporate governance committee of our board of directors is responsible for, among other things:

- overseeing all aspects of our corporate governance functions on behalf of our board of directors;
- making recommendations to our board of directors regarding corporate governance issues;
- identifying, reviewing and evaluating candidates to serve on our board of directors, and reviewing and evaluating incumbent directors;
- reviewing, evaluating and considering the recommendation for nomination of incumbent members for reelection to our board of directors and monitoring the size of our board;
- recommending director candidates to our board of directors;
- overseeing on behalf of our board of directors the company's compliance with applicable laws and regulations, other than the financial compliance issues overseen by the audit committee;

- overseeing on behalf of our board of directors the company's risk management matters, other than with respect to risks that are financial or information security risks (as to which the audit committee has oversight responsibility on behalf of our board of directors) or risks related to compensation policies (as to which the compensation committee has oversight responsibility on behalf of our board of directors);
- evaluating director nominations and proposals by our shareholders and establishing policies, requirements, criteria and procedures in furtherance of the foregoing; and
- reviewing, discussing and assessing the performance of our board of directors, including committees of our board of directors, seeking input from all board members, senior management and others.

The nominating and corporate governance committee believes that candidates for director should have certain minimum qualifications, including the ability to read and understand basic financial statements, being over 21 years of age, and the highest personal integrity and ethics. The nominating and corporate governance committee also intends to consider such factors as possessing relevant expertise upon which to be able to offer advice and guidance to management, having sufficient time to devote to our affairs, demonstrated excellence in his or her field, having the ability to exercise sound business judgment and having the commitment to rigorously represent the long-term interests of our shareholders. However, the nominating and corporate governance committee retains the right to modify these qualifications from time to time. Members of the nominating and corporate governance committee obtain recommendations for potential directors from their and other board members' contacts in our industry, and we or the nominating and corporate governance committee have in the past and may from time to time again in the future engage a search firm to assist in identifying potential directors.

Candidates for director nominees are reviewed in the context of the then current composition of the board of directors, the operating requirements of the company and the long-term interests of shareholders. In this regard, we examine the experience and expertise of our board as a whole to ensure alignment between the abilities and contributions of our board and our strategic priorities and long-range plan, emphasizing, among other things, expertise in global and U.S. sales and marketing, in product development, in financial management and in corporate development transactions. In addition, while we do not have specific numerical targets with respect to board diversity, the nominating and corporate governance committee's policy is to take into account a broad range of considerations when assessing director candidates, including individual backgrounds, gender, skill sets, professional experience, geographic residency and other factors. The nominating and corporate governance committee assesses the effectiveness of its diversity policy through its periodic evaluation of the composition of the full board of directors. Recently, in recruiting and nominating candidates for our board of directors, our nominating and corporate governance committee has focused on increasing diversity overall, including with respect to gender and geographic residency.

Our board of directors has three female directors and five European directors, four of whom are Irish. The most recent member of our board of directors, Ms. O'Riordan, is Irish and resides in Hong Kong. In addition to her other qualifications, the board of directors considered diversity in its election of Ms. O'Riordan, including the value of adding additional gender and geographic residency diversity to our board of directors. In the case of incumbent directors whose terms of office are set to expire, the nominating and corporate governance committee reviews these directors' overall service to the company during their terms, including the number of meetings attended, level of participation, quality of performance and any other relationships and transactions that might impair the directors' independence, as well as the results of the board of directors' self-evaluation, which is generally conducted annually, to determine whether to recommend them to the board of directors for nomination for a new term. In the case of new director candidates, the nominating and corporate governance committee also determines whether the nominee is "independent" based upon applicable Nasdaq listing standards, applicable SEC rules and regulations and the advice of counsel, if necessary. The nominating and corporate governance committee conducts appropriate and necessary inquiries into the backgrounds and qualifications of possible candidates after considering the function and needs of the board of directors. The nominating and corporate governance committee meets to discuss and consider the candidates' qualifications and then selects a nominee for recommendation to the board of directors.

The nominating and corporate governance committee will consider director candidates recommended by shareholders on a case-by-case basis, as appropriate. Shareholders wishing to recommend individuals for consideration by the nominating and corporate governance committee may do so by delivering a written recommendation to our Company Secretary at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland with the candidate's name, biographical data and qualifications and a document indicating the candidate's willingness to serve if elected. The nominating and corporate governance committee does not intend to alter the manner in which it evaluates candidates based on whether the candidate was recommended by a shareholder or not.

To date, the nominating and corporate governance committee has not received any such nominations nor has it rejected a director nominee from a shareholder or shareholders.

Our nominating and corporate governance committee was during all of 2019 and is currently composed of four directors: Ms. McSharry, Mr. Schnee, Dr. Sohn and Mr. Winningham. Ms. McSharry serves as chairperson of the nominating and corporate governance committee. Each member of the nominating and corporate governance committee meets the independence requirements of the Nasdaq listing standards.

The nominating and corporate governance committee met four times during 2019 and did not act by written consent during the year.

Corporate Governance Strengths

We are committed to exercising good corporate governance practices. We believe that good governance promotes the long-term interests of our shareholders and strengthens board and management accountability. The highlights of our corporate governance practices include the following:

- 11 out of 12 of our directors are independent
- Regular executive sessions of independent directors
- Audit, compensation and nominating and corporate governance committees are comprised solely of independent directors
- Diverse board in terms of tenure, residency, gender, sexual orientation, experience and skills
- Annual board self-evaluation(1)
- Risk oversight by the full board and committees
- Board and committees may engage outside advisors independently of management
- Independent compensation consultant reporting directly to the compensation committee
- Director participation in continuing education and related reimbursement policy
- Lead Independent Director with clearly delineated duties
- Corporate Governance Guidelines
- Majority voting for elections of directors for a three-year term
- Share ownership guidelines for directors and executive officers, which increased in May 2018
- Anti-hedging/pledging policy
- Code of Conduct
- Annual advisory approval of executive compensation
- Shareholder ability to call extraordinary meetings

(1) In 2019, the nominating and corporate governance committee engaged a third party advisor to conduct a comprehensive, independent evaluation that included interviews with each member of the board, including a specific focus on the board's role in strategic oversight and operational oversight.

Other Corporate Governance Matters

Corporate Governance Guidelines. As a part of our board of directors' commitment to enhancing shareholder value over the long term, our board of directors has adopted a set of Corporate Governance Guidelines to provide the framework for the governance of our company and to assist our board of directors in the exercise of its responsibilities. Our Corporate Governance Guidelines cover, among other topics, board composition, structure and functioning, director qualifications and board membership criteria, director independence, board and board committee annual self-evaluations, committees of the board, board access to management and outside advisors, board share ownership guidelines, and director orientation and education. Our Corporation Governance Guidelines are available on our website at *www.jazzpharmaceuticals.com* under the section entitled "About" under "Board of Directors."

Anti-Hedging/Pledging Policy. Our insider trading policy prohibits directors, executive officers and other employees from engaging in speculative trading activities, including hedging transactions or other inherently speculative transactions with respect to our securities. Our insider trading policy also prohibits directors, executive officers and other employees from pledging our securities as collateral for any loans.

Share Ownership Guidelines for Directors and Executive Officers. We maintain and periodically review share ownership guidelines for our non-employee directors, Chief Executive Officer and certain other employees who serve on our executive committee. More information about our share ownership guidelines (including the increased thresholds adopted in May 2018) can be found under the sections of this proxy statement entitled "*Executive Compensation—Compensation Discussion and Analysis—Additional Compensation Information—Ownership Guidelines for Executive Officers*" and "*Director Compensation—Ownership Guidelines for Directors*."

Shareholder Ability to Call Extraordinary Meetings. Irish law provides that shareholders holding 10% or more of the total voting rights may at any time request that the directors call an extraordinary general meeting (*i.e.*, special meeting). The shareholders who wish to request an extraordinary general meeting must deliver to our principal executive office a written notice, signed by the shareholders requesting the meeting and stating the purposes of the meeting. If the directors do not, within 21 days of the date of delivery of the request, proceed to convene a meeting to be held within two months of that date, those shareholders (or any of them representing more than half of the total voting rights of all of them) may themselves convene a meeting within a specified period, but any meeting so convened cannot be held after the expiration of three months from the date of delivery of the request.

Code of Conduct. Our Code of Conduct applies to all of our employees, directors and officers, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, and those of our subsidiaries. The Code of Conduct is available on our website at *www.jazzpharmaceuticals.com* under the section entitled "About" under "Corporate Ethics." We intend to satisfy the disclosure requirements under Item 5.05 of SEC Form 8-K regarding an amendment to, or waiver from, a provision of our Code of Conduct by posting such information on our website at the website address and location specified above.

Shareholder Communications with the Board of Directors. Our board of directors believes that shareholders should have an opportunity to communicate with the board, and efforts have been made to ensure that the views of shareholders are heard by the board of directors or individual directors, as applicable, and that appropriate responses are provided to shareholders in a timely manner. We believe that our responsiveness to shareholder communications to the board of directors has been excellent. Shareholders interested in communicating with the board of directors or a particular director (including our Chairman or our Lead Independent Director) may do so by sending written communication to: Jazz Pharmaceuticals plc, Attention: Company Secretary, Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland. Each communication should set forth the name and address of the shareholder as it appears on our records (and, if the shares are held by a nominee, the name and address of the beneficial owner of the shares), and the number of our ordinary shares that are owned of record by the record holder or beneficially by the beneficial owner, as applicable. The Company Secretary will, in his or her discretion, screen out communications from shareholders that are not related to the duties and responsibilities of the board of directors. The purpose of this screening is to allow the board of directors to avoid having to consider irrelevant or inappropriate communications (such as advertisements, solicitations and hostile communications). If deemed an appropriate communication, the Company Secretary will forward the communication, depending on the subject matter, to the Chairman, the Lead Independent Director or the chairperson of the appropriate committee of the board of directors.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides certain information as of December 31, 2019 with respect to all of our equity compensation plans in effect on that date.

Plan Category[1]	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders:			
Amended and Restated 2011 Equity Incentive Plan (2011 Plan)	6,709,962	$108.87[2]	12,842,271[3]
2007 Equity Incentive Plan (2007 Plan)	12,500	46.83[4]	—
2007 Employee Stock Purchase Plan (ESPP)	—	—	1,882,745[5]
Amended and Restated 2007 Non-Employee Directors Stock Award Plan (2007 Directors Plan)	291,370	136.28	123,897[6]
Equity compensation plans not approved by security holders:			
Amended and Restated Directors Deferred Compensation Plan (Directors Deferred Plan)	36,869[7]	—	163,816[8]
Total	7,050,701		15,012,729

(1) Each of the equity compensation plans set forth in this table was originally adopted by Jazz Pharmaceuticals, Inc. and assumed and adopted by us in connection with the Azur Merger. In addition, each option that was outstanding under Jazz Pharmaceuticals, Inc.'s equity compensation plans was converted into an option to acquire, on substantially the same terms and conditions as were applicable under such option before the Azur Merger, the number of our ordinary shares equal to the number of shares of Jazz Pharmaceuticals, Inc.'s common stock subject to such option immediately prior to the Azur Merger, at an exercise price per ordinary share equal to the exercise price per share of Jazz Pharmaceuticals, Inc.'s common stock otherwise purchasable pursuant to such option, and each other equity award that was outstanding under Jazz Pharmaceuticals, Inc.'s equity compensation plans was converted into a right to receive, on substantially the same terms and conditions as were applicable under such equity award before the Azur Merger, the number of our ordinary shares equal to the number of shares of Jazz Pharmaceuticals, Inc.'s common stock subject to such equity award immediately prior to the Azur Merger. Other than with respect to the Directors Deferred Plan, each of the equity compensation plans set forth in this table was approved by Jazz Pharmaceuticals, Inc.'s stockholders.

(2) The weighted-average exercise price takes into account 1,156,092 ordinary shares under the 2011 Plan issuable upon vesting of outstanding RSUs, which have no exercise price. The weighted-average exercise price excluding such outstanding RSUs is $131.53.

(3) As of December 31, 2019, an aggregate of up to 27,012,330 of our ordinary shares were authorized for issuance under the 2011 Plan, of which 12,842,271 shares remained available for future issuance. The number of ordinary shares reserved for issuance under the 2011 Plan includes up to 3,335,255 ordinary shares subject to stock awards that were originally granted under the 2007 Plan and the 2003 Equity Incentive Plan that may become available for issuance under the 2011 Plan pursuant to the terms of the 2011 Plan and the 2007 Plan. In addition, the number of shares reserved for issuance under the 2011 Plan automatically increases on January 1 of each year for a period of ten years, starting on January 1, 2013 and continuing through January 1, 2022, by the least of (a) 4.5% of the total number of ordinary shares outstanding on December 31 of the preceding calendar year, (b) 5,000,000 ordinary shares, or (c) such lesser number of ordinary shares as determined by our board of directors. On January 1, 2020, the number of shares authorized for issuance under the 2011 Plan increased by 2,526,341 shares pursuant to this automatic share increase provision.

(4) The 2007 Plan expired in April 2017. Only stock options remain outstanding under the 2007 Plan.

(5) As of December 31, 2019, an aggregate of 4,421,024 ordinary shares were authorized for issuance under the ESPP, of which 1,882,745 shares remained available for future issuance, and up to a maximum of 175,000 ordinary shares may be purchased in the current purchase period. The number of shares reserved for issuance under the ESPP automatically increases on January 1 of each year for a period of ten years, starting on January 1, 2013 and continuing through January 1, 2022, by the least of (a) 1.5% of the total number of our ordinary shares outstanding on December 31 of the preceding calendar year, (b) 1,000,000 ordinary shares, or (c) such lesser amount as may be approved by our board of directors. On January 1, 2020, the number of shares authorized for issuance under the 2011 Plan increased by 842,113 shares pursuant to this automatic share increase provision.

Equity Compensation Plan Information (continued)

(6) As of December 31, 2019, an aggregate of 903,938 ordinary shares were authorized for issuance under the 2007 Directors Plan, of which 123,897 shares remained available for future issuance. The number of shares remaining available for issuance under the 2007 Directors Plan as shown in the table above has been reduced by the number of shares credited to our non-employee directors' stock accounts under the Directors Deferred Plan prior to August 15, 2010. The number of shares reserved for issuance under the 2007 Directors Plan automatically increased on January 1 of each year starting on January 1, 2008 and continuing through January 1, 2016, by the sum of (a) the excess of (i) the number of shares subject to options granted during the preceding calendar year under the 2007 Directors Plan, over (ii) the number of shares added back to the share reserve under the 2007 Directors Plan during the preceding calendar year and (b) for the automatic annual increases that occurred on or prior to January 1, 2010 only, the aggregate number of shares credited to our non-employee directors' stock accounts under the Directors Deferred Plan during the preceding calendar year.

(7) Represents shares credited to individual non-employee director stock accounts in lieu of director fees as of December 31, 2019 under the Directors Deferred Plan. There is no exercise price for these shares. Distributions under the Directors Deferred Plan are funded (i) with shares reserved under the 2007 Directors Plan for amounts credited to our non-employee directors' stock accounts prior to August 15, 2010 and (ii) with shares reserved under the Directors Deferred Plan for amounts credited to our non-employee directors' stock accounts on or after August 15, 2010.

(8) Amounts credited to our non-employee directors' stock accounts prior to August 15, 2010 pursuant to the Directors Deferred Plan are funded with shares reserved under the 2007 Directors Plan. In August 2010, a separate reserve of 200,000 shares was created under the Directors Deferred Plan which funds all distributions of amounts credited to our non-employee directors' stock accounts on or after August 15, 2010 pursuant to the Directors Deferred Plan. Since the Azur Merger, non-employee directors have not been permitted to defer director fees pursuant to the Directors Deferred Plan. On October 31, 2019, our board of directors approved the termination of the Directors Deferred Plan, and all outstanding phantom stock will be distributed to each applicable non-employee director in November 2020. A description of the Directors Deferred Plan is provided under "Executive Compensation—Director Compensation—Directors Deferred Compensation Plan."

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information regarding the ownership of our ordinary shares as of May 1, 2020 (except as noted) by: (i) each director; (ii) each of the executive officers named in the Summary Compensation Table under "*Executive Compensation*" below (referred to throughout this proxy statement as our NEOs); (iii) all of our executive officers and directors as a group; and (iv) all those known by us to be beneficial owners of more than five percent of our ordinary shares.

	Beneficial Ownership[2]	
Name and Address of Beneficial Owner[1]	Number of Shares	Percentage of Total
5% Shareholders:		
The Vanguard Group[3] 100 Vanguard Blvd. Malvern, PA 19355	5,041,218	9.1%
BlackRock, Inc.[4] 55 East 52nd Street New York, NY 10055	4,163,547	7.5%
Renaissance Technologies LLC[5] 800 Third Avenue New York, NY 10022	3,549,371	6.4%
Named Executive Officers and Directors:		
Bruce C. Cozadd[6]	928,361	1.7%
Daniel N. Swisher, Jr.[7]	46,744	*
Matthew P. Young[8]	9,957	*
Robert Iannone, M.D., M.S.C.E[9]	11,310	*
Neena M. Patil[10]	0	*
Paul L. Berns[11]	41,021	*
Patrick G. Enright[12]	33,411	*
Peter Gray[13]	36,679	*
Heather Ann McSharry[14]	36,001	*
Seamus Mulligan[15]	1,131,152	2.0%
Kenneth W. O'Keefe[16]	56,202	*
Anne O'Riordan[17]	8,106	*
Norbert G. Riedel, Ph.D.[18]	35,049	*
Elmar Schnee[19]	28,261	*
Catherine A. Sohn, Pharm.D.[20]	40,712	*
Rick E Winningham[21]	23,788	*
All directors and executive officers as a group (20 persons)[22]	2,595,297	4.6%

* Less than 1%.

(1) Unless otherwise provided in the table above or in the notes below, the address for each of the beneficial owners listed is c/o Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

(2) This table is based upon information supplied by officers and directors as well as Schedules 13G or 13G/A filed with the SEC by beneficial owners of more than five percent of our ordinary shares. Unless otherwise indicated in the footnotes to this table and subject to community property laws where applicable, we believe that each of the shareholders named in this table has sole voting and investment power with respect to the ordinary shares indicated as beneficially owned. Applicable percentages are based on 55,325,359 ordinary shares outstanding on May 1, 2020, adjusted as required by rules promulgated by the SEC. The number of shares beneficially owned includes ordinary shares issuable pursuant to the exercise of stock options that are exercisable and RSUs that will vest within 60 days of May 1, 2020, and shares credited to individual non-employee director phantom stock accounts under our Directors Deferred Plan as of May 1, 2020. Amounts credited to individual non-employee director phantom stock accounts under our Directors Deferred Plan are payable solely in our ordinary shares, but such shares do not have current voting or investment power. Shares issuable pursuant to the exercise of stock options that are exercisable and RSUs that will vest within 60 days of May 1, 2020 and shares issuable pursuant to our Directors Deferred Plan are deemed to be outstanding and beneficially owned by the person to whom such shares are issuable for the purpose of computing the percentage ownership of that person, but they are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

(3) This information is based on a Schedule 13G/A filed with the SEC on February 12, 2020 by The Vanguard Group, or Vanguard. According to the Schedule 13G/A, as of December 31, 2019, Vanguard has sole power to vote or direct the vote of 45,126 ordinary shares, shared power to vote or direct the vote of 15,840 ordinary shares, sole power to dispose or direct the disposition of 4,984,379 ordinary shares, and shared power to dispose or direct the disposition of 56,839 shares. The Schedule 13G/A also indicates that Vanguard is acting as a parent holding company for two entities that beneficially owned the ordinary shares being reported. The Schedule 13G/A provides information only as of December 31, 2019 and, consequently, the beneficial ownership of the above-mentioned entities may have changed between December 31, 2019 and May 1, 2020.

(4) This information is based on a Schedule 13G/A filed with the SEC on February 10, 2020 by BlackRock, Inc., or BlackRock. According to the Schedule 13G/A, as of December 31, 2019, BlackRock has sole power to vote or direct the vote of 3,694,938 ordinary shares and sole power to dispose or direct the disposition of 4,163,547 ordinary shares. The Schedule 13G/A also indicates that BlackRock is acting as a parent holding company for a number of entities that beneficially owned the ordinary shares being reported. The Schedule 13G/A provides information only as of December 31, 2019 and, consequently, the beneficial ownership of the above-mentioned entities may have changed between December 31, 2019 and May 1, 2020.

(5) This information is based on a Schedule 13G filed with the SEC on February 12, 2020 by Renaissance Technologies, LLC, or Renaissance, on behalf of itself and Renaissance Technologies Holdings Corporation, or RTHC. According to the Schedule 13G, as of December 31, 2019, Renaissance has sole power to vote or direct the vote of 3,461,524 ordinary shares, sole power to dispose or the direct the disposition of 3,520,790 ordinary shares, and shared power to dispose or direct the disposition of 28,581 ordinary shares. Of these shares, RTHC, as a result of its majority ownership of Renaissance, is the beneficial owner of 3,549,371 ordinary shares, with sole power to vote or direct the vote of 3,461,524 ordinary shares, sole power to dispose or direct the disposition of 3,520,790 ordinary shares, and shared power to dispose or direct the disposition of 28,581 ordinary shares. The Schedule 13G provides information only as of December 31, 2019 and, consequently, the beneficial ownership of the above-mentioned entities may have changed between December 31, 2019 and May 1, 2020.

(6) Includes 704,978 ordinary shares Mr. Cozadd has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(7) Includes 38,853 ordinary shares Mr. Swisher has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(8) Mr. Young resigned from his position as Executive Vice President and Chief Financial Officer effective as of October 25, 2019, and accordingly, he has no options exercisable within 60 days of May 1, 2020.

(9) Dr. Iannone was appointed our Executive Vice President, Research and Development effective May 29, 2019. Includes 3,050 shares Dr. Iannone was entitled to receive pursuant to RSUs scheduled to vest on June 5, 2020 and 8,260 ordinary shares Dr. Iannone has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(10) Ms. Patil was appointed our Senior Vice President and GC effective July 29, 2019.

(11) Includes 4,691 ordinary shares issuable to Mr. Berns pursuant to our Directors Deferred Plan as of May 1, 2020 and 30,284 ordinary shares Mr. Berns has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(12) Includes 9,929 ordinary shares issuable to Mr. Enright pursuant to our Directors Deferred Plan as of May 1, 2020 and 7,739 ordinary shares Mr. Enright has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(13) Includes 29,284 ordinary shares Mr. Gray has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(14) Includes 29,284 ordinary shares Ms. McSharry has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(15) Includes 30,284 ordinary shares Mr. Mulligan has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020. On May 26 and 27, 2020, Mr. Mulligan purchased an aggregate 50,000 ordinary shares in the open market, which is not included in the total above.

(16) Includes 22,249 ordinary shares issuable to Mr. O'Keefe pursuant to our Directors Deferred Plan as of May 1, 2020 and 25,784 ordinary shares Mr. O'Keefe has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(17) Includes 7,159 ordinary shares Ms. O'Riordan has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(18) Includes 29,284 ordinary shares Dr. Riedel has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(19) Includes 22,984 ordinary shares Mr. Schnee has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(20) Includes 33,784 ordinary shares Dr. Sohn has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(21) Includes 21,284 ordinary shares Mr. Winningham has the right to acquire pursuant to options exercisable within 60 days of May 1, 2020.

(22) Includes 1,143,954 ordinary shares that our executive officers and non-employee directors have the right to acquire pursuant to options exercisable within 60 days of May 1, 2020, 3,300 RSUs scheduled to vest within 60 days of May 1, 2020, and 36,869 ordinary shares issuable to non-employee directors pursuant to our Directors Deferred Plan as of May 1, 2020. See footnotes (6), (7) and (9) through (21) above. Because Mr. Young is not currently serving as an executive officer of Jazz Pharmaceuticals, the number of ordinary shares and percentage ownership indicated in the table above with respect to the beneficial ownership of all directors and executive officers as a group do not include any ordinary shares beneficially owned by Mr. Young.

EXECUTIVE OFFICERS

The following table provides information regarding our executive officers as of June 1, 2020.

Name	Age	Position
Bruce C. Cozadd	56	Chairman and Chief Executive Officer
Daniel N. Swisher, Jr.	57	President and Chief Operating Officer
Renée Galá	48	Executive Vice President and Chief Financial Officer
Robert Iannone, M.D., M.S.C.E	53	Executive Vice President, Research and Development
Kim Sablich	51	Executive Vice President and General Manager, North America
Finbar Larkin, Ph.D.	62	Senior Vice President, Technical Operations
Neena M. Patil	45	Senior Vice President and General Counsel
Samantha Pearce	54	Senior Vice President, Europe and Rest of World
Patricia Carr	49	Vice President, Finance and Principal Accounting Officer

Bruce C. Cozadd. Biographical information regarding Mr. Cozadd is set forth above under "*Our Board of Directors*."

Daniel N. Swisher, Jr. was appointed our President and Chief Operating Officer as of January 2018. From December 2003 to December 2017, he was Chief Executive Officer and a member of the board of directors of Sunesis Pharmaceuticals, Inc., a biopharmaceutical company focused on the development of novel targeted cancer therapeutics in hematologic and solid tumor malignancies. He also served as Chief Business Officer and Chief Financial Officer of Sunesis from 2001 to 2003. Prior to 2001, Mr. Swisher served in various management roles, including Senior Vice President of Sales and Marketing, for ALZA Corporation from 1992 to 2001. He currently serves as Chairman of the board of directors of Cerus Corporation, a biomedical products company focused on the field of blood transfusion safety, and as a member of the board of directors of Corcept Therapeutics Inc., a pharmaceutical company focused on cortisol-modulating therapeutics to address metabolic and other serious medical conditions. Mr. Swisher received a B.A. from Yale University and an M.B.A. from the Stanford Graduate School of Business.

Renée Galá was appointed our Executive Vice President and Chief Financial Officer as of March 2020. From January to June 2019, Ms. Galá served as the Chief Financial Officer of GRAIL, Inc., a private healthcare company focused on the early detection of cancer. Prior to that, from December 2014 to January 2019, she served as Senior Vice President and Chief Financial Officer of Theravance Biopharma, Inc., a biopharmaceutical company, following its spin-out from Innoviva, Inc. Ms. Galá joined Innoviva in 2006 and held various roles in the finance organization before leading the company's spin-out transaction. Prior to that, Ms. Galá served in various roles in global treasury, pharmaceutical sales and corporate strategy/business development at Eli Lilly and Company, from 2001 to 2006. Before joining Eli Lilly, Ms. Galá spent seven years in the energy industry in positions focused on corporate finance, project finance, and mergers and acquisitions. Ms. Galá serves on the board of directors of Gossamer Bio, Inc., a clinical-stage biopharmaceutical company, where she also chairs the audit committee. Ms. Galá previously served on the board of directors of Corcept Therapeutics Inc. from June 2016 to June 2019. Ms. Galá holds a B.S. in Mathematics from Vanderbilt University and an M.B.A. from Columbia Business School.

Executive Officers (continued)

Robert Iannone, M.D., M.S.C.E. was appointed our Executive Vice President, Research and Development as of May 2019. From April 2018 until May 2019, Dr. Iannone served as Head of Research and Development and Chief Medical Officer of Immunomedics, Inc., a biopharmaceutical company. Prior to that, from July 2014 to April 2018, Dr. Iannone served in the roles of Senior Vice President and Head of Immuno-oncology, Global Medicines Development and the Global Products Vice President at AstraZeneca plc, a global science-led biopharmaceutical company. From 2004 to 2014, Dr. Iannone served in management roles at Merck Co., Inc., a global biopharmaceutical company, culminating in his role as Executive Director and Section Head of Oncology Clinical Development. From 2001 to 2004, he served as Assistant Professor of Pediatrics and from 2004 to 2012 as Adjunct Assistant Professor of Pediatrics at the University of Pennsylvania School of Medicine. Dr. Iannone has been serving on the board of directors of Jounce Therapeutics, Inc., a clinical-stage immunotherapy company, since January 2020 and on the Cancer Steering Committee of the Foundation for the National Institutes of Health since 2011. Dr. Iannone received a B.S. from The Catholic University of America, an M.D. from Yale University and an M.S.C.E. from University of Pennsylvania and completed his residency in Pediatrics and fellowship in Pediatric Hematology-Oncology at Johns Hopkins University.

Kim Sablich was appointed our Executive Vice President and General Manager, North America, as of June 2020. Ms. Sablich previously served as the Chief Commercial Officer of Myovant Sciences, Inc., a clinical-stage biopharmaceutical company, from December 2018 to May 2020. Prior to that, she served in various executive roles at GlaxoSmithKline plc, a multinational pharmaceutical company, including as Vice President, U.S. Primary Care Marketing from May 2015 to May 2018, as Vice President, Global Medicines Commercialization from July 2013 to May 2015, and as Vice President, U.S. Vaccines Commercial Strategy from October 2010 to June 2013. Prior to 2010, Ms. Sablich served in various positions of increasing responsibility at Merck & Company, a global healthcare company, in its commercial organization across sales, product management, pricing/access, and customer insights, with a focus on the cardiovascular, respiratory, and vaccines business areas. She serves on the board of directors of AllerGenis, LLC, a food allergy diagnostic solutions company. Ms. Sablich holds a B.A. in Economics from Denison University and an M.B.A. from The Wharton School of the University of Pennsylvania.

Finbar Larkin, Ph.D. was appointed our Senior Vice President, Technical Operations as of October 2019 and served as our Senior Vice President, Pharmaceutical Development & Manufacturing Science from September 2018 until October 2019, our Vice President, Technical Development from February 2014 until August 2018, and our Executive Director, Technical Operations from April 2013 until February 2014. Prior to that, from September 2009 until March 2013, Dr. Larkin served in management roles at Ipsen Pharma SAS, culminating in his role as Vice President, Engineering & Senior Specialist. From February 1997 until August 2009, he served as Vice President and Managing Director at Ipsen Manufacturing Ireland. From 1990 until 1997, he served in various project and operational management roles at Novartis. Prior to 1990, Dr. Larkin served in various roles in manufacturing science and technology, human resources and quality & analytical science at Lilly SA. Dr. Larkin received a B.Sc. and Ph.D. in Chemistry from University College Dublin.

Neena M. Patil was appointed our Senior Vice President and General Counsel as of July 2019. From September 2018 to July 2019, Ms. Patil served as Senior Vice President, General Counsel and Corporate Secretary of Abeona Therapeutics Inc., a clinical-stage biopharmaceutical company. Prior to that, from May 2008 to October 2016, Ms. Patil served in management positions at Novo Nordisk Inc., culminating in her role as Vice President for Legal Affairs and Associate General Counsel. Prior to 2008, she worked for several other global biopharmaceutical companies including Pfizer, GPC Biotech and Sanofi. Since 2015, she has been serving on the board of directors of Penn Medicine – Princeton Medical Center Foundation. Ms. Patil received a B.A. from Georgetown University and a J.D. and Master of Health Services Administration from the University of Michigan.

Samantha Pearce was appointed our Senior Vice President, Europe/Rest of World, as of March 2020. From March 2010 to December 2019, Ms. Pearce held various global senior management positions with Celgene Corporation, most recently as Vice President and General Manager, International Markets. Prior to that, from August 2002 to March 2010, she served in management positions at AstraZeneca plc, culminating in her role as Director, Specialist Care. Prior to August 2002, she worked for DuPont Pharmaceuticals. Ms. Pearce received a B.Sc. from Birmingham University and an M.B.A. from Cranfield University.

Executive Officers (continued)

Patricia Carr was appointed our Vice President, Finance in July 2012 and was appointed our Principal Accounting Officer as of August 2019. Prior to that, from September 2011 to July 2012, she served as Vice President, Finance of Alkermes plc, a global biopharmaceutical company. From June 2002 to September 2011, she served in a number of roles in Elan Corporation, a neuroscience-based biotechnology company, most recently as Vice President, Finance. Ms. Carr is a Fellow of the Institute of Chartered Accountants (Ireland) and received a Bachelor of Commerce from the National University of Ireland, Galway.

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

The following Compensation Discussion and Analysis describes the material elements of compensation for the following individuals who served as our principal executive officer, principal financial officer and three other most highly compensated executive officers as of December 31, 2019. These individuals are our named executive officers, or NEOs, for 2019.

Bruce C. Cozadd (1)
Chairman and Chief Executive Officer (CEO)

Daniel N. Swisher, Jr.
President and Chief Operating Officer (COO)

Matthew P. Young
Former Executive Vice President and Chief Financial Officer (Former CFO)

Robert Iannone
Executive Vice President, Research and Development

Neena M. Patil
Senior Vice President and General Counsel (GC)

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Compensation Discussion and Analysis

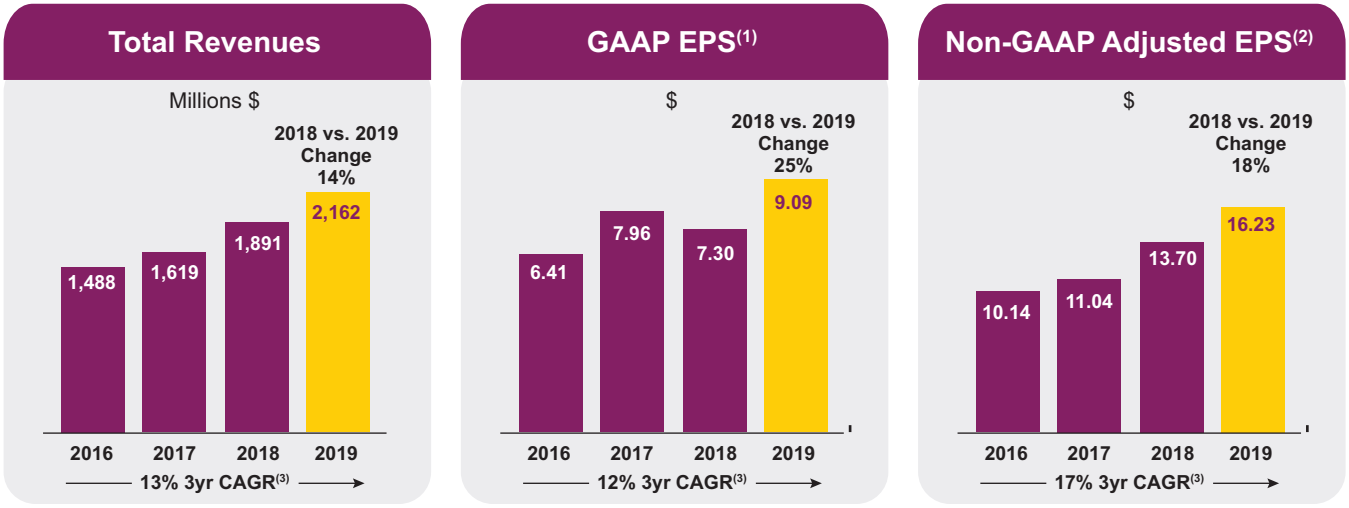
(1) Following Mr. Young's resignation from the company on October 25, 2019, Mr. Cozadd served as our interim principal financial officer until Renée Galá was appointed as our CFO and assumed the duties and responsibilities of principal financial officer from Mr. Cozadd as of March 16, 2020. For details regarding Ms. Galá's compensatory arrangements with the company, please see the company's Current Report on Form 8-K filed with the SEC on February 25, 2020.

Executive Summary

Our compensation policies and elements are intended to provide the necessary incentives to properly align our executive officers' performance with the interests of our shareholders while maintaining equitable and competitive executive compensation practices that enable us to attract and retain the highest caliber of executive officers.

2019 Performance Highlights

In 2019, we delivered record total revenues and made substantial progress on our long-term growth strategy, with two product approvals (Sunosi U.S. and Defitelio Japan) and two product launches (Sunosi U.S. and pediatric Xyrem) as well as key research and development achievements. In furtherance of our goal of providing important new therapeutic options and improved patient outcomes in difficult-to-treat diseases, we enhanced and diversified our portfolio with four announced transactions that broadened our hematology and oncology therapeutic area into solid tumors and our sleep and neuroscience therapeutic area into movement disorders.



(1) For 2017, GAAP net income included a net tax benefit of $148.8 million resulting from provisional estimates based on our analysis of the U.S. Tax Cuts and Jobs Act, or the U.S. Tax Act. For 2019, GAAP net income included a one-time tax benefit of $112.3 million resulting from an intra-entity intellectual property asset transfer. Among other adjustments, the net tax benefits resulting from the U.S. Tax Act for 2017 and from the intra-entity intellectual property asset transfer for 2019 were excluded from non-GAAP adjusted net income.

(2) See the section "Reconciliations of Non-GAAP Financial Measures" below for reconciliations between GAAP net income and non-GAAP adjusted net income (and the related per share measures).

(3) Represents the compound annual growth rate (CAGR) for the period from 2016 through 2019.

Executive Compensation (continued)

Xyrem

- 2019 net sales of Xyrem of $1,643 million increased 17% over 2018
- In March 2019, we launched Xyrem for the treatment of cataplexy and excessive daytime sleepiness, or EDS, in pediatric patients with narcolepsy.
- In May 2019, the U.S. Food and Drug Administration, or FDA, confirmed that, as the first sponsor to obtain marketing approval for use of Xyrem to treat cataplexy and EDS in pediatric narcolepsy patients aged seven years and older, we are entitled to seven years of orphan drug exclusivity for the pediatric indication.

Sunosi

- Sunosi net product sales were $3.7 million in 2019 following U.S. launch in July
- In March 2019, FDA approved our new drug application, or NDA, for Sunosi as a treatment to improve wakefulness in adult patients with EDS associated with narcolepsy or obstructive sleep apnea, or OSA, and, in July 2019, we launched Sunosi in the U.S.
- In November 2019, the European Medicines Agency recommended the marketing authorization application for Sunosi in Europe, and in January 2020, the European Commission approved Sunosi to improve wakefulness in adult patients with EDS associated with narcolepsy or OSA.

Defitelio/defibrotide

- 2019 net sales of Defitelio of $172.9 million increased 16% over 2018
- In June 2019, our partner, Nippon Shinyaku Co., Ltd. announced that Japan's Ministry of Health, Labour and Welfare approved the marketing authorization of Defitelio® injection 200mg (defibrotide sodium) for the treatment of sinusoidal obstruction syndrome/hepatic veno-occlusive disease.

Vyxeos

- 2019 net sales of Vyxeos of $121.4 million increased 20% over 2018

Research & Development

- In March 2019, we announced positive top-line results from our Phase 3 study evaluating the efficacy and safety of JZP-258 for the treatment of cataplexy and EDS in adult patients with narcolepsy and presented additional results from this study publicly at an international medical conference in September 2019. We submitted an NDA for this product in January 2020 and redeemed our priority review voucher in connection with this submission.
- In October 2019, FDA granted Fast Track designation to JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the potential treatment of acute lymphoblastic leukemia and lymphoblastic lymphoma, and in December 2019, we announced enrollment of the first patient in this study.
- During 2019, we commenced and/or advanced several development programs including (i) enrolling the first patient in our exploratory Phase 2 clinical trial evaluating the ability of defibrotide to prevent neurotoxicity in patients with relapsed or refractory diffuse large B-cell lymphoma receiving chimeric antigen receptor T-cell therapy, (ii) completing patient enrollment in our Phase 2 study for defibrotide in the prevention of acute graft-versus-host disease and (iii) activating sites for our Phase 1b master trial of Vyxeos in combination with various targeted agents in first-line, fit acute myeloid leukemia, or AML.

Corporate Development

- In January 2019, we entered into a strategic collaboration agreement with Codiak BioSciences, Inc. focused on the research, development and commercialization of exosome therapeutics to treat cancer.
- In July 2019, we acquired from Redx Pharma plc, or Redx, a pan-RAF inhibitor program for the potential treatment of RAF and RAS mutant tumors.
- In August 2019, we announced the acquisition of Cavion, Inc., a clinical-stage biotechnology company, or Cavion, and added CX-8998, now named JZP-385, a modulator of T-type calcium channels, for the potential treatment of essential tremor, to our clinical pipeline.
- In December 2019, we entered into an exclusive license agreement with Pharma Mar, S.A., or PharmaMar, pursuant to which we obtained exclusive U.S. development and commercialization rights to lurbinectedin, a product candidate under clinical investigation for the treatment of patients with relapsed small cell lung cancer, or SCLC. Lurbinectedin was granted orphan drug designation for SCLC by FDA in August 2018. In December 2019, PharmaMar submitted an NDA to FDA for accelerated approval of lurbinectedin for relapsed SCLC based on data from a Phase 2 trial, and in February 2020, FDA accepted the NDA for filing with priority review.

Key Financial Results

2019 Total Revenues
$2,161.8M
increased 14% over 2018

2019 GAAP Net Income
$523.4M
$9.09 per diluted share, compared to $447.1 million, or $7.30 per diluted share, for 2018

2019 Non-GAAP Adjusted Net Income
$934.2M
$16.23 per diluted share, compared to $838.6 million, or $13.70 per diluted share, for 2018

Key Features of Our Executive Compensation Program

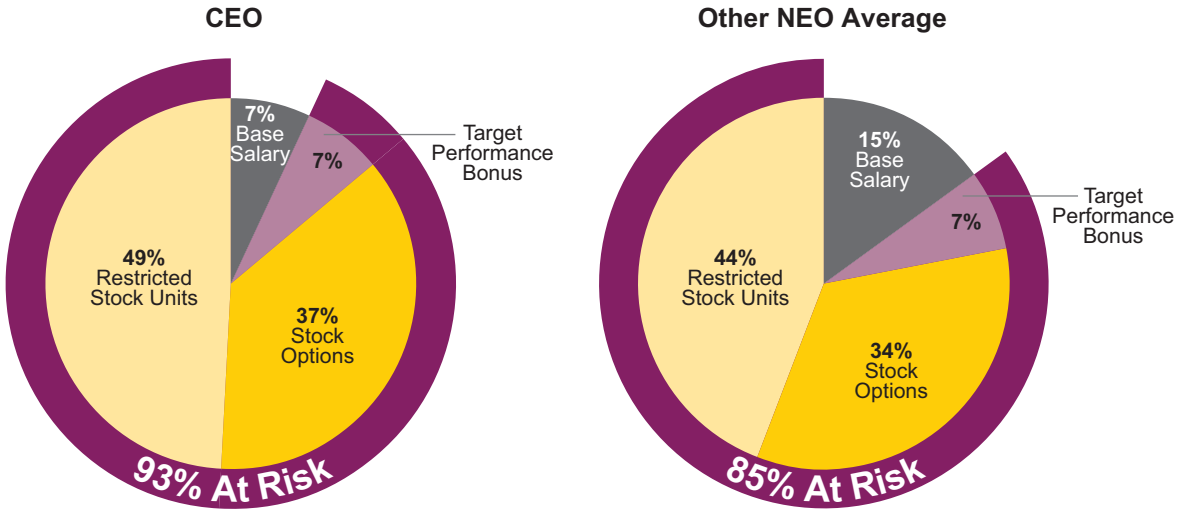
What We Do	What We Don't Do
✓ Design executive compensation to align pay with performance	✘ No excessive change in control or severance payments
✓ Balance short-term and long-term incentive compensation, with the majority of executive compensation being "at-risk"	✘ No "single-trigger" cash or equity change in control benefits
✓ Align performance bonus plan for CEO with that of other executives and non-sales employees, with 100% of CEO's bonus based on such corporate performance goals as approved by the board	✘ No repricing of underwater stock options without prior shareholder approval
✓ Establish threshold and maximum levels of achievement for payout with respect to financial metrics under performance bonus plan	✘ No excessive perquisites
✓ Maintain share ownership guidelines	✘ No tax gross ups on severance or change in control benefits
✓ Provide "double-trigger" change in control benefits	✘ No post-termination retirement or pension benefits that are not available to employees generally
✓ Prohibit hedging and pledging by executive officers and directors	✘ No guaranteed bonuses or base salary increases
✓ Have 100% independent directors on the compensation committee	
✓ Hire independent compensation consultant who reports directly to the compensation committee	
✓ Meet regularly in executive session without management present	

2019 Pay-for-Performance Overview

A significant portion of target total direct compensation for our CEO and other NEOs is structured in the form of "at-risk" compensation, consisting of annual performance bonus and equity incentive awards, with the performance bonus payouts and equity award values dependent upon our company performance. This aligns our executives' interests with those of our shareholders for near- and long-term performance.

The pie charts below provide the various regular components of target total direct compensation for 2019 for our CEO and other NEOs. These components include the following: (i) annual base salary rate for 2019; (ii) annual target performance bonus for 2019; and (iii) the grant date fair value of equity awards granted in 2019. The pie charts exclude the non-recurring cash signing bonuses Dr. Iannone and Ms. Patil received in connection with their respective appointments in 2019 to recruit them from their prior employers; such bonuses are not considered part of the target total direct compensation program.

2019 Target Total Direct Compensation Pay Mix



Compensation Philosophy and Objectives

Our executive compensation program is designed with the following objectives and philosophy:

- **Attract, incentivize, reward and retain diverse, talented individuals with relevant experience in the life sciences industry through a competitive pay structure.** We reward individuals fairly over time and seek to retain those individuals who continue to meet our high expectations.
- **Deliver balanced total compensation packages to accomplish our business objectives and mission.** Our executive compensation program focuses on *total compensation*, combining short- and long-term components, cash and equity, and fixed and variable payments, in the proportions that we believe are the most appropriate to incentivize and reward our executive officers for achieving our corporate goals while minimizing incentives for excessive risk-taking or unethical conduct.
- **Align pay with our performance.** Our annual bonus awards are not earned unless pre-determined levels of performance are achieved against annual corporate objectives approved by our board of directors at the beginning of the year. Likewise, our stock option awards will not provide realizable value and our RSU awards will not provide increased value unless there is an increase in the value of our shares, which benefits all shareholders. We also have executive share ownership guidelines to further support our ownership culture and align the interests of executive officers and shareholders.

How We Determine Executive Compensation

Role of Our Compensation Committee and Executive Officers

The compensation committee is (and was at all times during 2019) composed entirely of independent directors, as defined by Rule 5605(a)(2) of the Nasdaq listing standards. Our compensation committee meets as often as it determines necessary to carry out its duties and responsibilities through regularly scheduled meetings and, if necessary, special meetings. Our compensation committee also has the authority to take certain actions by written consent of all members. The agenda for each compensation committee meeting is usually developed by members of our human resources department and our CEO, with input from members of our legal department, and is reviewed and finalized with the chairperson of the compensation committee. In 2019, the compensation committee met five times and did not act by unanimous written consent. As of the date of this proxy statement, in 2020, the compensation committee has met three times and has acted once by unanimous written consent.

Executive Compensation (continued)

The compensation committee reviews and oversees our compensation policies, plans and programs and reviews and generally determines the compensation to be paid to the executive officers, including the NEOs. Either the compensation committee or the independent members of our board of directors, upon recommendation from the compensation committee, who receives input and advice from its independent compensation consultant, approve the compensation of our CEO. References in this Compensation Discussion and Analysis to our board of directors approving our CEO's compensation are to the independent members of our board of directors. The compensation committee does not delegate any of its functions to others in determining executive compensation.

In making other executive compensation determinations, the compensation committee considers recommendations from our CEO. In making his recommendations, our CEO receives input from our human resources department and from the individuals who manage or report directly to the other executive officers, and he reviews various sources of market compensation data provided by the independent compensation consultant to the compensation committee, as described below. While our CEO discusses his recommendations for the other executive officers with the compensation committee, he does not participate in the deliberations and recommendations to our board of directors concerning, or our board of directors' determination of, his own compensation. Members of our human resources and legal departments also attend compensation committee meetings.

Below are the highlights of the annual cycle our compensation committee follows in reviewing and making decisions with respect to our executive compensation program.

Role of the Independent Compensation Consultant

The compensation committee engages an independent compensation consultant each year to provide a competitive compensation assessment with respect to the executive officers to assist the compensation committee in making annual compensation decisions. Since 2010, Radford, a business area within Aon, has been engaged by the compensation committee each year to provide peer company and industry compensation data, when requested, and provide the compensation committee with advice regarding executive officers' compensation, including base salaries, performance-based bonuses and long-term equity compensation, and similar advice regarding non-employee directors' compensation. The compensation committee has also consulted with Radford to update the peer company and industry compensation data on an annual basis and as needed with respect to specific questions that arise and on an advisory basis with respect to addressing other responsibilities arising under the compensation committee charter, including trends and best practices regarding executive compensation and compensation committees, in order to help inform the compensation committee's decisions. Radford reports directly to the compensation committee, which maintains the authority to direct Radford's work and engagement, and advises the compensation committee and our human resources department on projects from time to time. Radford interacts with management to gain access to company information that is required to perform services and to understand the culture and policies of the organization. Radford attends compensation committee meetings, and the compensation committee and Radford meet in executive session with no members of management present, as needed, to address various compensation matters, including deliberations regarding our CEO's compensation.

In assessing Radford's independence from management in providing executive compensation services to the compensation committee, the compensation committee considered that Radford is only engaged by, takes direction from, and reports to, the compensation committee for such services and, accordingly, only the compensation committee has the right to terminate or replace Radford as its compensation consultant at any time. The compensation committee also analyzed whether the work of Radford as a compensation consultant with respect to executive and director compensation raised any conflict of interest, taking into consideration the following factors:

- ✔ the provision of other services to our company by Radford and its affiliates;
- ✔ the amount of fees we paid to Radford and its affiliates as a percentage of Radford's total revenue;
- ✔ any business or personal relationship of Radford or the individual compensation advisors employed by it with any executive officer of our company;
- ✔ any business or personal relationship of the individual compensation advisors with any compensation committee member;
- ✔ Radford's policies and procedures that are designed to prevent conflicts of interest; and
- ✔ any ordinary shares of our company owned by Radford or the individual compensation advisors employed by it.

The compensation committee has determined, based on its analysis of the above factors, that the work of Radford and the individual compensation advisors employed by Radford as compensation consultants to our company has not created any conflict of interest.

Competitive Assessment of Compensation—Peer Companies and Market Data

Because we aim to attract and retain the most highly qualified executive officers in an extremely competitive market, the compensation committee believes that it is important when making its compensation decisions to be informed as to the current practices of comparable public companies with which we compete for top talent. To this end, the compensation committee reviews market data for each executive officer's position, compiled by Radford as described below, including information relating to the mix and levels of compensation for executive officers in the life sciences industry, with a focus on target total direct compensation in line with the compensation committee's holistic approach to executive compensation.

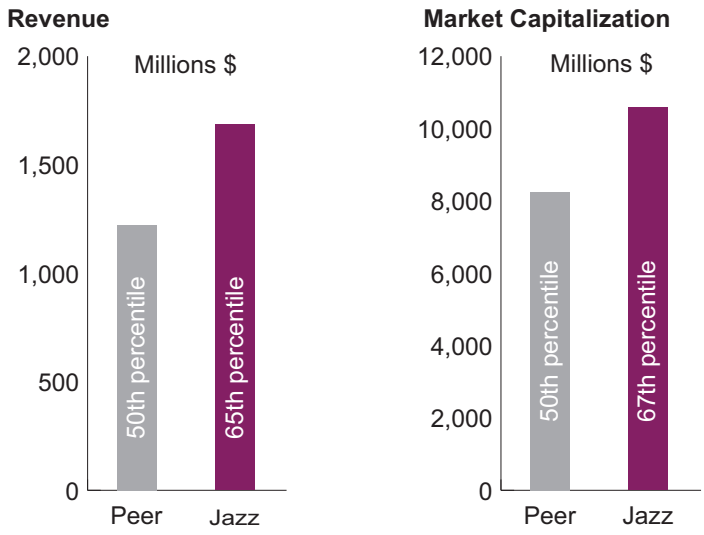
Executive Compensation (continued)

2019 Peer Group. When developing a proposed list of peer companies for 2019, Radford re-examined our compensation philosophy and peer group criteria and companies to recommend changes to our 2018 peer group company list to reflect our growth, the increase in our revenues and market capitalization and the consolidation in our industry.

2018 Peer Group	Selection Criteria	Refinements Made	2019 Peer Group
Alexion Pharmaceuticals, Inc. Alkermes plc BioMarin Pharmaceutical Inc. Bioverativ Inc. Endo International plc Horizon Pharma plc Incyte Corporation Ionis Pharmaceuticals, Inc. Mallinckrodt plc Regeneron Pharmaceuticals, Inc. Seattle Genetics Inc. Shire plc The Medicines Company United Therapeutics Corporation Vertex Pharmaceuticals Incorporated	• in the life sciences industry (specifically biotechnology and specialty bio/pharma companies) with commercial products on the market; • with revenue of approximately one-fourth (0.25x) to three times (3x) our then-projected revenue (resulting in a range of $425 million to $5.1 billion in revenue); • with market values of approximately one-fourth (0.25x) to four times (4x) our market capitalization at the time (resulting in a range of between $2.6 billion to $42.3 billion in market capitalization); and • primarily located in the U.S. with a secondary focus on companies that are headquartered in Europe.	Based on the selection criteria, in October 2018, Radford recommended, and our compensation committee approved: • eliminating Bioverativ Inc. (which was acquired since the 2018 peer group company list was approved) • eliminating Shire plc (which announced its intent to be acquired in May 2018) • eliminating The Medicines Company (which fell below the then-current revenue criteria) from our peers • adding Exelixis, Inc. (which met both the revenue and market capitalization criteria) • adding Nektar Therapeutics, Neurocrine Biosciences, Inc. and Sarepta Therapeutics, Inc. (which each met the market capitalization criteria)	Alexion Pharmaceuticals, Inc. Alkermes plc BioMarin Pharmaceutical Inc. Endo International plc Exelixis, Inc. Horizon Pharma plc Incyte Corporation Ionis Pharmaceuticals, Inc. Mallinckrodt plc Nektar Therapeutics Neurocrine Biosciences, Inc. Regeneron Pharmaceuticals, Inc. Sarepta Therapeutics, Inc. Seattle Genetics Inc. United Therapeutics Corporation Vertex Pharmaceuticals Incorporated

The following charts illustrate a comparison of Jazz to the 2019 peer group based on the assessment criteria of revenue and market capitalization. The Jazz percentile ranks reflect trailing 12 months' revenue and 30-day average market capitalization for our company and the median of each peer group, measured as of the time Radford prepared its final recommendations regarding each peer group for the compensation committee.

Peer Group Comparison



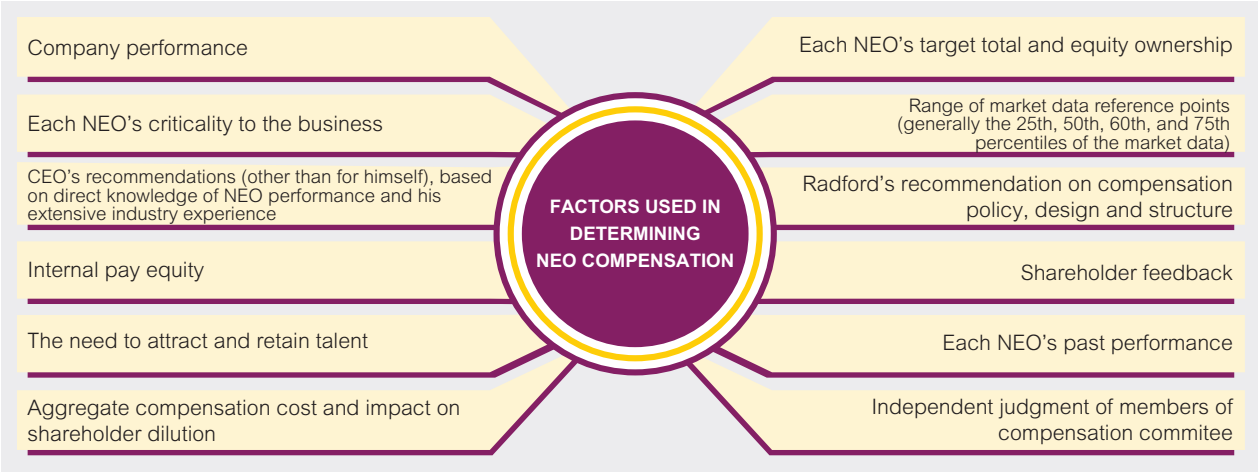
2019 Market Data. In early 2019, Radford completed an assessment of executive compensation based on our 2019 peer group to inform the compensation committee's determinations of executive compensation for 2019. This assessment used market data that was compiled from multiple sources, including: (i) data from the Radford Global Life Sciences Survey with respect to the 2019 peer group companies listed above, or the peer survey data; (ii) the 2019 peer group companies' publicly disclosed information, or public peer data; and (iii) data from public biotechnology and pharmaceutical companies in the Radford Global Life Sciences Survey that had revenue from $425 million to $5.1 billion, or the general survey data, which included survey data with respect to our selected 2019 peer group companies. The components of the market data were based on the availability of sufficient comparative data for an executive officer's position. Generally, peer survey data and public peer data are used in establishing market data reference points, and the general survey data is used when there is a lack of peer survey data and public peer data for an executive officer's position. The peer survey data, the general survey data, and the public peer data, collectively referred to in this proxy statement as market data, were reviewed by the compensation committee, with the assistance of Radford.

Use of 2019 Market Data. From time to time, the compensation committee reviews target total direct compensation, comprising both target total cash compensation and equity compensation, against the market data described above primarily to ensure that our executive compensation program, as a whole, is positioned competitively to attract and retain the highest caliber of executive officers and that the total direct compensation opportunity for the executive officer group is aligned with our corporate objectives and strategic needs. The compensation committee does not target a specific percentile for setting the level of compensation for the NEOs and does not otherwise use a formulaic approach to setting pay against the market data. The compensation committee believes that over-reliance on benchmarking can result in compensation that is unrelated to the value delivered by our executive officers because compensation benchmarking does not take into account company-to-company variations among actual roles with similar titles or the specific performance of the executive officers.

2020 Peer Group. When developing a proposed list of peer companies to be used in connection with making compensation decisions for 2020, Radford recommended companies based on the same criteria used for the 2019 peer group, adjusted for then-current revenue and market values. Based on these criteria, in July 2019, Radford recommended, and our compensation committee approved, that our peer group remain unmodified from 2019 to 2020.

Factors Used in Determining Executive Compensation

Our compensation committee sets the compensation of our executive officers at levels that the compensation committee determines to be competitive and appropriate for each NEO, using the compensation committee's professional experience and judgment. The compensation committee's pay decisions are not driven by a particular target level of compensation to market data, and the compensation committee does not otherwise use a formulaic approach to setting executive pay. Instead, the compensation committee believes that executive pay decisions require consideration of multiple relevant factors, which may vary from year to year. The figure below reflects the factors the compensation committee considers in determining and approving the amount, form and mix of pay for our NEOs.

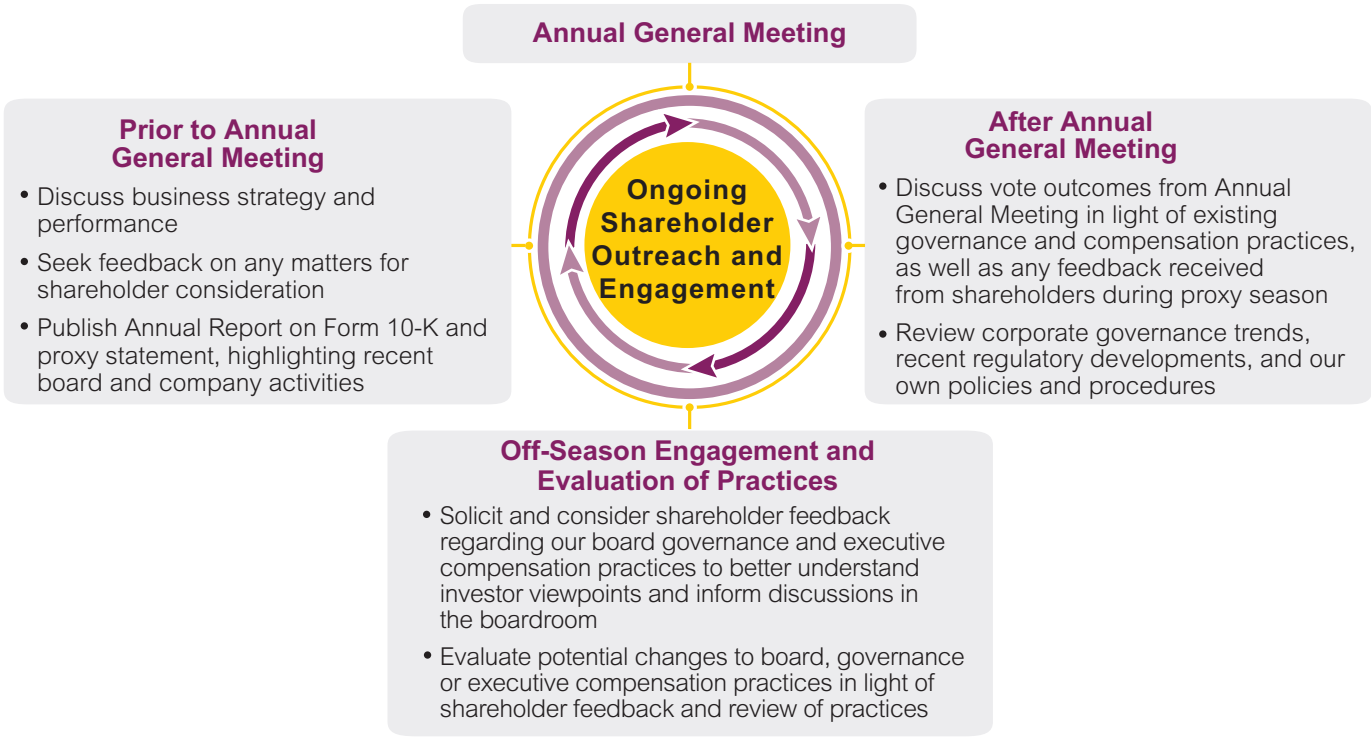


2019 Advisory Vote on Executive Compensation and Shareholder Engagement

At our 2019 annual meeting, the shareholders approved, on an advisory basis, the compensation of the NEOs, as disclosed in the proxy statement for that meeting pursuant to the compensation disclosure rules of the SEC. The compensation committee reviewed the final vote results for the proposal, and, given the significant level of shareholder support (90% of total votes cast with respect to the advisory proposal), concluded that our compensation program continues to provide a competitive pay-for-performance package that effectively incentivizes the NEOs and encourages long-term retention. Accordingly, the compensation committee and, with respect to our CEO's compensation, our board of directors, determined not to make any significant changes to our executive compensation policies or decisions as a result of the vote. Our compensation committee and, with respect to our CEO's compensation, our board of directors, will continue to consider the outcome of our say-on-pay votes and our shareholders' views when making future compensation decisions for the NEOs.

We also engage with our shareholders when they have topics of particular concern, which may include issues related to executive compensation. Shareholder feedback is reported to our compensation committee (and our nominating and corporate governance committee, as applicable) throughout the year.

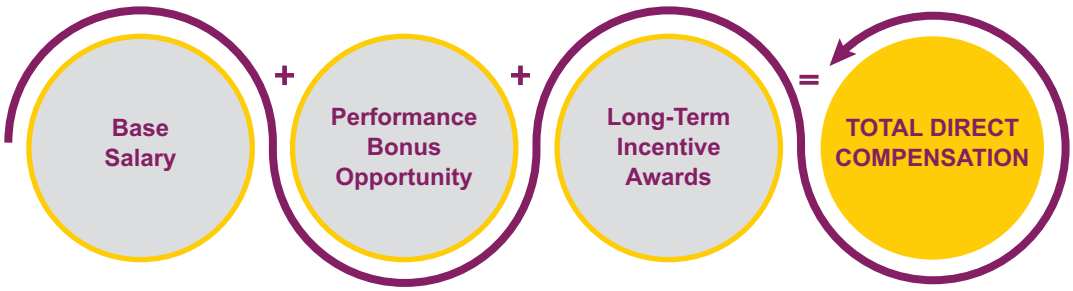
The following graphic describes our typical shareholder outreach and engagement cycle.



Key Components and Design of the Executive Compensation Program

Total Direct Compensation

Our compensation program focuses on target total direct compensation, which consists of base salary, target bonus opportunity (which, together with base salary, we refer to as target total cash compensation), and long-term equity awards (valued based on an approximation of grant date fair value).



We also offer our executive officers severance benefits upon certain types of involuntary terminations in connection with a change in control. The table below captioned "*Components of Total Direct Compensation*" provides an explanation of key features of each of the primary components of our executive compensation program and why we provide the particular compensation component.

The compensation committee takes a holistic approach to compensation and seeks to ensure that the aggregate level of pay across all of the pay elements is meeting the company's desired objectives for each executive officer. The compensation committee does not have any formal policies for allocating compensation among salary, performance bonus opportunity and equity grants. Instead, the compensation committee uses its experience and business judgment to establish a total compensation program for each NEO that is a mix of current, short-term and long-term incentive compensation, and cash and non-cash compensation, which it believes appropriate to achieve the goals of our executive compensation program and our corporate goals.

Executive Compensation (continued)

Because we believe it is important to our success to pursue long-term corporate objectives, to avoid excessive risk-taking, and to preserve our cash resources, a significant portion of the NEOs' total direct compensation is comprised of "at-risk" compensation, consisting of performance-based bonus opportunities and long-term equity awards, which align the executive officers' incentives with the interests of our shareholders. This allocation between "at-risk" and fixed compensation is consistent with our pay-for-performance philosophy.

Components of Total Direct Compensation

Component	Key Features	Purpose
Base Salary	♦ Fixed level of cash compensation ♦ No amount is contractually guaranteed ♦ Amounts reviewed and determined annually, and are generally effective by March 1 each year	♦ Provides fixed level of compensation that is competitive within our industry and geographic areas
Performance Bonus Award	♦ Cash compensation under the performance bonus plan, which is "at-risk" because it is dependent upon achievement of pre-established corporate performance objectives ♦ Target bonuses reviewed and determined annually ♦ Actual bonuses paid shortly after the end of each year, based on the extent corporate goals are attained as determined by the compensation committee, and for executive officers other than our CEO, their individual contributions toward such achievements	♦ Provides financial incentives to achieve key corporate objectives that are aligned with our business strategy ♦ Rewards individual NEO for contributions aligned with our corporate achievements
Long-Term Incentive Compensation	♦ "At-risk" long-term incentives that only realize value based on performance and is dependent upon our share price ♦ Awards reviewed and generally granted annually, early in the year, at time of hire or promotion or in other rare circumstances such as recognition of outstanding performance ♦ Awards to executive officers granted shortly after annual or quarterly financial results released to public ♦ Stock options and RSUs generally vest over a 4-year period subject to executive officer's continued service with us; stock option exercise price is set equal to fair market value on date of grant (i.e., closing price on Nasdaq Global Select Market) ♦ Executive share ownership guidelines to further support our ownership culture and align the interests of executive officers and shareholders	♦ Fosters ownership culture ♦ Links compensation to long-term success ♦ Stock options are a key aspect of our pay-for-performance culture, by providing a return to our executive officers only if the market price of our ordinary shares appreciates over the stock option term ♦ RSU awards deliver fewer shares than the stock options therefore helping to manage dilution, while reinforcing the importance of shareholder value creation ♦ RSU awards provide a return based on the market price of our ordinary shares; if our share price declines, RSU awards correspondingly decline in value but still maintain value, and therefore, a mix of RSU awards and stock options aligns executive officers' interests with those of shareholders by minimizing incentive for short-term risk-taking at the expense of realizing long-term value

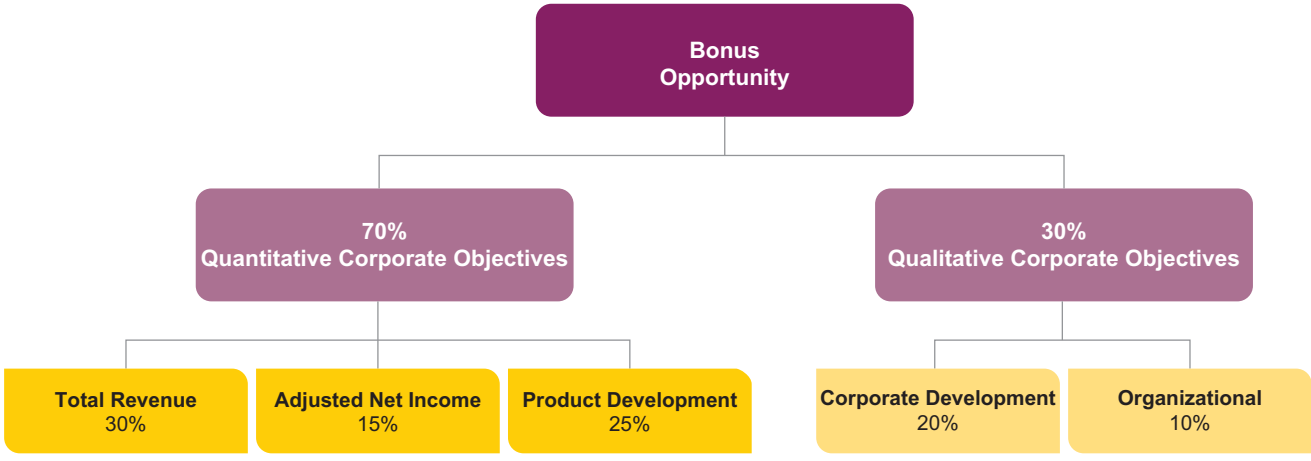
Other Benefits. Executive officers based in the United States are eligible to participate in all of our benefit plans, such as the 401(k) Plan (see the section below "*Description of Compensation Arrangements—401(k) Plan*"), our medical, dental, vision, short-term disability, long-term disability and group life insurance plans, in each case generally on the same basis as other employees. Executive officers based in the United States, or Ireland are eligible to participate in our Employee Stock Purchase Plan, or ESPP, generally on the same basis as other employees. We also have a section 125 flexible benefits healthcare plan and a flexible benefits childcare plan under which employees can set aside pre-tax funds to pay for qualified healthcare expenses and qualified childcare expenses not reimbursed by insurance. We do not currently offer pension or other retirement benefits in the United States; outside the US consistent with local regulations, we offer pension or other retirement benefits as required.

Severance Benefits upon Change in Control. Executive officers based in the United States are also eligible to participate in our Amended and Restated Executive Change in Control and Severance Benefit Plan, or the change in control plan, which is described below under the headings "*Additional Compensation Information—Change in Control Plan*" and "*Potential Payments upon Termination or Change in Control—Amended and Restated Executive Change in Control and Severance Benefit Plan*." The change in control plan provides certain severance benefits to participants, in connection with specified involuntary termination events, including termination without cause and constructive termination, following a change in control. Certain executive officers who are not employed by our U.S. affiliates receive comparable change in control benefits pursuant to their employment agreements. The compensation committee believes these severance benefits are important from a retention perspective to provide some level of protection to our executives who might be terminated following a change in control and that the amounts are reasonable and maintain the competitiveness of our executive compensation and retention program. The compensation committee believes this structure serves to mitigate the distraction and loss of key executive officers that may occur in connection with rumored or actual fundamental corporate changes. Such payments protect the interests of our shareholders by enhancing executive focus during rumored or actual change in control activity, retaining executives despite the uncertainty that generally exists while a transaction is under consideration and encouraging the executives responsible for negotiating potential transactions to do so with independence and objectivity. We do not provide any tax gross up payments on severance benefits.

Clawback Requirement. As a public company, if we are required to restate our financial results due to our material noncompliance with any financial reporting requirements under the federal securities laws as a result of misconduct, our CEO and CFO may be legally required to reimburse our company for any bonus or other incentive-based or equity-based compensation they receive in accordance with the provisions of section 304 of the Sarbanes-Oxley Act of 2002.

2019 Performance Bonus Program

The corporate objectives and relative weightings established by the board of directors for the 2019 performance bonus program that were communicated to the NEOs in early 2019 are described in the chart below. The total revenue objective described below included stretch goals with the opportunity to earn up to an additional 15% bonus pool funding.



Following the end of the year, after adding together the resulting bonus pool funding percentages for the quantitative and qualitative objectives based on their relative weightings of 70% and 30%, respectively, and considering achievement of stretch goals, the compensation committee approved an overall bonus pool funding percentage of 128.6% of the target bonus pool for the 2019 plan year, as further described below.

The compensation committee did not set specific objectives for individual executive officers. Each executive officer is responsible for contributing to the corporate objectives, individually and as part of the leadership team, with each objective deemed to be important in determining the level of the company's performance during the year. In approving individual bonus awards, the compensation committee considers the individual contribution towards the company's achievement of the corporate objectives by each executive officer (other than our CEO). The actual bonus payments approved for each of the NEOs for 2019 are described below under "*2019 Compensation Decisions for Our Named Executive Officers.*"

Quantitative Objectives

Each of the three main quantitative, or objectively measurable, objectives for 2019, with a total relative overall weighting of 70%, is described in the table and accompanying footnotes below, including each objective's weighting, actual results and performance multipliers, as well as the total bonus pool funding percentage resulting from the level of achievement of the quantitative objectives.

The compensation committee approved an algorithm with respect to each main quantitative objective (as well as the total revenue stretch goals discussed below) for calculating the bonus pool funding attributable to the extent of achievement for each such objective. With respect to the total revenue objective, the compensation committee approved three related additional, or stretch, goals, each with its own individual weighting. The compensation committee set specific threshold and maximum levels of achievement for the total revenue objective and the related stretch goals, which are described in the footnotes to the table below. For the quantitative product development objectives, the compensation committee established various objectively measurable target goals within these objectives but did not set a threshold performance level; rather, an overall achievement of between 0% and 200%, measured against the multiple targets as described in more detail below, was determined by the compensation committee and used to calculate the applicable bonus pool funding percentage attributable to the product development objectives.

Quantitative Objectives	Weighting	Actual Results	Multiplier	Bonus Pool Funding[3]
1. **Total Revenue Objective**: Achieve total revenue in 2019 of $2,114 million[1]	30%	Above target: total revenue of $2,173 million[2]	114%	34.2%
• Stretch goal: Exceed specified Xyrem year-over-year revenue bottle volume growth[4]	5%	Above target	100%	5.0%
• Stretch goal: Exceed budgeted Sunosi prescription volume[5]	5%	Below threshold	0%	0%
• Stretch goal: Exceed budgeted shipment of Vyxeos worldwide vials[6]	5%	Below threshold	0%	0%
2. **Adjusted Net Income Objective**: Achieve non-GAAP adjusted net income* in 2019 of $866 million[1]	15%	Above target: non-GAAP adjusted net income* of $946 million (after giving effect to the additional adjustment identified in footnote 7)	146%[7]	21.9%
3. **Product Development Objectives**: execute on defined development projects[8]	25%	Achieved at 130% level[8]	130%	32.5%
Total				**93.6%**

(1) If the specified threshold annual performance level was met (90% of target for the total revenue objective and the adjusted net income objective), then a pre-established scaled performance multiplier (ranging from 50% to 150% for the total revenue objective and 50% to 200% for the adjusted net income objective) would be used to calculate the applicable bonus pool funding percentage attributable to such quantitative objective. The performance multiplier would be zero if performance was below the threshold level, 50% if performance was at the threshold level, and then scaled for performance above 50% up to the applicable maximum level. The performance multiplier was capped for performance above the specified maximum performance level (110% of target for the total revenue objective and 120% of target for the adjusted net income objective).

(2) To calculate the threshold performance achievement level and performance multiplier, the reported revenue of $2,162 million was increased by approximately $11.1 million to adjust for changes in foreign currency exchange rates.

(3) The percentages in this column represent, for each quantitative corporate objective, the weight of the quantitative objective multiplied by the performance multiplier that corresponds to the actual achievement of such quantitative objective.

(4) With respect to the Xyrem revenue bottle growth stretch goal, the performance threshold was set at 3.7% bottle volume growth, below which no addition to the total bonus pool funding would be made. Between 3.7% and 5.2% bottle volume growth, the amount added to the total bonus pool funding percentage would increase from 0% to 5%. Actual achievement of 5.5% bottle volume growth for 2019 was above 5.2% resulting in 5% being added to the total bonus pool funding percentage.

(5) With respect to the Sunosi prescription volume stretch goal, the threshold performance level was set at achievement of 20% above the budgeted Sunosi prescription volume, adjusted for the actual launch date. This stretch goal was inherently difficult to achieve from the outset given that Sunosi had not yet been approved at the start of 2019, and the prospect of a successful mid-year launch was uncertain, particularly in light of market access challenges and the competitive marketplace for Sunosi, including as a result of another new market entrant, pitolisant, expected to launch in 2019. Exceeding the prescription volume budget by between 20% and 50% would have resulted in 0% to 5% (scaled linearly) being added to the total bonus pool funding percentage. Actual Sunosi prescription volume for 2019 was below the threshold level of achievement for prescription volume.

(6) With respect to the Vyxeos worldwide vial shipment volume stretch goal, threshold performance level was set at achievement 15% above the budgeted shipment volume. This stretch goal was inherently difficult to achieve from the outset due to the increasingly competitive marketplace for AML. Exceeding the shipment budget by between 15% and 45% would have resulted in 0% to 5% (scaled linearly) being added to the total bonus pool funding percentage. Actual Vyxeos worldwide vial shipment volume for 2019 was below the threshold level of achievement for shipment volume.

(7) To calculate the threshold performance achievement level and performance multiplier, the reported non-GAAP adjusted net income was increased by $11.1 million to adjust for the impact of business development activities in 2019, including our acquisition of Cavion, Inc. and our purchase of the pan-RAF inhibitor program from Redx Pharma.

(8) With respect to the product development objectives, the compensation committee determined that the actual achievement by the company was 130%, resulting in a performance multiplier of 130%, and therefore, a 32.5% bonus pool funding percentage, based on achievement with respect to the target goals as described below:

Performance Category	Target Goals and Results
Submissions/Approvals	This performance category consisted of the following goals: (i) FDA approval of Sunosi (solriamfetol) by the first quarter of 2019; (ii) achieving NDA submission readiness for JZP-258 by the end of 2019; (iii) conducting a Type B meeting with FDA to support filing a supplemental NDA, or sNDA, for Vyxeos for relapsed and refractory AML by the fourth quarter of 2019; (iv) European approval of Sunosi by the fourth quarter of 2019; and (v) global expansion of defibrotide through regulatory submissions in various countries and regulatory approval in Brazil by the first quarter 2019. The compensation committee determined that we had met each of the performance goals for this category except for the European approval of Sunosi by the fourth quarter of 2019. The compensation committee noted the achievement of a positive opinion from the European Medicines Agency's Committee for Medicinal Products for Human Use for the marketing authorization of Sunosi in the fourth quarter 2019, which led to European approval in January 2020.
Significant Clinical Advancements	This performance category consisted of the following goals: (i) first patient enrolled in a Vyxeos X-FAST Phase 1b study for first-line fit AML by the fourth quarter of 2019; and (ii) 50% enrollment of patients in a Phase 3 study of oxybate in the treatment of idiopathic hypersomnia by the end of 2019. The compensation committee determined that we had met both of the performance goals for this category.
Early Stage Development	This performance category consisted of the following goals: (i) first subject dosed in a Phase 1 JZP-458 study by the first quarter of 2019; (ii) a strategic go/no-go decision for first subject dosed in the Phase 1 JZP-458 study by the second quarter 2019; (iii) first patient enrolled in a pivotal Phase 2/3 JZP-458 study by the fourth quarter 2019; and (iv) a strategic go/no-go decision to advance one or more new candidates for investigational new drug enabling activities for a new CombiPlex product candidate by the end of 2019. The compensation committee determined that we had met each of these performance goals for this category, except for the goal regarding making a strategic go/no-go decision to advance a new CombiPlex product candidate.

With respect to the product development objectives, each of the three "top priority" goals—approval of Sunosi in the U.S. and Europe, JZP-258 NDA readiness, and JZP-458 clinical and regulatory goals—carried a 20% weight. The two "high priority" goals—those relating to progress on the Vyxeos sNDA and the Vxyeos X-FAST Phase 1b study—collectively carried a 20% weight. All other goals collectively carried a 20% weight.

In determining that the actual achievement by the company was 130% for the product development objective, the compensation committee employed a holistic analysis that took into account the compensation committee's weighting of the product development objectives described above and the degree to which they were met as a whole against the backdrop of competing development priorities. In this regard, the compensation committee took into account the fact that the company had multiple planned milestones in 2019 and that the U.S. and European regulatory submissions and launch preparation for Sunosi in particular required dedication of significant development resources that made achieving the established performance criteria more difficult. In addition, certain of the 2019 development criteria were aggressive and set at challenging levels, particularly the three "top priority" goals, with respect to which the compensation committee determined that the company had outperformed. By the end of 2019, the JZP-258 NDA was ready for submission and ultimately submitted in January 2020 with the redemption of our priority review voucher. In addition, the company's progress made on JZP-458, which was in preclinical development at the start of 2019, enabled the company to be in a position to potentially submit a biologics license application as early as the end of 2020. After considering the extent to which the performance criteria had been met as a whole against the backdrop of competing priorities, and after factoring in the difficulty of achievement of the performance criteria that were met and that were not met, the compensation committee determined that, on balance, the achievement by the company was at the 130% level.

* *Non-GAAP adjusted net income is a non-GAAP financial measure that both excludes certain items from our GAAP reported net income and includes certain tax-related adjustments. For more information on our presentation and calculation of non-GAAP adjusted net income, and a reconciliation of non-GAAP adjusted net income to GAAP net income, see "Reconciliations of Non-GAAP Financial Measures" below. In addition, solely for purposes of calculating the performance multiplier for 2019, non-GAAP adjusted net income and the performance objective included additional adjustment as set forth in footnote (7) to this table.*

Qualitative Objectives

The qualitative corporate objectives approved by the board of directors fell into two categories: (1) progress on corporate development activities, with a relative weighting of 20%, and (2) a demonstrated commitment to and progress on certain organizational goals, with a relative weighting of 10%. Achievement of the qualitative objectives is inherently less objectively measurable than the quantitative objectives.

Corporate Development Objective. The objective relating to progress on corporate development activities consisted of expanding our development and commercial portfolio of innovative products through a range of strategic and partnering transactions with a focus on sleep/neuroscience and hematology/oncology and the identification of additional therapeutic area opportunities. The multiplier applied to the corporate development objective ranged from 0% to 200%, based on the compensation committee's determination of the extent to which the corporate development objective was achieved during the year. In considering the company's corporate development accomplishments in 2019, the compensation committee noted that we completed four important corporate development transactions that could potentially provide for revenue diversification over the longer term, and we also entered into an exclusive license agreement pursuant to which we obtained U.S. development and commercialization rights to lurbinectedin, a potential new treatment for relapsed small cell lung cancer which had been submitted for accelerated approval to FDA in December 2019, which, if approved on an accelerated approval basis, could potentially contribute significant near-term revenue. We believe these transactions will allow us to potentially develop a pipeline of multiple innovative therapies and expand our business as we seek to add long-term value for patients and shareholders. The compensation committee weighed heavily our success in executing these transactions and their potential to meaningfully diversify and add future revenue-generating products to our portfolio, our overall deal readiness, and our active and thoughtful corporate development process that led to the evaluation of several other opportunities during the year, and the compensation committee determined that, as a whole, our achievement resulted in a multiplier of 125% and, therefore, a 25% bonus pool funding percentage for the 2019 corporate development objective.

Organizational Objective. With respect to the organizational objective, the compensation committee established three sub-goals. Because the sub-goals are not objectively measurable, they were not assigned individual weightings. The multiplier applied to the organizational corporate objective ranged from 0% to 200%, based on the compensation committee's determination of the extent to which the aggregate organizational corporate objective, including sub-goals, were achieved, as a whole, during the year. The organizational corporate objective sub-goals were:

- embedding and rewarding inclusive leadership and management behaviors across the company;
- continuing to attract and retain talent to drive execution of initiatives in line with the company's strategy, mission and values; and
- building and strengthening the company's differentiating capabilities and driving organizational efficiencies.

In evaluating the organizational objective, the compensation committee determined that, among other things, the following organizational and operational accomplishments were relevant: implementation of a launch strategy for Sunosi in the U.S.; clarification of the structure and role of our franchise teams, and the definition, alignment and advancement of global franchise strategies; target hiring quality scores and voluntary turnover rates at or below certain thresholds; improvement across operations to generate cost reduction/avoidance, scalability and/or risk mitigation; and advancement toward a global operating model and continued geographic expansion efforts. After taking into consideration both our accomplishments and challenges with respect to these sub-goals, the compensation committee determined that as a whole, our overall achievement resulted in a multiplier of 100% and therefore, a 10% bonus pool funding percentage for the 2019 organizational objective.

2019 Compensation Decisions for Our Named Executive Officers

General Approach

In making compensation decisions for 2019, the compensation committee considered the factors discussed in "*Factors Used in Determining Executive Compensation*" above and the compensation committee's specific compensation objectives for 2019. Our compensation committee did not use a formula or assign a particular weight to any one factor in determining each NEO's target total direct compensation. Rather, our compensation committee's determination of the target total direct compensation, mix of cash and equity and fixed and "at-risk" pay opportunities was a subjective, individualized decision for each NEO. The compensation committee reviewed and considered each element of pay in the context of the overall target total direct compensation for each NEO. When the compensation committee made changes to one element of pay, those changes were made in the context of the levels of the other elements of pay, and the resulting target total direct compensation for each NEO. As a result, the 2019 pay decisions for each NEO are presented holistically in this section.

The compensation committee also had access to market data with respect to target total cash compensation and target equity award grants. However, as described above, the compensation committee believes that over-reliance on benchmarking can result in compensation that is unrelated to the value delivered by our executive officers because compensation benchmarking does not take into account company-by-company variations among actual roles with similar titles or the specific performance of our executive officers.

Summary of 2019 Compensation Decisions

Target Total Cash Compensation. The compensation committee increased each NEO's base salary for 2019, and the new base salary rates were effective February 16, 2019. Mr. Cozadd's annual target performance bonus (as a percentage of salary) was set at a higher percentage than the percentages for other NEOs to reflect that he has ultimate responsibility for our company's performance. Mr. Cozadd's target bonus percentage has remained the same since 2012.

Target Equity Compensation and Impact on Target Total Direct Compensation. In determining the appropriate size of 2019 equity award grants, at the time the compensation committee (and the board of directors, with respect to Mr. Cozadd) made its decisions, after careful consideration, the compensation committee aimed to deliver equity awards to each executive officer of a similar value to those delivered in 2018 to balance the need to manage overall dilution to our shareholders, maintain equity opportunities competitive with the market and serve the retention and incentive purposes of the awards. As a result of our share price increasing slightly between when the compensation committee approved the equity awards and when the equity awards were granted pursuant to our equity incentive grant policy, as further described below under "*Equity Grant Timing and Equity Plan Information*," certain NEOs' equity award grant date values, and resulting target total direct compensation for 2019, were modestly higher than in 2018, as shown in the tables below.

Form and Mix of Equity Awards and Share Amount Determinations. The compensation committee intended to deliver approximately 50% of the potential value of each NEO's equity award in the form of stock options and 50% of the potential value in the form of RSUs, in each case based on an approximation of grant date fair value, using an approximately 2.5 to 1 ratio of stock option grants to RSUs, in order to mitigate dilution and to reflect the increased value of receiving shares at full value without the payment of an exercise price. The 50/50 value split was consistent with our historical practices for both our executive officers and other employees. The actual share amounts granted to each executive officer were determined by applying the company's 90-day average share price (as of December 31, 2018) to the grant date fair value of the award, which the compensation committee and, in the case of Mr. Cozadd, the board of directors, intended to deliver (dividing such value by the average share price, in the case of RSUs, and applying a Black-Scholes option pricing model calculation using the average share price, in the case of stock options). A 90-day average share price was used, rather than a single day share price, in order to provide a more stabilized share value less susceptible to possible swings in the market. The exercise price of each stock option is equal to our closing share price on Nasdaq Global Select Market on the date of grant. The compensation committee understands that this process can result in the actual reported grant date value of an award being higher or lower than the intended value approved by the compensation committee, but has considered, in consultation with Radford, various approaches to granting equity awards, each of which have advantages and disadvantages, and determined that the process described above, which has been used historically by the compensation committee, is the most appropriate for the company at this time. The shares subject to the option awards vest over four years, with 25% vesting on the one-year anniversary of the grant date and the remainder vesting in equal monthly installments thereafter over the remaining 36 months. The RSUs vest over four years in equal annual installments.

On an annual basis, the compensation committee reviews market trends, including market peer use of performance-based vesting for equity awards, which are often favored by proxy advisory firms and certain institutional investors. For 2019, the compensation committee determined that equity awards vesting over time continued to be the most appropriate incentive structure for our executive officers to reward performance over time and achieve our retention objectives. Our time-based vesting schedules deliver retention incentives for the company over the long-term and, unlike awards that vest based on pre-determined operational or market goals, do not create incentives for inappropriate short-term risk-taking at the expense of realizing long-term value or the potential incentive for unethical conduct. In addition, we deliver a meaningful portion of compensation in the form of annual incentive compensation that is directly tied to, and incentivizes our executives to work towards, achievement of our key corporate goals. The key purposes served by time-vesting options and RSUs for 2019 are discussed above in the chart captioned "*Components of Total Direct Compensation.*"

Individual NEO Compensation Decisions

Below are summaries, for each NEO individually, of the compensation committee's decisions about 2019 target total direct compensation and the changes from each NEO's 2018 target total direct compensation. As described above, when making the 2019 compensation decisions, the compensation committee focused primarily on the target total direct compensation for each NEO while considering the factors set forth above in the section titled "*Factors Used in Determining Executive Compensation*" and the compensation committee's specific compensation objectives for 2019. The footnotes to the tables also include the actual performance bonus paid to each of the NEOs for 2019 and how that actual bonus compared to each NEO's target bonus.

Bruce C. Cozadd, Chairman and CEO

	2018 Pay ($)	2019 Pay ($)	Change (%)
Target Total Cash Compensation	**1,962,985**	**2,034,415**	3.6%
Base Salary(1)	983,700	1,020,000	
Target Performance Bonus(2)	979,285	1,014,415	
Target Equity Compensation(3)	**9,470,396**	**12,381,420**	30.7%
Options	4,265,610	5,379,925	
RSUs	5,204,786	7,001,495	
Target Total Direct Compensation(4)	**11,433,381**	**14,415,835**	26.1%

(1) Represents annual base salary rate for the applicable year. 2019 base salary became effective February 16, 2019.

(2) Target amounts are as reported in the Grants of Plan-Based Awards Table for 2018 and 2019, respectively, and reflect the target percentage of base salary earned for each fiscal year. The 2019 amount reflects a target performance bonus of 100% of base salary earned, unchanged from the target performance bonus percentage for 2018. The actual 2019 performance bonus paid was $1,304,500, reflecting 128.6% of the target performance bonus, based entirely on the overall 2019 bonus pool funding percentage of 128.6%. The compensation committee (with approval from the board of directors) determined that the overall 2019 bonus pool funding percentage of 128.6% was applicable to Mr. Cozadd, because, as CEO, Mr. Cozadd is responsible for the company meeting all of its objectives.

(3) The target equity compensation delivered (as presented in the chart) reflects the fair value of the awards as of the grant date, in accordance with FASB Accounting Standards Codification Topic 718, *Compensation—Stock Compensation*, or ASC 718, which was modestly higher than the target equity compensation value approved by the compensation committee as a result of the timing of the grant and an increase in our share price as of the grant date, as described above. Target equity compensation dollar amounts represent the grant date fair value of each stock option and RSU award, as applicable, and have been calculated in accordance with ASC 718 as reported in the Grants of Plan-Based Awards Table for 2018 and 2019, respectively. See the Grants of Plan-Based Awards Table for the number of shares subject to each award.

(4) The compensation committee and board of directors designed Mr. Cozadd's target total direct compensation to be competitive compared to the market data, appropriate from an internal equity perspective and more heavily weighted towards equity compensation, in line with our pay-for-performance philosophy. The compensation committee believed it was appropriate to provide a modest increase to his base salary in 2019 in recognition of his individual performance, the performance of the company under his leadership and to remain in line with general market increases. As described above, Mr. Cozadd's target bonus percentage remained the same as in 2018, but the increase in his base salary resulted in a higher target performance bonus opportunity. The compensation committee increased Mr. Cozadd's target equity compensation for 2019, which resulted in an increase in his target total direct compensation, in recognition of his criticality to the business as a long-tenured CEO and founder, particularly at a point in the company's life cycle when its executive leadership was undergoing evolution and refreshment. The compensation committee's recognition of Mr. Cozadd's criticality to the business was subsequently substantiated and reinforced by the fact that Mr. Cozadd (a former public company CFO) was willing and able to step into the role of interim principal financial officer after Mr. Young's resignation in the fourth quarter of 2019.

Daniel N. Swisher, Jr., President and COO

	2018 Pay ($)	2019 Pay ($)	Change (%)
Target Total Cash Compensation	**1,084,495**	**1,108,750**	2.2%
Base Salary[1]	625,000	675,000	
Target Performance Bonus[2]	334,495	433,750	
Signing Bonus[3]	125,000	—	
Target Equity Compensation[4]	**4,607,220**	**3,466,798**	(24.8)
Options	2,075,162	1,506,379	
RSUs	2,532,058	1,960,419	
Target Total Direct Compensation[5]	**5,691,715**	**4,575,548**	(19.6)

(1) Represents annual base salary rate for the applicable year. 2019 base salary became effective February 16, 2019.

(2) Target amounts are as reported in the Grants of Plan-Based Awards Table for 2018 and 2019, respectively, and reflect the target percentage of base salary earned for 2019. The 2019 amount reflects a target performance bonus of 65% of base salary earned, increased from a target performance bonus of 55% in 2018. The compensation committee increased Mr. Swisher's target performance bonus percentage in consideration of the market data and impact of Mr. Swisher's position. The actual 2019 performance bonus paid was $560,000, reflecting 129.1% of target performance bonus, based on the overall 2019 bonus pool funding percentage of 128.6% and Mr. Swisher's individual contributions to achieving both our quantitative and qualitative objectives for 2019. The compensation committee also considered Mr. Swisher's responsibility for a large and complex function, as well as his significant impact on the company meeting its corporate objectives in 2019.

(3) Represents the cash signing bonus Mr. Swisher received in connection with his appointment as President and COO. To the extent Mr. Swisher had voluntarily resigned within one year of his employment start date, he would have been required to repay the full amount of the signing bonus on or within 30 days of the later of his resignation or termination date.

(4) The target equity compensation delivered (as presented in the chart) reflects the fair value of the awards as of the grant date, in accordance with ASC 718, which was modestly higher than the target equity compensation value approved by the compensation committee as a result of the timing of the grant and an increase in our share price as of the grant date, as described above. Target equity compensation dollar amounts represent the grant date fair value of each stock option and RSU award, as applicable, and have been calculated in accordance with ASC 718 as reported in the Grants of Plan-Based Awards Table for 2019. See the Grants of Plan-Based Awards Table for the number of shares subject to each award. As a result of the timing of Mr. Swisher's new hire equity awards, he was not eligible to receive regular annual equity awards during 2019. The decrease in target equity compensation from 2018 to 2019 was attributable to Mr. Swisher receiving a larger initial hire grant in 2018 compared to the typical, continuing annual grant received in 2019.

(5) The compensation committee designed Mr. Swisher's target total direct compensation to be competitive compared to the market data, appropriate from an internal equity perspective and more heavily weighted towards equity compensation, in line with our pay-for-performance philosophy. The compensation committee determined it was appropriate to increase Mr. Swisher's base salary in an amount necessary to reflect his scope of responsibility and oversight of significant functions within the organization, as well as to maintain competitive positioning relative to the market data and the other NEOs.

Matthew P. Young, Former Executive Vice President and CFO

	2018 Pay ($)	2019 Pay ($)	Change (%)
Target Total Cash Compensation	**896,462**	**985,752**	10.0%
Base Salary(1)	580,000	625,000	
Target Performance Bonus(2)	316,462	360,752	
Target Equity Compensation(3)	**2,405,992**	**2,971,541**	23.5%
Options	1,083,695	1,291,182	
RSUs	1,322,297	1,680,359	
Target Total Direct Compensation(4)	**3,302,454**	**3,957,292**	19.8%

(1) Represents annual base salary rate for the applicable year. 2019 base salary became effective February 16, 2019.

(2) Target amounts are as reported in the Grants of Plan-Based Awards Table for 2018 and 2019, respectively, and reflect the target percentage of base salary earned for each fiscal year. The 2019 amount reflects a target performance bonus of 60% of base salary earned. Mr. Young's target bonus percentage was increased from 55% in 2018 to 60% in 2019 in consideration of the scope of his responsibility and his contributions to achieving strategic initiatives in line with corporate objectives. Mr. Young resigned from the company in October 2019 and therefore was not eligible to receive a 2019 performance bonus.

(3) The target equity compensation delivered (as presented in the chart) reflects the fair value of the awards as of the grant date, in accordance with ASC 718, which was modestly higher than the target equity compensation value approved by the compensation committee as a result of the timing of the grant and an increase in our share price as of the grant date, as described above. Target equity compensation dollar amounts represent the grant date fair value of each stock option and RSU award, as applicable, and have been calculated in accordance with ASC 718 as reported in the Grants of Plan-Based Awards Table for 2018 and 2019, respectively. See the Grants of Plan-Based Awards Table for the number of shares subject to each award.

(4) The compensation committee designed Mr. Young's target total direct compensation to be competitive compared to the market data, appropriate from an internal equity perspective and more heavily weighted towards equity compensation, in line with our pay-for-performance philosophy. Consistent with the approach for 2019 equity award grants described above, the compensation committee generally aimed to deliver equity awards to the executive vice presidents of a similar grant date value to those delivered to executive vice presidents in 2018. Mr. Young's target equity award grant date value and resulting target total direct compensation for 2019 were comparable to 2018. The compensation committee determined it was appropriate to increase Mr. Young's base salary from an internal pay equity perspective, in an amount that reflects his knowledge and expertise in the role and the criticality of Mr. Young's role as our CFO. In addition, the compensation committee considered the retention value of his compensation given Mr. Young's criticality to the company's business development strategy and the breadth of his impact on the business. As described above, Mr. Young's higher target performance bonus opportunity shown above resulted from both an increase in Mr. Young's target bonus percentage to 60% and an increase in his base salary in 2019.

Executive Compensation (continued)

Robert Iannone, Executive Vice President, Research and Development

	2018 Pay ($)	2019 Pay ($)	Change (%)[1]
Target Total Cash Compensation	—	**927,192**	—
Base Salary[2]		550,000	
Target Performance Bonus[3]		172,192	
Signing Bonus[4]		205,000	
Target Equity Compensation[5]	—	**2,922,079**	—
Options		1,249,216	
RSUs		1,672,863	
Target Total Direct Compensation[6]	—	**3,849,271**	—

(1) In April 2019, we entered into an employment offer letter with Dr. Iannone pursuant to which he agreed to serve as our Executive Vice President, Research and Development effective May 29, 2019.

(2) Represents annual base salary rate for 2019. Dr. Iannone's actual salary earned was lower due to him joining the company mid-2019.

(3) The target amount is as reported in the Grants of Plan-Based Awards Table for 2019 and reflects the target percentage of 55% of base salary earned for 2019, taking into account that Dr. Iannone was not employed the entire year. The actual 2019 performance bonus paid was $245,000, reflecting 142.3% of target performance bonus, based on the overall 2019 bonus pool funding percentage of 128.6% and Dr. Iannone's significant individual contributions to such achievement and outperformance of his research and development organization with respect to the corporate objectives. Specifically, the compensation committee considered Dr. Iannone's leadership in progressing a multitude of development programs, achievement of regulatory approvals, submissions and progress toward future submissions, and support of scientific diligence in executing corporate development objectives. The compensation committee also noted Dr. Iannone's short tenure with the company and the immediate impact Dr. Iannone nonetheless had on driving performance with respect to the company's corporate objectives.

(4) Represents the cash signing bonus received by Dr. Iannone in connection with his appointment as Executive Vice President, Research and Development. In determining the amount of the bonus, the compensation committee considered the inducement value in recruiting Dr. Iannone from his prior employer and the compensatory value of cash and equity forfeited by Dr. Iannone in leaving his prior employer. If Dr. Iannone had voluntarily resigned within one year of his employment start date, he would have been required to repay the full amount of the signing bonus. If he resigns between 12 and 24 months after his employment start date, he will be required to repay $125,000 of the signing bonus paid to him. Such payment would be due on or within 30 days of the later of his resignation or termination date.

(5) Target equity compensation dollar amounts represent the grant date fair value of each stock option and RSU award, as applicable, and have been calculated in accordance with ASC 718 as reported in the Grants of Plan-Based Awards Table for 2019. See the Grants of Plan-Based Awards Table for the number of shares subject to each award.

(6) The compensation committee designed Dr. Iannone's target total direct compensation to be competitive compared to the market data, appropriate from an internal equity perspective and more heavily weighted towards equity compensation, in line with our pay-for-performance philosophy. In determining his compensation package, the compensation committee considered the company's executive compensation program and received advice from Radford to design a competitive, market-based compensation package appropriate for a senior executive with Dr. Iannone's skills and experience and his overall expected contribution to our business.

Neena M. Patil, Senior Vice President and GC

	2018 Pay ($)	2019 Pay ($)	Change (%)[1]
Target Total Cash Compensation	—	**647,529**	—
Base Salary[2]		510,000	
Target Performance Bonus[3]		75,029	
Signing Bonus[4]		62,500	
Target Equity Compensation[5]	—	**2,874,176**	—
Options		1,228,737	
RSUs		1,645,439	
Target Total Direct Compensation[6]	—	**3,521,705**	—

(1) In July 2019, we entered into an employment offer letter with Ms. Patil pursuant to which she agreed to serve as our Senior Vice President and GC effective July 29, 2019.

(2) Represents annual base salary rate for 2019. Ms. Patil's actual salary earned was lower due to her joining the company mid-2019.

(3) The target amount is as reported in the Grants of Plan-Based Awards Table for 2019 and reflects the target percentage of 45% of base salary earned for 2019, taking into account that Ms. Patil was not employed the entire year. The actual 2019 performance bonus paid was $100,000, reflecting 133.3% of target performance bonus, based on the overall 2019 bonus pool funding percentage of 128.6% and Ms. Patil's significant individual contributions to such achievement. Specifically, the compensation committee considered Ms. Patil's oversight of complex strategic matters and corporate priorities, such as planning and execution of product launches, her performance with respect to supporting the execution of corporate development priorities and her overall criticality to our business, particularly in light of executive officer departures during 2019.

(4) Represents the cash signing bonus received by Ms. Patil in 2019 in connection with her appointment as Senior Vice President and GC. In determining the amount of the bonus, the compensation committee considered the inducement value in recruiting Ms. Patil from her prior employer and compensatory value of cash and equity forfeited by Ms. Patil in leaving her prior employer. The full signing bonus is in the amount of $125,000 paid in two equal installments with the first payment of $62,500 payable on the first regular pay date following Ms. Patil's employment start date, and the second payment of $62,500 on the first regular pay date occurring 180 days after Ms. Patil's employment start date. To the extent Ms. Patil voluntarily resigns within one year of her employment start date, she would be required to repay the full amount of the signing bonus on or within 30 days of the later of her resignation or termination date.

(5) Target equity compensation dollar amounts represent the grant date fair value of each stock option and RSU award, as applicable, and have been calculated in accordance with ASC 718 as reported in the Grants of Plan-Based Awards Table for 2019. See the Grants of Plan-Based Awards Table for the number of shares subject to each award.

(6) The compensation committee designed Ms. Patil's target total direct compensation to be competitive compared to the market data, appropriate from an internal equity perspective, in line with our pay-for-performance philosophy. In determining her compensation package, the compensation committee considered the company's executive compensation program and received advice from Radford to design a competitive, market-based compensation package appropriate for a senior executive with Ms. Patil's skills and experience and her overall expected contribution to our business.

Additional Compensation Information

Ownership Guidelines for Executive Officers

We maintain share ownership guidelines for our CEO and certain other employees who serve on our executive committee, including our NEOs. Under the guidelines, which were amended in May 2018, these individuals are expected to own a number of the company's ordinary shares with a value equal to six times base salary (increased from three times base salary) for the company's Chief Executive Officer, two times base salary (increased from one times base salary) for each other member of the company's executive committee who is an officer for purposes of Section 16 of the Exchange Act, and one times base salary for each other member of the company's executive committee. The guidelines provide that the officers are expected to establish the minimum ownership levels within five years of first becoming subject to the guidelines (and, with respect to the increased amounts established by the amended guidelines, by the last day of 2021 for officers who were subject to the guidelines as of January 1, 2018). As described in the table below, Mr. Cozadd was in compliance with the guidelines as of March 31, 2020, while each of our other continuing NEOs has five years from the date of his or her appointment to comply with the guidelines.

Ownership Guidelines and Compliance

Name	Ownership Requirement	Actual Ownership[1]
Bruce C. Cozadd	6.0x	27.5x
Daniel N. Swisher, Jr.[2]	2.0x	1.5x
Robert Iannone, M.D., M.S.C.E[3]	2.0x	0x
Neena M. Patil[4]	2.0x	0x

(1) Actual ownership calculated based on (a) value of shares owned as of March 31, 2020, using a 90-day trailing average price of $129.29 as of March 31, 2020, divided by (b) 2020 base salary. Under the guidelines, once an officer has reached his or her compliance deadline, such officer's share ownership will be assessed annually at the end of each fiscal year using the average closing price of the company's ordinary shares over the 90-day period ending on the last day of the company's immediately preceding fiscal year.

(2) Mr. Swisher was appointed our President and COO as of January 3, 2018 and, accordingly, has five years from his appointment, or until 2023, to comply with the guidelines.

(3) Dr. Iannone was appointed our Executive Vice President, Research and Development as of May 29, 2019 and, accordingly, has five years from his appointment, or until 2024, to comply with the guidelines.

(4) Ms. Patil was appointed our Senior Vice President and GC as of July 29, 2019 and, accordingly, has five years from her appointment, or until 2024, to comply with the guidelines.

Shares that count toward satisfaction of these guidelines include: shares owned outright by the individual (including RSUs that have vested but not yet settled, net of taxes); shares retained after an option exercise or issuance under another type of equity award granted under the company's equity incentive plans; shares retained after purchase under the ESPP; and shares held in trust for the benefit of the individual. The compensation committee has discretion to develop an alternative individual guideline or an alternative method of complying with the applicable individual guideline for an individual covered by the guidelines if compliance would place a significant hardship on such individual.

Change in Control Plan

Our compensation committee periodically reviews the terms of our change in control plan, including its "double-trigger" structure and benefits, against market data to ensure that the benefits we offer remain appropriate.

The compensation committee made refinements to the program in July 2019 to reflect updates in applicable law. Only our executive officers who are employees of our U.S. affiliates are eligible to participate in the change in control plan, which includes all of our NEOs. Certain executive officers who are not employed by our U.S. affiliates receive comparable change in control benefits pursuant to their employment agreements. The compensation committee believes that the change in control benefits we provide are representative of market practice, both in terms of design and cost, and are sufficient to retain our current executive team and to recruit talented executive officers in the future. The terms of the change in control plan are described below under the heading "*Potential Payments upon Termination or Change in Control—Amended and Restated Executive Change in Control and Severance Benefit Plan*."

Equity Grant Timing and Equity Plan Information

Our equity incentive grant policy, which was initially approved by our board of directors after the Azur Merger and amended and restated most recently in November 2017, provides that all equity grants that are approved for executive officers will be granted on the second trading day following the filing date of our next quarterly or annual report filed under the Exchange Act that occurs after the date on which such grants are approved by our board of directors or compensation committee, as applicable. Accordingly, our equity incentive grant policy requires that grants to our executive officers, if any, be made shortly after we have released information about our financial performance to the public for the applicable annual or quarterly period, so that the market will have an opportunity to absorb the financial and other information included in our annual and periodic reports before such grants are awarded. As a result, the timing of equity awards is not coordinated in a manner that intentionally benefits our executive officers; rather, the policy is designed with the objective that the market price of our ordinary shares at the time of grant can generally be expected to reflect our then-current results and prospects.

We currently grant equity awards to the NEOs, including stock options and RSUs, under the 2011 Equity Incentive Plan, or the 2011 Plan. The 2011 Plan was adopted by Jazz Pharmaceuticals, Inc.'s board of directors and approved by Jazz Pharmaceuticals, Inc.'s stockholders in connection with their approval of the Azur Merger in December 2011 and was assumed by us upon the completion of the Azur Merger. Before the 2011 Plan was adopted, we granted stock options under our 2007 Equity Incentive Plan, or the 2007 Plan, which was adopted by Jazz Pharmaceuticals, Inc.'s board of directors and approved by Jazz Pharmaceuticals, Inc.'s stockholders in connection with Jazz Pharmaceuticals, Inc.'s initial public offering. Awards granted under the 2007 Plan continue to be governed by the terms of the 2007 Plan, but subsequent equity awards have been, and continue to be, awarded under the 2011 Plan. The 2011 Plan affords the compensation committee the flexibility to utilize a broad array of equity incentives and performance cash incentives in order to secure and retain the services of employees of our company and its subsidiaries and to provide long-term incentives that align the interests of employees with the interests of our shareholders.

Additional long-term equity incentives are provided through the ESPP, which we assumed upon the completion of the Azur Merger. Pursuant to the ESPP, all eligible employees, including the NEOs, may allocate up to 15% of their base salary to purchase our stock at a 15% discount to the market price, subject to specified limits.

Accounting and Tax Considerations

Under ASC 718, the company is required to estimate and record an expense for each award of equity compensation (including stock options and RSUs) over the vesting period of the award. We record share-based compensation expense on an ongoing basis according to ASC 718. The compensation committee has considered, and may in the future consider, the grant of performance-based or other types of stock awards to executive officers in lieu of or in addition to stock option and time-based RSU grants in light of the accounting impact of ASC 718 and other considerations.

Under Section 162(m) of the Internal Revenue Code, or Section 162(m), compensation paid to any publicly held corporation's "covered employees" that exceeds $1 million per taxable year for any covered employee is generally non-deductible for tax purposes.

Prior to the enactment of the U.S. Tax Act, Section 162(m) provided a performance-based compensation exception, pursuant to which the deduction limit under Section 162(m) did not apply to any compensation that qualified as "performance-based compensation" under Section 162(m). Pursuant to the U.S. Tax Act, the performance-based compensation exception under Section 162(m) was repealed with respect to taxable years beginning after December 31, 2017, except that certain transition relief is provided for compensation paid pursuant to a written binding contract which was in effect on November 2, 2017 and which is not modified in any material respect on or after such date.

Compensation paid to each of the company's "covered employees" in excess of $1 million per taxable year generally will not be deductible unless it qualifies for the performance-based compensation exception under Section 162(m) pursuant to the transition relief described above. Because of certain ambiguities and uncertainties as to the application and interpretation of Section 162(m), as well as other factors beyond the control of the compensation committee, no assurance can be given that any compensation paid by the company will be eligible for such transition relief and be deductible by the company in the future. Although the compensation committee will continue to consider tax implications as one factor in determining executive compensation, the compensation committee also looks at other factors in making its decisions and retains the flexibility to provide compensation for the company's named executive officers in a manner consistent with the goals of the company's executive compensation program and the best interests of the company and its stockholders, which may include providing for compensation that is not deductible by the company due to the deduction limit under Section 162(m). The compensation committee also retains the flexibility to modify compensation that was initially intended to be exempt from the deduction limit under Section 162(m) if it determines that such modifications are consistent with the company's business needs.

Risk Assessment Concerning Compensation Practices and Policies

The compensation committee annually reviews the company's compensation policies and practices to assess whether they encourage employees to take inappropriate risks. After reviewing each of the company's compensation plans, and the checks and balances built into, and oversight of, each plan, in February 2020, the compensation committee determined that any risks arising from our compensation policies and practices for our employees are not reasonably likely to have a material adverse effect on our company as a whole. In addition, the compensation committee believes that the mix and design of the elements of executive compensation do not encourage management to assume excessive risks, and significant compensation decisions, as well as decisions concerning the compensation of the company's executive officers, include subjective considerations by the compensation committee or the board of directors, which restrain the influence of formulae or objective factors on excessive risk-taking. Finally, the mix of short-term compensation (in the form of salary and annual bonus, if any), and long-term compensation (in the form of stock options and RSUs) also prevents undue focus on short-term results and helps align the interests of the company's executive officers with the interests of our shareholders.

Reconciliations of Non-GAAP Financial Measures

To supplement our financial results presented in accordance with U.S. generally accepted accounting principles (GAAP), we use certain non-GAAP (also referred to as non-GAAP adjusted) financial measures in this Compensation Discussion and Analysis. In particular, we present non-GAAP adjusted net income (and the related per share measure), which exclude from reported GAAP net income (and the related per share measure) certain items, as detailed in the reconciliation table that follows, adjust for the income tax effect of the non-GAAP adjustments and, as applicable, the income tax benefit related to an intra-entity intellectual property asset transfer and the impact of the U.S. Tax Cuts and Job Act (U.S. Tax Act).

Executive Compensation (continued)

We believe that each of these non-GAAP financial measures provides useful supplementary information to, and facilitates additional analysis by, investors and analysts. In particular, we believe that each of these non-GAAP financial measures, when considered together with our financial information prepared in accordance with GAAP, can enhance investors' and analysts' ability to meaningfully compare our results from period to period, and to identify operating trends in our business. In addition, these non-GAAP financial measures are regularly used by investors and analysts to model and track our financial performance. Our management also regularly uses these non-GAAP financial measures internally to understand, manage and evaluate our business and to make operating decisions, and compensation of our executive officers is based in part on certain of these non-GAAP financial measures, as discussed elsewhere in this Compensation Discussion and Analysis. Because these non-GAAP financial measures are important internal measurements for our management, we also believe that these non-GAAP financial measures are useful to investors and analysts since these measures allow for greater transparency with respect to key financial metrics we use in assessing our own operating performance and making operating decisions.

These non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP measures; should be read in conjunction with our consolidated financial statements prepared in accordance with GAAP; have no standardized meaning prescribed by GAAP; and are not prepared under any comprehensive set of accounting rules or principles. In addition, from time to time in the future there may be other items that we may exclude for purposes of our non-GAAP financial measures; and we have ceased, and may in the future cease, to exclude items that we have historically excluded for purposes of our non-GAAP financial measures. For example, for 2020 (and future periods), we no longer exclude upfront and milestone payments from non-GAAP adjusted net income (and the related per share measure). Accordingly, while certain of such payments were excluded to arrive at historical non-GAAP adjusted net income (and the related per share measure), such presentation is made solely for comparability and transition purposes and will not be continued going forward. Likewise, we may determine to modify the nature of our adjustments to arrive at our non-GAAP financial measures. Because of the non-standardized definitions of non-GAAP financial measures, the non-GAAP financial measures as used by us in this Compensation Discussion and Analysis have limits in their usefulness to investors and may be calculated differently from, and therefore may not be directly comparable to, similarly titled measures used by other companies.

Executive Compensation (continued)

Reconciliations of GAAP reported net income to non-GAAP adjusted net income (and the related per share measures) for the 2016, 2017, 2018 and 2019 annual periods are as follows (in millions, except percentages and per share amounts):

	2016	2017	2018	2019	2016-2019 CAGR
GAAP reported net income	**$396.8**	**$ 487.8**	**$447.1**	**$ 523.4**	
Intangible asset amortization	102.0	152.1	201.5	354.8	
Impairment charges and disposal costs	—	—	44.0	—	
Share-based compensation expense	98.8	106.9	102.4	110.6	
Loss contingency	—	—	57.0	—	
Upfront and milestone payments	23.7	101.5	11.0	104.3	
Transaction and integration related costs	13.6	—	—	—	
Expenses related to certain legal proceedings and restructuring	6.1	6.0	—	—	
Non-cash interest expense	22.1	30.0	44.0	46.4	
Loss on extinguishment and modification of debt	0.6	—	—	—	
Income tax effect of above adjustments	(36.7)	(58.8)	(60.9)	(92.9)	
U.S. Tax Act impact	—	(148.8)	(7.5)	—	
Income tax benefit related to intra-entity intellectual property asset transfer	—	—	—	(112.3)	
Non-GAAP adjusted net income	$627.2	$ 676.7	$838.6	$ 934.2	
GAAP reported net income per diluted share	**$ 6.41**	**$ 7.96**	**$ 7.30**	**$ 9.09**	**12%**
Non-GAAP adjusted net income per diluted share	$10.14	$ 11.04	$13.70	$ 16.23	17%
Weighted-average ordinary shares used in diluted per share calculations	61.9	61.3	61.2	57.6	

Note: Amounts may not total due to rounding.

Summary of Compensation

The following table sets forth certain summary information for the years indicated with respect to the compensation earned by the NEOs during fiscal years 2019, 2018 and 2017, as applicable.

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Salary ($)[1]	Bonus ($)[2]	Stock Awards ($)[3]	Option Awards ($)[4]	Non-Equity Incentive Plan Compensation ($)[5]	All Other Compensation ($)[6]	Total ($)
Bruce C. Cozadd[7]	2019	1,014,415	—	7,001,495	5,379,925	1,304,500	13,302	14,713,637
Chairman and CEO	2018	979,285	—	5,204,786	4,265,610	980,300	13,152	11,443,133
	2017	950,385	—	4,711,828	3,669,875	961,800	10,722	10,304,610
Daniel N. Swisher, Jr.[8]	2019	667,308	—	1,960,419	1,506,379	560,000	13,302	4,707,407
President and COO	2018	608,173	125,000	2,532,058	2,075,162	400,000	12,948	5,753,341
Matthew P. Young[9]	2019	601,253	—	1,680,359	1,291,182	—	10,585	3,583,378
Former Executive Vice President and CFO	2018	575,385	—	1,322,297	1,083,695	365,000	9,960	3,356,337
	2017	545,385	—	1,361,800	1,060,658	315,000	9,810	3,292,653
Robert Iannone[10]	2019	313,077	205,000	1,672,863	1,249,216	245,000	8,405	3,693,560
Executive Vice President, Research and Development								
Neena M. Patil[11]	2019	166,731	62,500	1,645,439	1,228,737	100,000	2,375	3,205,781
Senior Vice President and GC								

(1) The dollar amounts in this column represent base salary earned during the indicated fiscal year. 2019 base salary rates were effective February 16, 2019. For more information on salaries in 2019, see "*Compensation Discussion and Analysis—2019 Compensation Decisions for Our Named Executive Officers—Individual NEO Compensation Decisions*" above.

(2) The dollar amounts in this column represent cash signing bonuses paid to Mr. Swisher in 2018 and each of Dr. Iannone and Ms. Patil in 2019.

(3) The dollar amounts in this column reflect the aggregate grant date fair value of all RSU awards granted during the indicated fiscal year computed in accordance with ASC 718, excluding the effect of estimated forfeitures. The grant date fair value of each RSU award is measured based on the closing price of our ordinary shares on the date of grant. These amounts do not necessarily correspond to the actual value recognized or that may be recognized by the NEOs.

(4) The dollar amounts in this column reflect the aggregate grant date fair value of all stock option awards granted during the indicated fiscal year. These amounts have been calculated in accordance with ASC 718, using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. Assumptions used in the calculation of these amounts are included in the notes to our audited consolidated financial statements included in the company's 2019 Annual Report on Form 10-K. These amounts do not necessarily correspond to the actual value recognized or that may be recognized by the NEOs.

(5) The dollar amounts in this column represent the cash bonus awarded under the performance bonus plan for the indicated fiscal year. For more information on the cash bonus awards for 2019, see "*Compensation Discussion and Analysis—2019 Performance Bonus Program" and "Compensation Discussion and Analysis—2019 Compensation Decisions for Our Named Executive Officers*" above.

(6) The dollar amounts in this column for 2019 include group term life insurance premiums paid and matching contributions under the 401(k) Plan.

(7) Mr. Cozadd served as our interim principal financial officer from October 25, 2019 through March 16, 2020.

(8) Mr. Swisher was appointed our President and COO as of January 3, 2018.

(9) Mr. Young resigned from his position as Executive Vice President and CFO, effective as of October 25, 2019.

(10) Dr. Iannone was appointed our Executive Vice President, Research and Development as of May 29, 2019.

(11) Ms. Patil was appointed our Senior Vice President and GC as of July 29, 2019.

Grants of Plan-Based Awards

The following table shows, for the fiscal year ended December 31, 2019, certain information regarding grants of plan-based awards to the NEOs.

GRANTS OF PLAN-BASED AWARDS IN FISCAL 2019

Name	Award Type	Grant Date	Approval Date	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards Target ($)[1]	All Other Stock Awards: Number of Shares of Stock or Units (#)[2]	All Other Option Awards: Number of Securities Underlying Options (#)[2]	Exercise or Base Price of Option Awards ($/Sh)[3]	Grant Date Fair Value of Stock and Option Awards ($)[4]
Bruce C. Cozadd	Annual Cash	—	—	1,014,415	—	—	—	—
	Annual Option	2/28/2019	2/14/2019	—	—	125,000	140.03	5,379,925
	Annual RSU	2/28/2019	2/14/2019	—	50,000	—	—	7,001,495
Daniel N. Swisher, Jr.	Annual Cash	—	—	433,750	—	—	—	—
	Annual Option	2/28/2019	2/13/2019	—	—	35,000	140.03	1,506,379
	Annual RSU	2/28/2019	2/13/2019	—	14,000	—	—	1,960,419
Matthew P. Young	Annual Cash	—	—	360,752	—	—	—	—
	Annual Option	2/28/2019	2/13/2019	—	—	30,000	140.03	1,291,182
	Annual RSU	2/28/2019	2/13/2019	—	12,000	—	—	1,680,359
Robert Iannone, M.D., M.S.C.E	Annual Cash	—	—	172,192	—	—	—	—
	Initial Option	8/8/2019	5/1/2019	—	—	30,500	137.12	1,249,216
	Initial RSU	8/8/2019	5/1/2019	—	12,200	—	—	1,672,863
Neena M. Patil	Annual Cash	—	—	75,029	—	—	—	—
	Initial Option	8/8/2019	7/31/2019	—	—	30,000	137.12	1,228,737
	Initial RSU	8/8/2019	7/31/2019	—	12,000	—	—	1,645,439

(1) This column sets forth the target bonus amount for each NEO for the year ended December 31, 2019 under the performance bonus plan. There are no thresholds or maximum bonus amounts for each individual officer established under the performance bonus plan. Target bonuses were set as a percentage of each NEO's base salary earned for the fiscal year ended December 31, 2019 and were 100% for Mr. Cozadd, 65% for Mr. Swisher, 60% for Mr. Young, 55% for Dr. Iannone and 45% for Ms. Patil. The dollar value of the actual bonus award earned for the year ended December 31, 2019 for each NEO is set forth in the Summary Compensation Table above. As such, the amounts set forth in this column do not represent either additional or actual compensation earned by the NEOs for the year ended December 31, 2019. For a description of the performance bonus plan, see "*Compensation Discussion and Analysis—2019 Performance Bonus Program*" above.

(2) Annual stock options and RSU awards were granted under the 2011 Plan. Each of the annual stock option awards listed in the table above vest or vested as to 25% of the ordinary shares underlying the stock options upon the one year anniversary of the grant date and vest as to the remainder of the shares in 36 equal monthly installments thereafter. Each of the annual RSU awards vest in four equal annual installments on the anniversary of the vesting commencement date of March 5, 2019. In May 2019, Dr. Iannone was appointed as Executive Vice President, Research and Development and in July 2019, Ms. Patil was appointed as Senior Vice President and GC, in connection with which they each received new hire grants of stock option and RSU awards, which were granted under the 2011 Plan. The initial stock option awards granted to Dr. Iannone and Ms. Patil vest as to 25% of the ordinary shares underlying the stock options upon the one year anniversary of their respective hire dates of May 29, 2019 for Dr. Iannone and July 29, 2019 for Ms. Patil and vest as to the remainder of the shares in 36 equal monthly installments thereafter. Each of the initial RSU awards granted to Dr. Iannone and Ms. Patil vest in four equal annual installments on the anniversary of the vesting commencement date of June 5, 2019 for Dr. Iannone and August 5, 2019 for Ms. Patil. As a general matter, the vested portion of stock options granted to the NEOs will expire three months after each NEO's last day of service, subject to extension upon certain termination situations, such as death or disability, and RSUs will cease vesting upon each NEO's last day of service. Stock option and RSU awards are subject to potential vesting acceleration as described below under the headings "*Description of Compensation Arrangements—Equity Compensation Arrangements—2011 Equity Incentive Plan*" and "*Potential Payments upon Termination or Change in Control—Amended and Restated Executive Change in Control Plan and Severance Benefit Plan*" below. See also "*Description of Compensation Arrangements—Equity Compensation Arrangements—2011 Equity Incentive Plan*" below for a general description of the material terms of the 2011 Plan.

(3) Stock options were granted with an exercise price equal to 100% of the fair market value on the date of grant which was $140.03 per share for the February 28, 2019 annual grants and $137.12 per share for the August 8, 2019 new hire grants to Dr. Iannone and Ms. Patil.

(4) The dollar amounts in this column represent the grant date fair value of each stock option and RSU award, as applicable, granted to the NEOs in 2019. These amounts have been calculated in accordance with ASC 718. The grant date fair value of each stock option is calculated using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. Assumptions used in the calculation of these amounts are included in the notes to our audited consolidated financial statements included in the company's 2019 Annual Report on Form 10-K. The grant date fair value of each RSU award is measured based on the closing price of our ordinary shares on the date of grant.

Description of Compensation Arrangements

Executive Employment and Severance Agreements

We do not have employment agreements currently in effect with any of our NEOs. Like other employees, executive officers are eligible for annual salary increases, participation in the performance bonus plan and discretionary equity grants. We have employment agreements in effect with certain employees based outside of the United States.

From time to time, we have provided an offer letter in connection with the commencement of employment of an executive officer based in the United States, which describes such executive officer's initial terms of employment. For example, in April 2019, we provided an offer letter to Dr. Iannone that included his initial base salary and a hiring bonus of $205,000 payable in connection with commencement of his employment, and in July 2019, we provided an offer letter to Ms. Patil that included her initial base salary and a hiring bonus of $125,000 payable in connection with commencement of her employment. The employment of Dr. Iannone and Ms. Patil, as is the case for all of our employees based in the United States, is at-will and not governed by the terms of their offer letters. We do not have agreements currently in effect with any of our NEOs entitling such individuals to severance benefits (other than in connection with a change in control pursuant to our change in control plan described below).

Amended and Restated Executive Change in Control and Severance Benefit Plan

Each of the current NEOs is a participant in the change in control plan, a description of which is included below under the heading "*Potential Payments upon Termination or Change in Control—Amended and Restated Executive Change in Control and Severance Benefit Plan*."

Equity Compensation Arrangements

Since the Azur Merger, we have granted stock options and RSU awards to employees, including the NEOs, under the 2011 Plan. From the initial public offering of Jazz Pharmaceuticals, Inc. until the Azur Merger, we granted stock options to our employees, including some of the NEOs, under the 2007 Plan. For more information on our current equity compensation program and decisions regarding the grants of equity awards in 2019 for our NEOs, see "*Compensation Discussion and Analysis—2019 Compensation Decisions for Our Named Executive Officers*." The following is a brief summary of the material terms of each of our equity compensation plans.

2011 Equity Incentive Plan

In connection with the Azur Merger, Jazz Pharmaceuticals, Inc.'s board of directors adopted the 2011 Plan in October 2011, and its stockholders approved the 2011 Plan at the special meeting of the stockholders held in December 2011. The 2011 Plan became effective immediately before the consummation of the Azur Merger and was assumed and adopted by us upon the consummation of the Azur Merger and most recently amended and restated by the board of directors in November 2016. The following is a brief summary of the material terms of the 2011 Plan, as amended and restated.

Administration. The board of directors has delegated its authority to administer the 2011 Plan to the compensation committee. Subject to the terms of the 2011 Plan, the board of directors or a committee authorized by the board determines recipients, dates of grant, the numbers and types of stock awards to be granted, and the terms and conditions of the stock awards, including the period of their exercisability and vesting. The compensation committee has the authority to delegate its administrative powers under the 2011 Plan to a subcommittee consisting of members of the compensation committee and may, at any time, revest in itself some or all of the power previously delegated to the subcommittee. Our board of directors may also delegate to one or more of our officers the authority to designate employees who are not officers to be recipients of certain stock awards and the number of shares subject to such stock awards, provided that our board of directors must specify the total number of shares that may be subject to the stock awards granted by such officer(s) and such officer(s) may not grant a stock award to himself or herself.

Types of Awards. The 2011 Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, RSU awards, other stock awards, and performance awards that may be settled in cash, shares, or other property, which may be granted to employees, including officers.

Corporate Transactions. In the event of certain significant corporate transactions (as defined in the 2011 Plan and described below), our board of directors will have the discretion to take one or more of the following actions with respect to outstanding stock awards (contingent upon the closing or completion of such corporate transaction), unless otherwise provided in the stock award agreement or other written agreement with the participant or unless otherwise provided by our board of directors at the time of grant:

- arrange for assumption, continuation, or substitution of a stock award by a surviving or acquiring corporation (or its parent company);
- arrange for the assignment of any reacquisition or repurchase rights applicable to any shares issued pursuant to a stock award to the surviving or acquiring corporation (or its parent company);
- accelerate the vesting, in whole or in part, and exercisability of a stock award and provide for its termination if it is not exercised at or prior to the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase rights applicable to any shares issued pursuant to a stock award;
- cancel or arrange for the cancellation of a stock award, to the extent not vested or exercised prior to the effective time of the corporate transaction, in exchange for such cash consideration, if any, as the board of directors may consider appropriate; or
- make a payment equal to the excess, if any, of (a) the value of the property that the participant would have received upon the exercise of the stock award over (b) any exercise price payable in connection with such exercise.

Our board of directors need not take the same action for each stock award or with regard to all participants.

For purposes of the 2011 Plan, a “corporate transaction” generally means (i) a sale or disposition of all or substantially all our assets or a sale or disposition of at least 90% of our outstanding securities; (ii) a merger, consolidation or similar transaction after which we are not the surviving corporation; or (iii) a merger, consolidation or similar transaction after which we are the surviving corporation but our ordinary shares are converted or exchanged into other property.

Change in Control. The board of directors has the discretion to provide additional acceleration of vesting and exercisability upon or after a change in control (as defined in the 2011 Plan and described below) as may be provided in a stock award agreement or any other written agreement between us or any of our affiliates and a participant. The forms of stock option agreement and RSU award agreement adopted by the board of directors under the 2011 Plan provide that in the event a participant’s service relationship with us or a successor entity is terminated due to an involuntary termination without cause (as defined in the stock award agreement and as described below) within 12 months following, or one month prior to, the effective date of a change in control, the vesting (and in the case of stock options, exercisability) of the stock award will accelerate in full.

For purposes of the 2011 Plan and the forms of stock option agreement and RSU award agreement issued thereunder, a "change in control" generally means (i) a person or group acquires ownership of more than 30% of the combined voting power of our outstanding securities (other than directly from our company); (ii) certain compromises or arrangements sanctioned by the Irish courts, certain schemes, contracts or offers that have become binding on all of our shareholders, certain takeover bids, certain offers or reverse takeover transactions or a reorganization, merger, statutory share exchange, consolidation or similar transaction involving us, and (A) after which our shareholders do not own more than 50% of the combined voting power of the surviving entity or its parent in substantially the same proportion as their ownership of our outstanding voting securities immediately before the transaction, (B) a person or group acquires ownership of more than 30% of the combined voting power of the surviving entity or its parent, or (C) at least a majority of the members of the board of directors of the parent (or the surviving entity, if there is no parent) following such transaction are not incumbent board members (as defined in (v) below) at the time our board of directors approves the transaction; (iii) our shareholders or our board of directors approves a complete dissolution or liquidation of our company, or a complete dissolution or liquidation of our company otherwise occurs (except for a liquidation into a parent company); (iv) a sale, lease, exclusive license or other disposition of all or substantially all of our assets, other than to certain entities; or (v) individuals who were members of our board of directors on the date of adoption of the 2011 Plan (or members of our board of directors approved or recommended by a majority vote of such members still in office), referred to as "incumbent board members," cease to constitute at least a majority of our board of directors.

An "involuntary termination without cause" generally means that a participant's service relationship with us is terminated for any reason other than for the following reasons (and not upon a participant's death or disability): (i) participant's commission of any felony or crime involving fraud, dishonesty or moral turpitude under the laws of the United States or any state thereof (with respect to Irish participants, the participant's conviction for any criminal offense (other than an offense under any road traffic legislation in Ireland, the United Kingdom or elsewhere for which a fine or non-custodial penalty is imposed) or any offense under any regulation or legislation relating to insider dealing, fraud or dishonesty); (ii) participant's attempted commission of or participation in a fraud or act of dishonesty against us; (iii) participant's intentional, material violation of any contract or agreement with us or of any statutory duty owed to us; (iv) participant's unauthorized use or disclosure of our confidential information or trade secrets; or (v) participant's gross misconduct.

2007 Equity Incentive Plan

The 2007 Plan, which was initially adopted by the Jazz Pharmaceuticals, Inc. board of directors and approved by the Jazz Pharmaceuticals, Inc. stockholders in connection with its initial public offering, was continued and assumed by us upon consummation of the Azur Merger. The 2007 Plan expired in April 2017, and accordingly, no new grants can be awarded under the 2007 Plan. The following is a brief summary of the material terms of the 2007 Plan.

Administration. The board of directors delegated its authority to administer the 2007 Plan to the compensation committee. Subject to the terms of the 2007 Plan, the board of directors or a committee authorized by the board determined recipients, dates of grant, the numbers and types of stock awards to be granted, and the terms and conditions of the stock awards, including the period of their exercisability and vesting.

Types of Awards. The 2007 Plan provided for the grant of incentive stock options, nonstatutory stock options, restricted stock awards, RSU awards, stock appreciation rights, performance stock awards and other forms of equity compensation, which may be granted to employees, including officers, non-employee directors, and consultants. Incentive stock options were granted only to employees, including executive officers. Since the Azur Merger, all of the new grants under the 2007 Plan were granted to non-employee directors, vest ratably over service periods of one to three years and expire no more than 10 years after the date of grant.

Corporate Transactions. Pursuant to the 2007 Plan, in the event of a corporate transaction (as defined in the 2007 Plan and described below), the board of directors will have the discretion to take one or more of the following actions with respect to outstanding stock awards (contingent upon the closing or completion of such corporate transaction), unless otherwise provided in the stock award agreement or other written agreement with the participant or unless otherwise provided by our board of directors at the time of grant:

- arrange for assumption, continuation, or substitution of a stock award by a surviving or acquiring corporation (or its parent company);
- arrange for the assignment of any reacquisition or repurchase rights applicable to any shares issued pursuant to a stock award to the surviving or acquiring corporation (or its parent company);
- accelerate the vesting and exercisability of a stock award and provide for its termination if it is not exercised at or prior to the corporate transaction;
- arrange for the lapse of any reacquisition or repurchase rights applicable to any shares issued pursuant to a stock award;
- cancel or arrange for the cancellation of a stock award, to the extent not vested or exercised prior to the effective time of the corporate transaction, in exchange for such cash consideration as the board of directors may consider appropriate; or
- make a payment equal to the excess, if any, of (a) the value of the property that the participant would have received upon the exercise of the stock award over (b) any exercise price payable in connection with such exercise.

The board of directors need not take the same action for each stock award or with respect to all participants. For purposes of the 2007 Plan, a "corporate transaction" generally means (i) a sale or disposition of all or substantially all our assets or a sale or disposition of at least 90% of our outstanding securities; (ii) a merger, consolidation or similar transaction after which we are not the surviving corporation; or (iii) a merger, consolidation or similar transaction after which we are the surviving corporation but our ordinary shares are converted or exchanged into other property.

Change in Control. The board of directors has the discretion to provide additional acceleration of vesting and exercisability upon or after a change in control (as defined in the 2007 Plan and described below) as may be provided in a stock award agreement or any other written agreement between us or any of our affiliates and a participant. The forms of stock option agreement and RSU award agreement adopted by the board of directors under the 2007 Plan provide that in the event a participant's service relationship with us or a successor entity is terminated due to an involuntary termination without cause (as defined in the stock award agreement and as described below) within 12 months following, or one month prior to, the effective date of a change in control, the vesting (and in the case of stock options, exercisability) of the stock award will accelerate in full. For purposes of the 2007 Plan and the forms of stock option agreement and RSU award agreement issued thereunder, a "change in control" generally means (i) a person or group acquires ownership of more than 50% of the combined voting power of our outstanding securities (other than in connection with a financing or a repurchase program); (ii) a merger, consolidation or similar transaction involving us, after which our shareholders do not own more than 50% of the combined voting power of the surviving entity or its parent in substantially the same proportion as their ownership of our outstanding voting securities immediately before the transaction; (iii) our shareholders or our board of directors approves a complete dissolution or liquidation of our company, or a complete dissolution or liquidation of our company otherwise occurs (except for a liquidation into a parent company); (iv) a sale, lease, exclusive license or other disposition of all or substantially all of our assets, other than to certain entities; or (v) individuals who are members of our board of directors on the date of adoption of the 2007 Plan (or members of our board of directors approved or recommended by a majority vote of such members still in office) cease to constitute at least a majority of our board of directors.

The term "involuntary termination without cause" has a similar meaning as under the 2011 Plan, as described above.

2007 Employee Stock Purchase Plan

Additional long-term equity incentives are provided through the ESPP, which was amended and restated by Jazz Pharmaceuticals, Inc.'s board of directors in October 2011 and approved by its stockholders in December 2011, to be effective immediately prior to the Azur Merger, and, in October 2012, amended and restated by our compensation committee. The ESPP was assumed by us upon the consummation of the Azur Merger. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of section 423 of the Internal Revenue Code, or the Code. Under the ESPP, all of our regular employees and employees of any of our parent or subsidiary companies designated by the board of directors as eligible to participate may participate and may contribute, normally through payroll deductions, up to 15% of their earnings up to a total of $15,000 per purchase period for the purchase of our ordinary shares under the ESPP. The ESPP is currently offered to our regular employees in Ireland, Canada and the United States, including the NEOs. The ESPP is implemented through a series of offerings of purchase rights to eligible employees. Under the ESPP, we may specify offerings with a duration of not more than 27 months, and may specify shorter purchase periods within each offering. Each offering will have one or more purchase dates on which our ordinary shares will be purchased for employees participating in the offering. Unless otherwise determined by the board of directors, ordinary shares are purchased for accounts of employees participating in the ESPP at a price per share equal to the lower of (a) 85% of the fair market value of an ordinary share on the first date of an offering or (b) 85% of the fair market value of an ordinary share on the date of purchase.

Performance Bonus Plan

We maintain a performance bonus plan to reward executive officers and other employees for successful achievement of company-wide performance objectives and individual contributions toward those objectives on an annual basis. More information regarding the performance bonus plan is provided above under the headings "*Compensation Discussion and Analysis—2019 Performance Bonus Program*" and "*Compensation Discussion and Analysis—2019 Compensation Decisions for Our Named Executive Officers*."

401(k) Plan

Our employees based in the United States are eligible to participate in the 401(k) Plan. The 401(k) Plan is intended to qualify as a tax-qualified plan under section 401 of the Code. Employee contributions are held and invested by the 401(k) Plan's trustee. The 401(k) Plan provides that each participant may contribute a portion of his or her pre-tax compensation, up to a statutory annual limit, which was $19,000 for employees under age 50, and $25,000 for employees age 50 and over in 2019. The 401(k) Plan also permits us to make discretionary contributions and matching contributions, subject to established limits and a vesting schedule. In 2013, we began making discretionary matching contributions, which for 2019, consisted of a match of 50% of up to the first 6% of eligible compensation contributed by each employee toward his or her 401(k) plan.

Additional Benefits

The NEOs are eligible to participate in our benefit plans generally available to all employees, as described in "*Compensation Discussion and Analysis—Key Components and Design of the Executive Compensation Program*."

Pension Benefits

Other than with respect to tax-qualified defined contribution plans such as the 401(k) Plan, the NEOs do not participate in any plan that provides for retirement payments and benefits, or payments and benefits that will be provided primarily following retirement.

Nonqualified Deferred Compensation

During the year ended December 31, 2019, the NEOs did not contribute to, or earn any amounts with respect to, any defined contribution or other plan sponsored by us that provides for the deferral of compensation on a basis that is not tax-qualified.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth, for the fiscal year ended December 31, 2019, certain information regarding outstanding equity awards at fiscal year-end for the NEOs.

OUTSTANDING EQUITY AWARDS AT 2019 FISCAL YEAR-END TABLE

	Option Awards				Stock Awards	
Name	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#)[1] Unexercisable	Option Exercise Price ($)	Option Expiration Date[2]	Number of Shares or Units of Stock That Have Not Vested (#)[3]	Market Value of Shares or Units of Stock That Have Not Vested ($)[4]
Bruce C. Cozadd	—	125,000[6]	140.03	2/27/2029	50,000[11]	7,464,000
	40,468	52,032[7]	140.67	2/29/2028	27,750[12]	4,142,520
	59,468	27,032[8]	136.18	3/1/2027	17,300[13]	2,582,544
	74,270	3,230[9]	123.36	2/24/2026	7,750[14]	1,156,920
	72,500	—	175.19	2/25/2025	—	—
	48,784[5]	—	166.62	2/26/2024	—	—
	73,961[5]	—	59.13	3/4/2023	—	—
	109,284[5]	—	46.83	8/8/2022	—	—
	6,895[5]	—	11.48	3/7/2020[10]	—	—
Daniel N. Swisher, Jr.	—	35,000[6]	140.03	2/27/2029	14,000[11]	2,089,920
	21,562	23,438[15]	140.67	2/29/2028	13,500[16]	2,015,280
Matthew Young[17]	9,302	—	140.67	2/29/2028	—	—
	16,145	—	136.18	3/1/2027	—	—
	20,000	—	175.19	2/25/2025	—	—
	9,000	—	166.62	2/26/2024	—	—
Robert Iannone, M.D., M.S.C.E	—	30,500[18]	137.12	8/7/2029	12,200[19]	1,821,216
Neena M. Patil	—	30,000[20]	137.12	8/7/2029	12,000[21]	1,791,360

(1) In addition to the specific vesting schedule for each stock award, each unvested stock award is subject to the general terms of the 2011 Plan or 2007 Plan, as applicable, including the potential for future vesting acceleration described above under the heading "*Description of Compensation Arrangements—Equity Compensation Arrangements*" as well as the potential vesting acceleration under the terms of the change in control plan described below under the heading "*Potential Payments upon Termination or Change in Control—Amended and Restated Executive Change in Control and Severance Benefit Plan*."

(2) As a general matter, stock options granted to NEOs expire on the day before the tenth anniversary of their grant date, or earlier in the event of an NEO's termination of service. In the event of an NEO's termination of service, stock options generally expire three months after such termination of service, subject to extension under limited circumstances such as if the sale of shares during such time was prohibited by our insider trading policy or if exercise would result in violation of securities registration requirements. For more information, see description under the heading "*Potential Payments upon Termination or Change in Control—Equity Compensation Plans*."

(3) Each award listed in this column represents an RSU award that vests in four equal annual installments on the anniversary of the applicable vesting commencement date.

(4) The market values of the RSU awards that have not vested are calculated by multiplying the number of shares underlying the RSU awards shown in the table by $149.28, the closing price of our ordinary shares on December 31, 2019.

(5) The number of shares reported reflects the transfer of beneficial ownership of a portion of the indicated stock option awards in 2015 to Mr. Cozadd's former spouse pursuant to a domestic relations order.

(6) The unexercisable shares subject to this stock option award as of December 31, 2019 vested with respect to 25% of the shares underlying the stock option on February 28, 2020, and the remainder vests monthly from March 28, 2020 to February 28, 2023.

(7) The unexercisable shares subject to this stock option award as of December 31, 2019 vest monthly from January 1, 2020 to March 1, 2022.

Executive Compensation (continued)

(8) The unexercisable shares subject to this stock option award as of December 31, 2019 vest monthly from January 2, 2020 to March 2, 2021.

(9) The unexercisable shares subject to this stock option award as of December 31, 2019 vested monthly from January 25, 2020 to February 25, 2020.

(10) This stock option award was fully exercised in cash by Mr. Cozadd on February 24, 2020.

(11) RSUs awarded on February 28, 2019, vesting in equal annual installments over four years measured from the vesting commencement date of March 5, 2019.

(12) RSUs awarded on March 1, 2018, vesting in equal annual installments over four years measured from the vesting commencement date of March 5, 2018.

(13) RSUs awarded on March 2, 2017, vesting in equal annual installments over four years measured from the vesting commencement date of March 5, 2017.

(14) RSUs awarded on February 25, 2016, vesting in equal annual installments over four years measured from the vesting commencement date of February 25, 2016.

(15) The unexercisable shares subject to this stock option award as of December 31, 2019 vest monthly from January 3, 2020 to January 3, 2022.

(16) RSUs awarded on March 1, 2018, vesting in equal annual installments over four years measured from the vesting commencement date of January 3, 2018.

(17) Mr. Young resigned from his position as Executive Vice President and CFO, effective as of October 25, 2019. The option expiration dates listed in the table for each of Mr. Young's options outstanding at fiscal year-end are the original option expiration dates pursuant to the terms of his option awards. As a result of his termination of service, each of these previously vested options, to the extent not exercised, expired on February 7, 2020.

(18) The unexercisable shares subject to this stock option award as of December 31, 2019 vest with respect to 25% of the ordinary shares underlying the stock option on May 29, 2020, and the remainder vest monthly from June 29, 2020 to May 29, 2023.

(19) RSUs awarded on August 8, 2019, vesting in equal annual installments over four years measured from the vesting commencement date of June 5, 2019.

(20) The unexercisable shares subject to this stock option award as of December 31, 2019 vest with respect to 25% of the ordinary shares underlying the stock option on July 29, 2020, and the remainder vest monthly from August 29, 2020 to July 29, 2023.

(21) RSUs awarded on August 8, 2019, vesting in equal annual installments over four years measured from the vesting commencement date of August 5, 2019.

Option Exercises and Stock Vested

The following table provides information on RSUs vested and stock options exercised, including the number of shares acquired upon exercise and the value realized, determined as described below, for the NEOs in the year ended December 31, 2019.

	Option Awards		Stock Awards	
Name	Number of Shares Acquired on Exercise (#)	Value Realized on Exercise ($)[1]	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ($)[2]
Bruce C. Cozadd	—	—	32,600	4,297,544
Daniel N. Swisher, Jr.	—	—	4,500	567,045
Matthew P. Young	52,123	2,550,338	9,018	1,187,832
Robert Iannone, M.D., M.S.C.E	—	—	—	—
Neena M. Patil	—	—	—	—

(1) The value realized on exercise is based on the difference between the closing price of our ordinary shares on the date of exercise and the applicable exercise price of those options, and does not represent actual amounts received by the NEOs as a result of the option exercises.

(2) The value realized on vesting is based on the number of shares underlying the RSUs that vested and the closing price of our ordinary shares on the vesting date.

Potential Payments upon Termination or Change in Control

Amended and Restated Executive Change in Control and Severance Benefit Plan

The change in control plan provides that, in the event that an executive's employment terminates due to an involuntary termination without cause or a constructive termination, in each case upon or within 12 months following a change in control (as such terms are defined in the change in control plan and described generally below), and assuming all of the other conditions of the change in control plan are met, each executive who is a participant in the change in control plan (including each of our NEOs) would be entitled to the following benefits under the change in control plan:

- A single, lump sum cash severance payment equal to the sum of: (i) the applicable base salary described below, multiplied by the applicable percentage set forth below; *plus* (ii) the product of (A) the applicable base salary, (B) the applicable bonus percentage described below and (C) the applicable percentage set forth below; *plus* (iii) the product of (A) the applicable base salary, (B) the applicable bonus percentage and (C) the quotient obtained by dividing the number of full months that an executive is employed in the year of the termination by 12.
    - The "applicable base salary" is the higher of the executive's base salary in effect (i) on the date of termination (without giving effect to any reduction in base salary that would constitute grounds for a constructive termination) or (ii) immediately prior to the change in control, without giving effect to any voluntary pay reduction taken by the executive during the 12 months preceding the date of termination or the change in control.
    - The "applicable percentage" is 200% for our CEO, executive chairman or president, 150% for senior vice presidents and above and 100% for vice presidents.
    - The "applicable bonus percentage" is the greater of (i) the highest amount of any annual bonus paid to the executive for either of the last two calendar years prior to (A) the date of termination or (B) the change in control, in each case expressed as a percentage of the executive's base salary for the applicable year, and (ii) the higher of the executive's target bonus for the calendar year in which (A) the termination occurs or (B) the change in control occurs, in each case expressed as a percentage of the executive's base salary for such year.

- Full payment of all of the applicable COBRA premiums for any health, dental or vision plan sponsored by us for a period of up to (i) 24 months for our CEO, executive chairman or president, (ii) 18 months for executive vice presidents and senior vice presidents, and (iii) 12 months for vice presidents, provided that the executive timely elects continued coverage.
- Acceleration in full of the vesting and exercisability, as applicable, of outstanding stock options and other equity awards held by the executive.

The following key terms are defined in the change in control plan:

- A "change in control" generally means: (i) a person or group acquires ownership of more than 30% of the combined voting power of our outstanding securities (other than directly from our company); (ii) certain compromises or arrangements sanctioned by the Irish courts, certain schemes, contracts or offers that have become binding on all of our shareholders, certain takeover bids, certain offers or reverse takeover transactions, or a reorganization, merger, statutory share exchange, consolidation or similar transaction involving us, after which our shareholders do not own more than 50% of the combined voting power of the surviving entity or its parent in substantially the same proportion as their ownership of our outstanding voting securities immediately before the transaction, or a person or group acquires ownership of more than 30% of the combined voting power of the surviving entity or its parent, or at least a majority of the members of the board of directors of the parent (or the surviving entity, if there is no parent) following such transaction are not incumbent board members (as defined in (v) below) at the time our board of directors approves the transaction; (iii) our shareholders or our board of directors approves a complete dissolution or liquidation of our company, or a complete dissolution or liquidation of our company otherwise occurs (except for a liquidation into a parent company); (iv) a sale, lease, exclusive license or other disposition of all or substantially all of our assets, other than to certain entities; or (v) individuals who were members of our board of directors as of February 10, 2016 (or members of our board of directors approved or recommended by a majority vote of such members still in office), referred to as "incumbent board members," cease to constitute at least a majority of the board of directors.
- An "involuntary termination without cause" generally means an executive's employment is terminated for any reason other than for the following reasons: (i) the executive's unauthorized use or disclosure of confidential information or trade secrets which causes material harm to us; (ii) the executive's material breach of any agreement with us (or the executive's material violation of any statutory duty owed to us) after an opportunity to cure; (iii) the executive's material failure to comply with our written policies or rules after an opportunity to cure; (iv) the executive's conviction or plea of guilty or no contest to any crime involving fraud, dishonesty or moral turpitude; (v) the executive's gross misconduct; (vi) the executive's continued failure to perform his or her assigned duties after notification; or (vii) the executive's failure to reasonably cooperate in good faith with any governmental or internal investigation of us or our directors, officers or employees. An "involuntary termination without cause" also includes an executive's termination of employment due to death or disability.
- A "constructive termination" generally means an executive resigns employment after any of the following actions are taken or events occur without the executive's written consent: (i) one or more reductions in the executive's base salary that results in a total reduction in the executive's base salary, as in effect immediately prior to the change in control or any higher base salary in effect following the change in control, by more than 10%; (ii) a relocation of the executive's principal place of employment that increases the executive's one-way commute by more than 35 miles; (iii) a substantial reduction in the executive's authority, duties or responsibilities that are in effect immediately prior to the change in control, provided that if the executive holds the same position but the size of the executive's employing entity or business unit has decreased significantly or our company or the executive's employing entity ceases to be a publicly-traded corporation, the executive's authority, duties and responsibilities will be considered to be substantially reduced; (iv) a reduction in the executive's title; or (v) a substantial increase in executive's required business travel as compared with the executive's required business travel prior to the change in control.

We benefit by requiring the executive to execute an effective general waiver and release of claims in order to be eligible to receive benefits under the change in control plan. All other benefits (such as life insurance, disability coverage and 401(k) Plan eligibility) will terminate as of the executive's termination date.

The change in control plan does not provide for the gross up of any excise taxes imposed by section 4999 of the Code. If any of the severance benefits payable under the change in control plan would constitute a "parachute payment" within the meaning of section 280G of the Code, subject to the excise tax imposed by section 4999 of the Code, the change in control plan provides for a best after-tax analysis with respect to such payments, under which the executive will receive whichever of the following two alternative forms of payment would result in executive's receipt, on an after-tax basis, of the greater amount of the transaction payment notwithstanding that all or some portion of the transaction payment may be subject to the excise tax: (i) payment in full of the entire amount of the transaction payment, or (ii) payment of only a part of the transaction payment so that the executive receives the largest payment possible without the imposition of the excise tax.

The executive would not receive benefits under the change in control plan in certain circumstances, including if (i) the executive voluntarily terminates employment with us to accept employment with another entity that is controlled, directly or indirectly, by us or is otherwise affiliated with us; (ii) the executive does not confirm in writing that he or she is subject to agreements with us relating to proprietary and confidential information and our code of conduct; or (iii) the executive does not return all company property. In addition, benefits would be terminated under the change in control plan if the executive willfully breaches his or her agreements with us relating to proprietary and confidential information or our code of conduct.

The structure and amount of benefits provided under the change in control plan are intended to balance our goals of attracting and retaining highly qualified individuals, providing the appropriate incentive for such individuals to perform in the best interests of our shareholders and maintaining responsible pay practices. Our compensation committee periodically reviews market data to gain a general understanding of the change in control benefits offered by our competitors and reviews the benefits offered under the change in control plan against such market data to ensure that the benefits under the change in control plan remain appropriate.

Equity Compensation Plans

The 2011 Plan and 2007 Plan and award agreements thereunder provide for potential vesting acceleration upon an executive's termination in connection with a change in control and, at the discretion of the board of directors, upon certain change in control events, as further described above under the heading "*Description of Compensation Arrangements—Equity Compensation Arrangements*." In addition, under the terms of the 2011 Plan and 2007 Plan and the option award agreements thereunder, the vested portion of stock options granted to the NEOs will generally expire three months after the applicable NEO's termination of service, subject to extension under limited circumstances such as if the sale of shares during such time was prohibited by our insider trading policy or if exercise would result in violation of securities registration requirements. We refer to the period following the NEO's termination during which he or she can continue to exercise his or her vested stock options as the post-termination exercise period. However, in termination situations involving the death or disability of an NEO, the post-termination exercise period is generally extended up to 12 months in connection with a termination due to disability and up to 18 months in connection with a termination due to death. As the value of such extended post-termination exercise periods is not quantifiable, such value is not included in the table below.

Potential Payments upon Termination or Change in Control Table

The following table estimates the potential severance payments and benefits under the change in control plan to which the NEOs, other than Mr. Young, would have been entitled in connection with specified termination events, calculated as if each NEO's employment had terminated as of December 31, 2019. In addition, the table sets forth the amounts to which the NEOs would have been entitled under the 2011 Plan and 2007 Plan if, upon a corporate transaction or change in control transaction, the board of directors had exercised its discretion to accelerate the vesting and exercisability of stock options and the vesting of RSU awards, and such event had occurred on December 31, 2019. Due to Mr. Young's resignation effective October 25, 2019, he was not eligible for any potential payments or benefits under any of the various scenarios below as of December 31, 2019, and there were otherwise no severance payments or other severance benefits provided to Mr. Young resulting from his resignation.

There are no other agreements, arrangements or plans that entitle any NEOs to severance, perquisites or other benefits upon termination of employment or a change in control. For purposes of the table below, we have assumed that none of the potential severance benefits payable under the change in control plan would be subject to the excise tax imposed by section 4999 of the Code and therefore would not be reduced in accordance with the terms of the change in control plan.

POTENTIAL PAYMENTS UPON TERMINATION OR CHANGE IN CONTROL AS OF DECEMBER 31, 2019

Name	Benefit	Involuntary Termination Without Cause or Constructive Termination in Connection with a Change of Control($)[1]	2011 Plan and 2007 Plan—Certain Corporate Transactions($)[2]
Bruce C. Cozadd	Lump Sum Cash Severance Payment	5,100,000	—
	COBRA Payments	75,468	—
	Vesting Acceleration[3]	17,388,053	17,388,053
	Benefit Total	**22,563,520**	**17,388,053**
Daniel N. Swisher, Jr.	Lump Sum Cash Severance Payment	2,666,250	—
	COBRA Payments	75,468	—
	Vesting Acceleration[3]	4,630,748	4,630,748
	Benefit Total	**7,372,466**	**4,630,748**
Robert Iannone, M.D., M.S.C.E	Lump Sum Cash Severance Payment	1,455,208	—
	COBRA Payments	53,868	—
	Vesting Acceleration[3]	2,192,095	2,192,095
	Benefit Total	**3,701,171**	**2,192,095**
Neena M. Patil	Lump Sum Cash Severance Payment	1,204,875	—
	COBRA Payments	—[4]	—
	Vesting Acceleration[3]	2,156,159	2,156,159
	Benefit Total	**3,361,034**	**2,156,159**

(1) These benefits would be payable under the change in control plan if the involuntary termination without cause or constructive termination occurred upon or within 12 months following a change in control and assuming such termination took place on December 31, 2019. The forms of stock option and RSU agreements under the 2011 Plan and the 2007 Plan provide for the same vesting acceleration benefit as shown here under the change in control plan, therefore no separate vesting acceleration benefit is listed. Pursuant to the change in control plan, an involuntary termination without cause also includes an individual's death or disability.

(2) These benefits would be payable under the 2011 Plan and the 2007 Plan if, upon a corporate transaction event, the board of directors exercised its discretion to accelerate the vesting and exercisability of outstanding stock options and RSU awards, assuming the vesting acceleration took place on December 31, 2019. For a description of the potential vesting acceleration provisions in the 2011 Plan and the 2007 Plan, see "*Description of Compensation Arrangements—Equity Compensation Arrangements*" above.

(3) The value of stock option and RSU award vesting acceleration is based on the closing price of $149.28 per ordinary share as of December 31, 2019, minus, in the case of stock options, the exercise price of the unvested stock option shares subject to acceleration.

(4) Ms. Patil was not enrolled in the company's health insurance plans as of December 31, 2019.

Pay Ratio Disclosure

Under SEC rules, we are required to calculate and disclose the annual total compensation of our median employee, as well as the ratio of the annual total compensation of our median employee as compared to the annual total compensation of our CEO, or our CEO pay ratio. Consistent with the process adopted for 2018, to identify our median employee for 2019, we used the following methodology:

- To determine our total population of employees, we included all full-time, part-time, regular and temporary employees as of October 1, 2019.
- To identify our median employee from our employee population, we calculated the annual target amount of each employee's 2019 base salary (using a reasonable estimate of the hours worked and no overtime for hourly employees) and bonus or commission, as applicable, and added the estimated value of all equity awards granted during 2019. For purposes of base salaries, bonuses and commissions, we used an estimate based on the rates in effect on October 1, 2019. To estimate the value of stock options, we multiplied the number of shares subject to each stock option by the estimated per share Black-Scholes value based on assumptions disclosed in our 2019 Annual Report on Form 10-K, and to estimate the value of other equity awards, we used the same methodology we use for reporting the value of equity awards granted to our NEOs in our Summary Compensation Table.
- In making this determination, we annualized the base salaries, bonuses and commissions of employees who were employed by us for less than the entire calendar year.
- Compensation paid in foreign currencies was converted to U.S. dollars based on the average daily exchange rates for the year to date period ending on October 1, 2019.

Using this approach, we determined our median employee and then calculated the annual total compensation of this employee for 2019 in accordance with the requirements of the Summary Compensation Table.

For 2019, the median of the annual total compensation of our employees (other than our CEO) was $214,881 and the annual total compensation of our CEO, as reported in our Summary Compensation Table, was $14,713,637. Based on this information, the ratio of the annual total compensation of our CEO to the median of the annual total compensation of all employees was 68 to 1.

The CEO pay ratio above represents our reasonable estimate calculated in a manner consistent with SEC rules and applicable guidance. SEC rules and guidance provide significant flexibility in how companies identify the median employee, and each company may use a different methodology and make different assumptions particular to that company. As a result, and as explained by the SEC when it adopted these rules, in considering the pay ratio disclosure, shareholders should keep in mind that the rule was not designed to facilitate comparisons of pay ratios among different companies, even companies within the same industry, but rather to allow shareholders to better understand and assess each particular company's compensation practices and pay ratio disclosures.

Neither the compensation committee nor our management used our CEO pay ratio measure in making compensation decisions.

DIRECTOR COMPENSATION

Non-Employee Director Compensation Policy

Pursuant to our non-employee director compensation policy, or director compensation policy, each non-employee director was entitled to receive the following cash compensation for board services, as applicable, for 2019:

- a $60,000 annual retainer for service as a member of our board of directors (paid quarterly);
- a supplemental $50,000 annual retainer for service as the Lead Independent Director (paid quarterly);
- a supplemental annual retainer for the chairs of the following board committees in the following amounts: $25,000 for the chairperson of the audit committee, $22,500 for the chairperson of the compensation committee, $20,000 for the chairperson of the nominating and corporate governance committee and $22,500 for the chairperson of the transaction committee (each paid quarterly); and
- a supplemental annual retainer for each member of the following board committees other than the chairs, in the following amounts: $15,000 for service as a member of the audit committee, $12,500 for service as a member of the compensation committee, $10,000 for service as a member of the nominating and corporate governance committee and $12,500 for service as a member of the transaction committee (each paid quarterly).

Our director compensation policy was originally approved by our board of directors in May 2013 and has been amended as follows: in August 2013 to, among other things, provide for cash retainers for the chairperson and members of the transaction committee; in May 2014 to provide for compensation to our Lead Independent Director and revise the number of initial and continuing equity grants; in October 2014 to provide for a tax equalization payment on any Irish tax that may be paid on company reimbursement of reasonable travel, lodging and meal expenses related to service on the board of directors; in April 2015 to revise the number of initial and continuing equity grants; in May 2016 to increase the annual retainer for service as a member of our board of directors, increase the annual retainer for service as our Lead Independent Director and revise the number of initial and continuing RSU awards; and in May 2018 to replace the fixed number of initial and continuing option and RSU awards with a specified grant date dollar value.

The director compensation policy currently provides for the automatic grant of equity awards to our non-employee directors over the period of their service on our board of directors. Any individual who first becomes a non-employee director is automatically granted the following: (a) an initial option to purchase ordinary shares that vests with respect to one-third of the shares on the first anniversary of the date of such individual's election or appointment to the board of directors, and, with respect to the balance, in a series of 24 successive equal monthly installments thereafter and (b) an initial RSU award that vests in equal annual installments over three years from the date of such individual's election or appointment to the board of directors, subject in each case to the non-employee director's continuous service through such dates. The grant date value of the initial option together with the initial RSU award is equal to approximately $600,000, with generally 50% of the value delivered as an initial option and 50% of the value delivered as an initial RSU award, using the applicable ratio of stock option grants to RSUs that is approved by the compensation committee on an annual basis, with the actual share amounts for the initial option and initial RSU award to be determined by applying the value methodology used by the compensation committee for determining equity grants for employees generally. If a non-employee director does not stand for reelection at an annual general meeting of our shareholders in the year in which his or her term expires or otherwise resigns effective at an annual general meeting of our shareholders and, in either case, the non-employee director's continuous service terminates at such meeting, then effective as of the date of such meeting, any unvested portion of the initial option award will become vested and exercisable, and any unvested portion of the initial RSU award will become vested, in each case with respect to the portion of the award that would have vested through the anniversary of the award's vesting commencement date in the year of that meeting.

Director Compensation (continued)

Under the current director compensation policy, each continuing non-employee director will automatically be granted the following continuing grants in connection with each annual general meeting: (a) a continuing option to purchase ordinary shares that vests in a series of 12 successive equal monthly installments beginning on the first day of the calendar month following the date of the annual general meeting of our shareholders with respect to which the option is granted and (b) a continuing RSU award that vests in full on the first anniversary of the date of the annual general meeting of our shareholders with respect to which the RSU award is granted, subject in each case to the non-employee director's continuous service through such dates. The grant date value of the continuing option together with the continuing RSU award is equal to approximately $400,000, with generally 50% of the value delivered as a continuing option and 50% of the value delivered as a continuing RSU award, using the applicable ratio of stock option grants to RSUs that is approved by the compensation committee on an annual basis, with the actual share amounts for the continuing option and continuing RSU award to be determined by applying the value methodology used by the compensation committee for determining equity grants for employees generally. If a director is elected or appointed as a director for the first time other than at an annual general meeting, in order to receive automatic continuing grants, the director must have first joined the board at least four calendar months before the date of the applicable annual general meeting. If a director is elected or appointed as a director for the first time at an annual general meeting, the director will not receive automatic continuing grants for such meeting. If a non-employee director does not stand for reelection at an annual general meeting of our shareholders in the year in which his or her term expires or otherwise resigns effective at an annual general meeting of our shareholders and, in either case, the non-employee director's continuous service terminates at such meeting, then effective as of the date of such meeting, any unvested portion of the continuing option award will become vested and exercisable in full and any unvested portion of a continuing RSU award will become vested in full.

The automatic initial and continuing options and RSU awards are granted under the Amended and Restated 2007 Non-Employee Directors Stock Award Plan, or 2007 Directors Plan.

The grant date of these equity awards is the second trading day following the filing date of our next quarterly or annual report filed under the Exchange Act that occurs after the date the director first joined our board of directors (with respect to the automatic initial option and RSU awards) or the date of our annual general meeting (with respect to the automatic continuing option and RSU awards). The other terms and conditions applicable to equity awards made to our non-employee directors are included below under the heading "*Equity Compensation Plans*."

In addition, our non-employee directors are reimbursed for travel and other reasonable expenses incurred in attending board or committee meetings, as are our employees who serve as directors. If any reimbursement payment is subject to tax imposed by the Irish Revenue Commissioners, each non-employee director is also entitled to a tax equalization payment in order to allow them to retain the full reimbursement payment. There were no such tax equalization payments made to any of our non-employer director with respect to any reimbursement payments in 2019.

The compensation committee will continue to monitor the impact of COVID-19 on the global economy, our business and the design of our director compensation program.

Directors Continuing Education

In furtherance of our ongoing commitment to the continuing education of our directors, our nominating and corporate governance committee adopted a policy for the reimbursement of director continuing education in February 2013, as amended in February 2014. Under this policy, we will pay or reimburse each director for enrollment fees and reasonable expenses incurred in connection with attending and participating each year in one director continuing education program and in one healthcare industry continuing education program, each sponsored by an outside provider.

Directors Deferred Compensation Plan

In May 2007, the Jazz Pharmaceuticals, Inc. board of directors adopted the Directors Deferred Compensation Plan, which was amended and restated in August 2010. The Directors Deferred Compensation Plan, as amended and restated, is referred to in this proxy statement as the Directors Deferred Plan. We continued and assumed the Directors Deferred Plan in connection with the Azur Merger. The Directors Deferred Plan allows each non-employee director to elect to defer receipt of all or a portion of his or her annual retainer fees to a future date or dates. Amounts deferred under the Directors Deferred Plan are credited as our ordinary shares to a phantom stock account, and the number of shares credited is based on the amount of the retainer fees deferred divided by the market value of our ordinary shares on the first trading day of the first open window period following the date the retainer fees were deemed earned. On the tenth business day following the day of separation from the board of directors or the occurrence of a change in control, or as soon thereafter as practical once the non-employee director has provided the necessary information for electronic deposit of the deferred shares, each non-employee director will receive (or commence receiving, depending upon whether the director has elected to receive distributions from his or her phantom stock account in a lump sum or in installments over time) a distribution from his or her phantom stock account in our ordinary shares. The Directors Deferred Plan may be amended or terminated at any time by the board of directors. The Directors Deferred Plan in form and operation is intended to be compliant with section 409A of the Code.

Although we continue to maintain the Directors Deferred Plan, since the closing of the Azur Merger we have not permitted our non-employee directors to defer any annual retainer fees under the Directors Deferred Plan. On October 31, 2019, our board of directors approved the termination of the Directors Deferred Plan, and all outstanding phantom stock will be distributed to each applicable non-employee director in November 2020.

Ownership Guidelines for Directors

We maintain share ownership guidelines for our non-employee directors, originally adopted in February 2013 and amended in May 2018. Under the guidelines, giving effect to an amendment in May 2018, each non-employee director is expected to own a number of the company's ordinary shares with a value equal to five times his or her annual cash retainer (increased from three times the annual cash retainer prior to May 2018). The guidelines provide that the individuals subject to the guidelines are expected to establish the minimum ownership levels within five years of first becoming subject to the guidelines (and, with respect to the amended guidelines in May 2018, by the last day of 2021 for individuals subject to the guidelines as of January 1, 2018). As of March 31, 2020, each non-employee director was in compliance with his or her share ownership requirement under the applicable guidelines, except for Ms. O'Riordan who joined our board of directors in February 2019 and, accordingly, has five years from her appointment, or until 2024, to comply with the guidelines.

Equity Compensation Plans

The 2007 Directors Plan, which was initially adopted by the Jazz Pharmaceuticals, Inc. board of directors and approved by the Jazz Pharmaceuticals, Inc. stockholders in connection with its initial public offering, was continued and assumed by us upon the consummation of the Azur Merger. The automatic initial and continuing stock awards under our director compensation policy described above are granted under the 2007 Directors Plan.

Director Compensation (continued)

With respect to options granted under the 2007 Directors Plan and 2007 Plan, if a non-employee director's service relationship with us or any of our affiliates, whether as a non-employee director or subsequently as our employee, director or consultant or that of any of our affiliates, ceases for any reason other than disability or death, or, with respect to options granted under the 2007 Directors Plan only, after any 12-month period following a change in control, the optionee may exercise any vested options for a period of three months following the cessation of service. If such optionee's service relationship with us, or any of our affiliates, ceases due to disability or death (or an optionee dies within a certain period following cessation of service), the optionee or a beneficiary may exercise the option for a period of 12 months in the event of disability, and 18 months in the event of death. With respect to options granted under the 2007 Directors Plan, if such optionee's service terminates within 12 months following a specified change in control transaction, the optionee may exercise any vested portion of the option for a period of 12 months following the effective date of such a transaction. The option term may be extended in the event that exercise of the option following termination of service is prohibited by applicable securities laws. In no event, however, may an option be exercised beyond the expiration of its term.

With respect to RSU awards granted under the 2007 Directors Plan and 2007 Plan, if a non-employee director's service relationship with us or any of our affiliates, whether as a non-employee director or subsequently as our employee, director or consultant or that of any of our affiliates, ceases for any reason, any RSU awards that were unvested as of the date of such termination will be forfeited.

In the event of certain significant corporate transactions (which generally have a meaning similar to "corporate transaction" under the 2011 Plan), all outstanding awards under the 2007 Directors Plan may be assumed, continued or substituted for by any surviving or acquiring entity (or its parent company). If the surviving or acquiring entity (or its parent company) elects not to assume, continue or substitute for such awards, then (a) with respect to any such awards that are held by participants then performing services for us or our affiliates, the vesting and exercisability of such awards will be accelerated in full and such awards will be terminated if not exercised (if applicable) prior to the effective date of the corporate transaction and (b) all other outstanding awards will terminate if not exercised prior to the effective date of the corporate transaction. The board of directors may also provide that the holder of an outstanding award not assumed in the corporate transaction will surrender such award in exchange for a payment equal to the excess of (i) the value of the property that the holder would have received upon exercise of the award, over (ii) the exercise price otherwise payable in connection with the exercise. In addition, the vesting and exercisability of awards under the 2007 Directors Plan held by non-employee directors who are either required to resign their position as a condition of a specified change in control transaction (which generally has a similar meaning as a "change in control" under the 2011 Plan) or are removed from their position in connection with such a change in control will be accelerated in full.

The treatment of outstanding options and RSU awards under the 2007 Plan in the event of certain significant corporate transactions or a specified change in control transaction is described above under the heading "*Executive Compensation—Description of Compensation Arrangements—Equity Compensation Arrangements—2007 Equity Incentive Plan*."

2019 Equity Grants

In accordance with our non-employee director compensation policy described above, we made automatic continuing grants to each of our non-employee directors as a result of their continuing on the board of directors through our annual general meeting in August 2019, which continuing grants were comprised of an option to purchase 4,805 ordinary shares and an RSU award covering 1,920 ordinary shares. All options and RSUs granted to non-employee directors during 2019 were granted under the 2007 Directors Plan.

Director Compensation Table

The following table sets forth certain information with respect to the compensation of all of our non-employee directors for the fiscal year ended December 31, 2019. Mr. Cozadd, our Chairman and CEO, is not listed in the following table because he is our employee. Mr. Cozadd's compensation is described under "*Executive Compensation*." Mr. Cozadd received no additional compensation for serving on our board of directors in 2019.

DIRECTOR COMPENSATION FOR FISCAL 2019

Name	Fees Earned Or Paid in Cash ($)[1]	Stock Awards ($)[2][4]	Option Awards ($)[3][4]	All Other Compensation ($)	Total ($)
Paul L. Berns	72,500	263,270	196,803	—	532,573
Patrick G. Enright	87,500	263,270	196,803	—	547,573
Peter Gray	97,500	263,270	196,803	—	557,573
Heather Ann McSharry	107,500	263,270	196,803	—	567,573
Seamus Mulligan	82,500	263,270	196,803	—	542,573
Kenneth W. O'Keefe	75,000	263,270	196,803	—	535,073
Anne O'Riordan	63,788	660,955	502,382	—	1,227,126
Norbert G. Riedel, Ph.D.	95,000	263,270	196,803	—	555,073
Elmar Schnee	82,500	263,270	196,803	—	542,573
Catherine A. Sohn, Pharm.D.	82,500	263,270	196,803	—	542,573
Rick E Winningham	120,000	263,270	196,803	—	580,073

(1) The dollar amounts in this column represent each non-employee director's actual annual cash retainer earned for board services in 2019, which is equal to the aggregate of his or her annual retainer of $60,000 plus his or her annual retainers for service on one or more board committees, and for Mr. Winningham, for service as Lead Independent Director. Each non-employee director's total fees were earned and payable in four quarterly installments subject to the non-employee director's continuous service at the end of each quarter. Fees paid to each of Mses. McSharry and O'Riordan and Messrs. Gray, Mulligan and Schnee were paid in Euro. The conversion to U.S. dollars was calculated based on the average exchange rate for each quarter as reported by the OANDA Corporation. Following the Azur Merger, the board of directors did not permit cash retainer fees to be deferred by our non-employee directors pursuant to the Directors Deferred Plan. The total number of ordinary shares previously credited to each individual non-employee director's phantom stock account under the Directors Deferred Plan as of December 31, 2019 was as follows: 4,691 shares for Mr. Berns; 9,929 shares for Mr. Enright; 22,249 shares for Mr. O'Keefe; and no shares for the other non-employee directors.

(2) The dollar amounts in this column reflect the aggregate grant date fair value of RSU awards computed in accordance with ASC 718. The grant date fair value of each RSU award is measured based on the closing price of our ordinary shares on the date of grant. These amounts do not necessarily correspond to the actual value recognized or that may be recognized by the non-employee directors.

(3) The aggregate number of shares subject to outstanding stock options and RSU awards held by the non-employee directors listed in the table above as of December 31, 2019 was as follows: 31,085 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for each of Messrs. Berns and Mulligan; 8,540 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for Mr. Enright; 34,585 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for Dr. Sohn; 26,585 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for Mr. O'Keefe; 30,085 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for each of Ms. McSharry, Mr. Gray and Dr. Riedel; 22,085 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for Mr. Winningham; 23,785 shares subject to outstanding stock options and 1,920 shares subject to outstanding RSUs for Mr. Schnee; and 11,905 shares subject to outstanding stock options and 4,760 shares subject to outstanding RSUs for Ms. O'Riordan.

(4) The dollar amounts in this column represent the aggregate grant date fair value of each stock option award granted to our non-employee directors in 2019. These amounts have been calculated in accordance with ASC 718, using the Black-Scholes option-pricing model and excluding the effect of estimated forfeitures. Assumptions used in the calculation of these amounts are included in the notes to our audited consolidated financial statements included in the company's 2019 Annual Report on Form 10-K. These amounts do not necessarily correspond to the actual value recognized or that may be recognized by the non-employee directors.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Policy and Procedures for Review of Related Party Transactions

We have adopted a Related Party Transaction Policy that sets forth our procedures for the identification, review, consideration and approval or ratification of "related-person transactions." For purposes of our policy, a "related-person transaction" is a transaction, arrangement or relationship (or any series of similar transactions, arrangements or relationships) in which we are, were or will be a participant, and the amount involved exceeds $120,000, and any "related person" had, has or will have a direct or indirect material interest (other than solely as a result of being a director or a beneficial owner of less than 10% of any class of a company's voting securities). Transactions involving compensation for services provided to us as an employee or director are not covered by this policy. A "related person" is any executive officer, director or beneficial owner of more than 5% of any class of our voting securities, including any of their immediate family members and any entity owned or controlled by such persons.

Under the policy, if a transaction has been identified as a related-person transaction (including any transaction that was not a related-person transaction when originally consummated or any transaction that was not initially identified as a related-person transaction prior to consummation), our management must present information regarding the related-person transaction to our audit committee (or, if audit committee approval would be inappropriate, to another independent body of our board of directors) for review, consideration and approval or ratification. The presentation must include a description of, among other things, the material facts, the interests, direct and indirect, of the related person(s), the benefits to us of the transaction and whether the transaction is on terms that are comparable to the terms available to or from, as the case may be, an unrelated third party or to or from employees generally. Under the policy, we will, on an annual basis, collect information that our GC deems reasonably necessary from each director, executive officer and (to the extent feasible) significant shareholder to enable us to identify any existing or potential related-person transactions and to effectuate the terms of the policy. In addition, under our code of conduct, our employees and directors have an affirmative responsibility to disclose any transaction or relationship that reasonably could be expected to give rise to a conflict of interest to our GC, or, if the employee is an executive officer, to our board of directors. In considering related-person transactions, our audit committee (or other independent body of our board of directors) will take into account the relevant available facts and circumstances including, but not limited to, the risks, costs and benefits to us, the terms of the transaction, the availability of other sources for comparable services or products and, if applicable, the impact on a director's independence in the event that the related person is a director, immediate family member of a director or an entity with which a director is affiliated.

The policy requires that, in determining whether to approve, ratify or reject a related-person transaction, our audit committee (or other independent body of our board of directors) must consider, in light of known circumstances, whether the transaction is in, or is not inconsistent with, our best interests and those of our shareholders, as our audit committee (or other independent body of our board of directors) determines in the good faith exercise of its discretion.

Transactions with Related Persons; Indemnification

Transactions with Related Persons. Since January 1, 2019, we have not engaged in any transactions, nor are any such transactions currently proposed, in which we were a participant and the amount involved exceeded $120,000, and in which any related person had or will have a direct or indirect material interest.

Certain Relationships and Related Party Transactions (continued)

Indemnification. We have entered into indemnification agreements with our directors, executive officers and certain other of our officers and employees. These indemnification agreements require us, under the circumstances and to the extent provided for therein, to indemnify such persons to the fullest extent permitted by applicable law against certain expenses and other amounts incurred by any such person as a result of such person being made a party to certain actions, suits, proceedings and other actions by reason of the fact that such person is or was a director, officer, employee, consultant, agent or fiduciary of our company or any of our subsidiaries or other affiliated enterprises. The rights of each person who is a party to an indemnification agreement are in addition to any other rights such person may have under our Amended and Restated Memorandum and Articles of Association, the Irish Companies Act 2014, any other agreement, a vote of the shareholders of our company, a resolution of directors of our company or otherwise. We believe that these agreements are necessary to attract and retain qualified persons as our officers and directors. We also maintain directors' and officers' liability insurance.

PROPOSAL 1
ELECTION OF DIRECTORS

Our board of directors is divided into three classes, designated Class I, Class II and Class III. The term of the Class I directors will expire on the date of our 2021 annual meeting of shareholders; the term of the Class II directors will expire on the date of the 2022 annual meeting of shareholders; and the term of the Class III directors will expire on the date of this annual meeting of shareholders. At each annual meeting of shareholders, successors to the directors whose term expires at that annual meeting are put forward for election for a three-year term.

The board of directors currently has 12 members and there are no vacancies. There are currently four directors in Class III, the class whose term of office expires at this annual meeting, all of whom are standing for election at the annual meeting. Our Class III directors are Bruce C. Cozadd, Heather Ann McSharry, Anne O'Riordan and Rick E Winningham. All four directors were nominated for election by the board of directors upon the recommendation of our nominating and corporate governance committee. Each of Mr. Cozadd, Ms. McSharry and Mr. Winningham were previously elected to our board of directors by our shareholders. Ms. O'Riordan, who joined the board of directors in February 2019, was initially recommended to our Chief Executive Officer by our director, Mr. Gray, and thereafter, recommended by our Chief Executive Officer to the nominating and corporate governance committee.

In order to be elected as a director at the annual meeting to hold office until the 2023 annual meeting of shareholders, each nominee must be appointed by an ordinary resolution, meaning each must individually receive the affirmative vote of a majority of the votes cast by the holders of ordinary shares represented in person or by proxy at the annual meeting (including any adjournment thereof). Under our constitution, if, at any annual meeting of shareholders, the number of directors is reduced below the minimum prescribed by the board of directors pursuant to our constitution due to the failure of any director nominee to receive the affirmative vote of a majority of the votes cast, then in those circumstances, the nominee or nominees who receive the highest number of votes in favor of election will be elected in order to maintain such prescribed minimum number of directors. Each such director would remain a director (subject to the provisions of the 2014 Act and our constitution) only until the conclusion of the next annual meeting of shareholders unless he or she is re-elected at such time.

If any nominee becomes unavailable for election as a result of an unexpected occurrence, the proxy holders will vote your proxy for the election of any substitute nominee as may be proposed by the nominating and corporate governance committee. Each nominee has consented to being named as a nominee in this proxy statement and has agreed to serve if elected, and we have no reason to believe that any nominee will be unable to serve. If elected at the annual meeting by the affirmative vote of a majority of the votes cast on his election, each nominee would serve as a director until the 2023 annual meeting of shareholders and until his successor has been elected and qualified, or, if sooner, until his death, resignation, retirement, disqualification or removal. It is our policy to invite directors and nominees for director to attend annual meetings of shareholders. All 12 of our directors attended our 2019 annual meeting of shareholders.

Vacancies on the board of directors, including a vacancy that results from an increase in the authorized number of directors, may be filled only by the affirmative vote of a majority of the directors then in office, provided that a quorum is present at the relevant board meeting. A director elected by the board of directors to fill a vacancy in a class will serve for the remainder of the full term of that class and until the director's successor is elected and qualified, or, if sooner, until his or her death, resignation, retirement, disqualification or removal. Under our constitution, if the number of directors is increased, directors are apportioned among the classes to maintain the number of directors in each class as nearly equal as possible, or as the Chairman of our board may otherwise direct. Accordingly, Ms. O'Riordan was appointed as the fourth member of Class III, as each of Class I and II already had four members, and she is up for election at this 2020 annual meeting.

The following includes a brief biography of each nominee for director and each of our other current directors, including their respective ages, as of June 1, 2020. Each biography includes information regarding the specific experience, qualifications, attributes or skills that led the nominating and corporate governance committee and the board of directors to determine that the applicable nominee or other current director should serve as a member of the board of directors. We evaluate diversity considerations as well as the experience and expertise of our board as a whole to ensure alignment between the abilities and contributions of our board and our strategic priorities and long-range plan, emphasizing, among other things, expertise in global and U.S. sales and marketing, in product development, in financial management and in corporate development transactions.

Class III Director Nominees for Election for a Three-Year Term Expiring at the 2023 Annual Meeting

Bruce C. Cozadd

Chairman and Chief Executive Officer of Jazz Pharmaceuticals

Bruce C. Cozadd has served as our Chairman and Chief Executive Officer since the closing of the Azur Merger in January 2012, and from October 2019 through March 2020, he served as our interim principal financial officer. Mr. Cozadd co-founded Jazz Pharmaceuticals, Inc. and has served as Chairman and Chief Executive Officer of Jazz Pharmaceuticals, Inc. since April 2009. From 2003 until 2009, he served as Jazz Pharmaceuticals, Inc.'s Executive Chairman and as a member of its board of directors. From 1991 until 2001, he held various positions with ALZA Corporation, a pharmaceutical company acquired by Johnson & Johnson, most recently as Executive Vice President and Chief Operating Officer, with responsibility for research and development, manufacturing and sales and marketing. Previously at ALZA Corporation, he held the roles of Chief Financial Officer and Vice President, Corporate Planning and Analysis. He serves on the boards of two non-profit organizations, The Nueva School and SFJAZZ. Mr. Cozadd previously served on the boards of directors of Cerus Corporation from 2001 to January 2018 and Threshold Pharmaceuticals, Inc. from 2005 to August 2017. He received a B.S. from Yale University and an M.B.A. from the Stanford Graduate School of Business.

Director since 2003*

Age 56

Key Qualifications and Expertise:
As a co-founder and our Chief Executive Officer of over 10 years, he brings to our board a deep and comprehensive knowledge of our business, as well as shareholder-focused insight into effectively executing the company's strategy and business plans to maximize shareholder value.

Committee Assignments:
- None

Other Current Public Boards:
- None

*Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

Heather Ann McSharry

Director, CRH plc, Greencore Group plc and Uniphar plc

Heather Ann McSharry has served as a member of our board of directors since May 2013 and was appointed as chairperson of our nominating and corporate governance committee in August 2017. Ms. McSharry currently serves as a non-executive director on the boards of directors of several public and private companies, including CRH plc, an international building materials group, Greencore Group plc, an international manufacturer of convenience foods and Uniphar plc, a diversified healthcare services company. From 2006 to 2009, Ms. McSharry was Managing Director Ireland of Reckitt Benckiser, a multinational health, home and hygiene consumer products company. From 1989 to 2006, she held various positions at Boots Healthcare, a leading global consumer healthcare company, most recently as Managing Director of Boots Healthcare Ireland Limited. Ms. McSharry served on the board of directors of the Bank of Ireland from 2007 to 2011 and on the board of the Industrial Development Agency in Ireland from 2010 to 2014. Ms. McSharry holds a Bachelor of Commerce and a Master of Business Studies degree from University College Dublin.

Director since 2013

Age 58

Key Qualifications and Expertise:
Ms. McSharry brings to our board of directors over 30 years of experience in multiple international industries, including healthcare, consumer goods and financial services, as well as expertise in crisis management, cybersecurity and privacy issues relevant to our business.

Committee Assignments:
- Audit Committee
- Nominating & Corporate Governance Committee (Chair)

Other Current Public Boards:
- CRH plc
- Greencore Group plc
- Uniphar plc

Anne O'Riordan

Group Director of Digital, Jardine Matheson Limited

Anne O'Riordan has served as a member of our board of directors since February 2019. Since June 2019, Ms. O'Riordan has served as Group Director of Digital of Jardine Matheson Limited, an Asian conglomerate headquartered in Hong Kong, where she also serves on the board of directors. From 1990 to March 2019, Ms. O'Riordan held various leadership positions in the life sciences industry group in each of the operating units of Accenture (formerly Andersen Consulting) in North America, Europe and Asia Pacific. She most recently served as Global Industry Senior Managing Director of Accenture's Life Sciences Business from 2012 to 2019. Between 2008 and 2012, Ms. O'Riordan led Accenture's life sciences practice in Asia Pacific, focusing on strategic client development, market entry and business transformation. Prior to that, she led Accenture's European health and life sciences business, working with clients across Europe on significant regional transformation initiatives. She also spent nine years in North America working with pharmaceutical and medical products clients. She currently serves on the board of governors of the American Chamber of Commerce in Hong Kong, or AmCham Hong Kong, where she serves as the Treasurer and the board liaison for the Healthcare Committee. She is also a long-standing member of the Women of Influence Committee of AmCham Hong Kong as well as a member of The Women's Foundation and the 30% Club. Ms. O'Riordan received a B.Sc in Biotechnology from Dublin City University as well as a postgraduate diploma in Financial Accounting and MIS from the National University of Galway, Ireland.

Director since 2019

Age 52

Key Qualifications and Expertise:
Ms. O'Riordan brings to our board of directors nearly 30 years of knowledge and leadership experience advising life sciences and healthcare companies across the globe, with a uniquely diverse perspective attributable to her geographic residency in Asia. Ms. O'Riordan's background in advising life sciences companies with respect to significant global markets provides an important contribution to our board of director's mix of backgrounds, experiences and skills.

Committee Assignments:
- Audit Committee

Other Current Public Boards:
- None

Rick E Winningham

Chief Executive Officer and Chairman of the Board of Directors of Theravance Biopharma, Inc.

Rick E Winningham has served as a member of our board of directors since the closing of the Azur Merger in January 2012 and was a director of Jazz Pharmaceuticals, Inc. from 2010 until the closing of the Azur Merger. In May 2014, Mr. Winningham was appointed as Lead Independent Director of our board of directors. Mr. Winningham has served as Chairman of the board of directors of Theravance Biopharma, Inc., a biopharmaceutical company, since July 2013. He has served as Chief Executive Officer of Theravance Biopharma, Inc. since its spin-off from Innoviva, Inc. in June 2014. From October 2001 to August 2014, Mr. Winningham served as Chief Executive Officer of Innoviva, Inc., where he also served as Chairman of the Board of Directors from April 2010 to October 2014. From 1997 to 2001, he served as President of Bristol-Myers Squibb Oncology/Immunology/Oncology Therapeutics Network and, from 2000 to 2001, as President of Global Marketing. Mr. Winningham is a member of Biotechnology Industry Organization's board of directors and serves on the Health Section Governing Board Standing Committee on Reimbursement. He previously served as a member of the board of directors of OncoMed Pharmaceuticals, Inc. from June 2015 until the company's merger with Mereo BioPharma Group plc in April 2019. He also served as a member of the board of directors of the California Healthcare Institute, or CHI, from November 2011 to March 2015 and served as its Chairman from January 2014 until CHI merged with Bay Area Bioscience Association to become the California Life Sciences Association, or CLSA, in March 2015. Mr. Winningham is on the board of directors of CLSA, and served as its Chairman from March 2015 until November 2015. Mr. Winningham holds an M.B.A. from Texas Christian University and a B.S. from Southern Illinois University.

Director since 2010*

Age 60

Key Qualifications and Expertise:
Mr. Winningham's experience in senior management positions in the pharmaceutical industry provides significant industry knowledge and operational and management expertise to our board of directors.

Committee Assignments:
- Nominating & Corporate Governance Committee

Other Current Public Boards:
- Theravance Biopharma, Inc.

*Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

The board of directors recommends a vote "FOR" each nominee named above.

Class I Directors Continuing in Office Until the 2021 Annual Meeting

Peter Gray
Chairman, UDG Healthcare plc

Peter Gray has served as a member of our board of directors since May 2013 and was appointed as chairperson of our audit committee in April 2014. Mr. Gray currently serves as Chairman of the board of directors of UDG Healthcare plc, an international provider of healthcare services. He is also Chairman of two privately-held companies providing outsourced services to the biopharma industry and chairs a non-profit educational establishment. In September 2011, Mr. Gray retired from his position as Chief Executive Officer of ICON plc, a global provider of outsourced development services to the pharmaceutical, biotechnology and medical device industries, which he held since November 2002. At ICON plc, Mr. Gray previously served as Group Chief Operating Officer from June 2001 to November 2002 and Chief Financial Officer from June 1997 to June 2001. From November 1983 to November 1989, Mr. Gray served as senior financial officer at Elan Corporation plc, a pharmaceutical company. Mr. Gray holds a degree in law from Trinity College Dublin and qualified as a chartered accountant in 1981.

Director since 2013

Age 65

Key Qualifications and Expertise:
Given his experience as Chief Executive Officer and Chief Financial Officer of ICON plc, Mr. Gray brings to our board of directors and audit committee over 30 years of experience in financial and operational management within the pharmaceutical industry.

Committee Assignments:
- Audit Committee (Chair)

Other Current Public Boards:
- UDG Healthcare plc

Kenneth W. O'Keefe
Managing Director of Beecken Petty O'Keefe & Company

Kenneth W. O'Keefe has served as a member of our board of directors since the closing of the Azur Merger in January 2012 and was a director of Jazz Pharmaceuticals, Inc. from 2004 until the closing of the Azur Merger. Since January 2018, he has been Managing Director of Beecken Petty O'Keefe & Company, a private equity firm, which he co-founded. From November 2015 to January 2018, he was Chief Executive Officer, from January 2011 to November 2015, he was Managing Partner, and from 1997 to January 2011, he was Managing Director, of Beecken Petty O'Keefe & Company. He serves on the boards of several privately-held healthcare companies. He received a B.A. from Northwestern University and an M.B.A. from the University of Chicago.

Director since 2004*

Age 53

Key Qualifications and Expertise:
As a member of Beecken Petty O'Keefe & Company, Mr. O'Keefe brings to our board of directors significant expertise in accounting and financial matters and in analyzing and evaluating financial statements, as well as substantial experience managing private equity investments. He serves or has served on the audit committee of several companies in the healthcare industry. As the former chairperson and current member of our audit committee, Mr. O'Keefe brings to our board of directors detailed knowledge of our financial position and financial statements.

Committee Assignments:
- Audit Committee

Other Current Public Boards:
- None

*Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

Elmar Schnee

Chairman, Calliditas Therapeutics AB and Santhera Pharmaceuticals Holding AG

Elmar Schnee has served as a member of our board of directors since August 2014 and previously served as a director of Gentium S.p.A. (now a subsidiary of Jazz Pharmaceuticals plc) from May 2012 until April 2014. Mr. Schnee has served as Chairman of the boards of Santhera Pharmaceuticals Holding AG, a specialty pharmaceutical company, since April 2017 and Calliditas Therapeutics AB, a specialty pharmaceutical company, since May 2019. In addition, he serves on the boards of directors of several privately-held life sciences companies and, since January 2020, has been serving as Chairman of Advanz Pharma Corp., a global pharmaceutical company, which delisted from the Toronto Stock Exchange in March 2020. From June 2016 to December 2019, he served as a management advisor to MindMaze SA, a neuro-technology company, where he also served as Chief Operating Officer from June 2016 to April 2017. From November 2013 to August 2015, Mr. Schnee served as a non-executive director of Cardiorentis Ltd., a biopharmaceutical company, where he served as Chairman and Chief Executive Officer from October 2011 until November 2013. From 2003 to 2011, Mr. Schnee held various positions in senior management at Merck KGaA, a global pharmaceutical and chemical group. In November 2005, Mr. Schnee was appointed as Deputy Member of the Executive Board responsible for the global pharmaceuticals business. In 2006, he was appointed as a member of the Executive Board and General Partner of Merck KGaA, with responsibility for global pharmaceutical activities, and served in this position until 2011. Prior to Merck KGaA, Mr. Schnee held senior positions in strategy, business development and marketing at UCB SA, Sanofi-Synthélabo SA, Migliara/Kaplan Associates, Inc. and Fisons Pharmaceuticals PLC. From June 2016 until May 2019, he served on the board of directors of Stallergenes-Greer plc. Mr. Schnee holds both a bachelor's degree in marketing and a master's degree in marketing and general management from the Swiss Institute of Business Administration in Zurich.

Director since 2014

Age 61

Key Qualifications and Expertise:
With his experience as Chairman and Chief Executive Officer of Cardiorentis Ltd., his operational experience at Merck KGaA and other companies and his experience serving on the boards of directors of life sciences companies, including Gentium, Mr. Schnee brings to our board of directors significant experience in executive management, operational excellence and industry knowledge, having held diverse leadership positions at various global pharmaceutical companies.

Committee Assignments:
- Nominating & Corporate Governance Committee

Other Current Public Company Boards:
- Calliditas Therapeutics AB
- Santhera Pharmaceuticals Holding AG

Catherine A. Sohn, Pharm.D.

Chairperson, BioEclipse Therapeutics Inc., and Director, Axcella Health Inc., Landec Corporation and Rubius Therapeutics

Catherine A. Sohn, Pharm.D. has served as a member of our board of directors since July 2012. Dr. Sohn serves as an independent director on the boards of directors of three public companies: Axcella Health Inc., a biotechnology company, Landec Corporation, a life sciences company, and Rubius Therapeutics, a biotechnology company. She also serves as Chairperson of the board of BioEclipse Therapeutics, Inc., a privately-held clinical-stage biopharmaceutical company. From January 2014 to May 2017, Dr. Sohn served as an independent director on the board of directors of Neuralstem, Inc., a publicly-traded life sciences company. From 1998 to 2010, she was Senior Vice President, Worldwide Business Development and Strategic Alliances at GlaxoSmithKline Consumer Healthcare. From 1994 to 1998, she was Vice President, Worldwide Strategic Product Development at SmithKline Beecham Pharmaceuticals plc in the pharmaceutical division. From 1982 to 1994, she held a series of positions in Medical Affairs, Pharmaceutical Business Development and U.S. Product Marketing at SmithKline Beecham Pharmaceuticals plc and its predecessor, Smith, Kline & French. Dr. Sohn holds the position of Adjunct Professor at the University of California, San Francisco. She received a Doctor of Pharmacy from the University of California, San Francisco, School of Pharmacy and a Certificate of Professional Development from the Wharton School at the University of Pennsylvania. Dr. Sohn was named Woman of the Year by the Healthcare Businesswomen's Association (2003), Distinguished Alumnus of the Year by the University of California, San Francisco (2000) and is a Certified Licensing Professional and a National Association of Corporate Directors Board Leadership Fellow.

Director since 2012

Age 67

Key Qualifications and Expertise:
Dr. Sohn brings to our board of directors three decades of product development, strategic marketing and business development transaction experience in the pharmaceutical industry and a global perspective that is directly relevant to our company.

Committee Assignments:
- Compensation Committee
- Nominating & Corporate Governance Committee

Other Current Public Company Boards:
- Axcella Health Inc.
- Landec Corporation
- Rubius Therapeutics

Class II Directors Continuing Until the 2022 Annual Meeting

Paul L. Berns

Venture Partner, ARCH and Executive Chair, BlackThorn Therapeutics

Paul L. Berns has served as a member of our board of directors since the closing of the Azur Merger in January 2012 and was a director of Jazz Pharmaceuticals, Inc. from 2010 until the closing of the Azur Merger. Mr. Berns is a venture partner at ARCH, a venture capital firm, and Executive Chair of BlackThorn Therapeutics, a clinical-stage, privately-held biopharmaceutical company, where he serves on the board of directors. He also currently serves as Chairman of the board of Epirium Bio, Inc., a clinical-stage, privately-held biopharmaceutical company, as well as on the board of directors of UNITY Biotechnology, Inc., a publicly-held biotechnology company. From March 2014 to June 2016, he served as the Chief Executive Officer and President of Anacor Pharmaceuticals, Inc., a biopharmaceutical company, which was acquired by Pfizer Inc. in June 2016. He also served as a member of the board of directors of Anacor Pharmaceuticals, Inc. from 2012 until 2016, including as Chairman of its board of directors from 2013 until 2016. From September 2012 to March 2014, he was a self-employed consultant to the pharmaceutical industry. From March 2006 to September 2012, he served as President and Chief Executive Officer, and as a member of the board of directors, of Allos Therapeutics, Inc., a pharmaceutical company acquired by Spectrum Pharmaceuticals, Inc. From July 2005 to March 2006, Mr. Berns was a self-employed consultant to the pharmaceutical industry. From June 2002 to July 2005, Mr. Berns was President, Chief Executive Officer and a director of Bone Care International, Inc., a specialty pharmaceutical company that was acquired by Genzyme Corporation in 2005. From 2001 to 2002, Mr. Berns served as Vice President and General Manager of the Immunology, Oncology and Pain Therapeutics business unit of Abbott Laboratories, a pharmaceutical company. From 2000 to 2001, he served as Vice President, Marketing of BASF Pharmaceuticals/Knoll, a pharmaceutical company, and from 1990 to 2000, Mr. Berns held various positions, including senior management roles, at Bristol-Myers Squibb Company, a pharmaceutical company. Mr. Berns previously served on the boards of directors of Menlo Therapeutics Inc. from November 2017 to March 2020, Cellectar Biosciences, Inc. (formerly Novelos Therapeutics, Inc.) from November 2013 to June 2016 and XenoPort, Inc. from 2005 to May 2016. Mr. Berns received a B.S. in Economics from the University of Wisconsin.

Director since 2010*

Age 53

Key Qualifications and Expertise:
With his experience as Chief Executive Officer of Allos Therapeutics, Inc., Anacor Pharmaceuticals, Inc. and Bone Care International Inc., and his experience serving on the boards of directors of public companies, Mr. Berns provides significant management experience and industry knowledge, particularly in product development, international sales and marketing and business development.

Committee Assignments:
- Compensation Committee

Other Current Public Company Boards:
- UNITY Biotechnology, Inc.

*Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

Patrick G. Enright

Managing Director, Longitude Capital

Patrick G. Enright has served as a member of our board of directors since the closing of the Azur Merger in January 2012 and was a director of Jazz Pharmaceuticals, Inc. from 2009 until the closing of the Azur Merger. Since 2006, Mr. Enright has served as Managing Director of Longitude Capital, a venture capital firm, of which he is a founder. Prior to Longitude Capital, Mr. Enright was a Managing Director of Pequot Ventures where he co-led the life sciences investment practice. Prior to Pequot, he was a Managing Member of the Delta Opportunity Fund at Diaz & Altschul Capital Management. Mr. Enright began his investment career at PaineWebber Development Corporation. Mr. Enright also has significant life sciences operations experience including senior executive positions at Valentis, Boehringer Mannheim (acquired by Roche) and Sandoz (now known as Novartis). Mr. Enright currently serves as the Chairman of the board of Aptinyx Inc., clinical-stage biopharmaceutical company. In addition, he serves on the board of Aimmune Therapeutics, Inc., a biopharmaceutical company, and several private company boards. Selected prior public company board memberships include Codexis, Inc., Corcept Therapeutics, Inc., Esperion Therapeutics, Inc., Horizon Pharma plc and Threshold Pharmaceuticals, Inc. Mr. Enright received a B.S. in Biological Sciences from Stanford University and an M.B.A. from the Wharton School of the University of Pennsylvania.

Director since 2009*

Age 58

Key Qualifications and Expertise:
Based on his experience as a venture capital investor focused on life sciences companies and his past work in the pharmaceutical industry, Mr. Enright brings to our board of directors over 30 years of operating experience and financial expertise in the life sciences industry.

Committee Assignments:
- Audit Committee
- Compensation Committee

Other Current Public Company Boards:
- Aimmune Therapeutics, Inc.
- Aptinyx Inc.

*Includes service on the board of directors of Jazz Pharmaceuticals, Inc., our predecessor.

Seamus Mulligan

Director, Jazz Pharmaceuticals

Seamus Mulligan has served as a member of our board of directors since the closing of the Azur Merger in January 2012 and was a founder and principal investor of Azur Pharma. From 2014 until 2018, Mr. Mulligan served as Chairman and Chief Executive Officer of Adapt Pharma Ltd., a specialty pharmaceutical company, which was acquired in October 2018 by Emergent BioSolutions Inc., a multinational specialty biopharmaceutical company, where Mr. Mulligan served on the board of directors from March 2019 until May 2020. From 2006 until April 2017, Mr. Mulligan served as Executive Chairman of Circ Pharma Limited and its subsidiaries, a pharmaceutical development stage group. Mr. Mulligan served as our Chief Business Officer, International Business Development from the closing of the Azur Merger until February 2013. Mr. Mulligan served as Azur Pharma's Chairman and Chief Executive Officer and as a member of its board of directors from 2005 until the closing of the Azur Merger. From 1984 until 2004, he held various positions with Elan Corporation, plc, a pharmaceutical company, most recently as Executive Vice President, Business and Corporate Development, and prior to that position, held the roles of President of Elan Pharmaceutical Technologies, the drug delivery division of Elan Corporation, plc, Executive Vice President, Pharmaceutical Operations, Vice President, U.S. Operations and Vice President, Product Development. He served as a member of the board of directors of the U.S. National Pharmaceutical Council until 2004. Mr. Mulligan received a B.Sc. (Pharm) and M.Sc. from Trinity College Dublin.

Director since 2012

Age 59

Key Qualifications and Expertise:
As a founder of Azur Pharma and a pharmaceutical industry executive, Mr. Mulligan brings to our board of directors an expertise in business development and over 30 years of experience in the pharmaceutical industry.

Committee Assignments:
- None*

Other Current Public Company Boards:
- None

*While Mr. Mulligan is not a member of any of our three standing committees of the board, he serves as Chair of our Transaction Committee.

Norbert G. Riedel, Ph.D.

Chief Executive Officer and President of Aptinyx Inc.

Norbert G. Riedel, Ph.D. has served as a member of our board of directors since May 2013 and was appointed chairperson of our compensation committee in August 2013. Since September 2015, Dr. Riedel has served as Chief Executive Officer and President of Aptinyx, Inc., a biopharmaceutical company spun out of its predecessor company, Naurex, Inc., where Dr. Riedel served as Chief Executive Officer and President from January 2014 to September 2015. From 2001 to 2013, he served as Corporate Vice President and Chief Scientific Officer of Baxter International Inc., a diversified healthcare company, where from 1998 to 2001, he also served as President and General Manager of the recombinant therapeutic proteins business unit and Vice President of Research and Development of the bioscience business unit. From 1996 to 1998, Dr. Riedel served as head of worldwide biotechnology and worldwide core research functions at Hoechst-Marion Roussel, now Sanofi, a global pharmaceutical company. Dr. Riedel served on the board of directors of Ariad Pharmaceuticals, Inc., an oncology company, from May 2011 until the company was acquired in February 2017. Dr. Riedel currently serves on the boards of directors of Aptinyx, Inc., Cerevel Therapeutics, a biopharmaceutical company, Eton Pharmaceuticals, Inc., a development stage pharmaceutical company where he also serves as Chairman of the board, and the Illinois Biotechnology Industry Organization. Dr. Riedel is also a member of the Austrian Academy of Sciences. Dr. Riedel is an Adjunct Professor at Boston University School of Medicine and an Adjunct Professor of Medicine at Northwestern University's Feinberg School of Medicine. Dr. Riedel holds a Diploma in biochemistry and a Ph.D. in biochemistry from the University of Frankfurt.

Director since 2013

Age 62

Key Qualifications and Expertise:
Dr. Riedel brings significant scientific, drug discovery and development, and commercial expertise to our board of directors with over 20 years of experience in the biotechnology and pharmaceutical industries.

Committee Assignments:
- Compensation Committee (Chair)

Other Current Public Company Boards:
- Aptinyx, Inc. (CEO)
- Eton Pharmaceuticals, Inc.

There are no family relationships among any of our executive officers and directors.

PROPOSAL 2
RATIFY, ON A NON-BINDING ADVISORY BASIS, THE APPOINTMENT OF INDEPENDENT AUDITORS AND AUTHORIZE, IN A BINDING VOTE, THE BOARD OF DIRECTORS, ACTING THROUGH THE AUDIT COMMITTEE, TO DETERMINE THE INDEPENDENT AUDITORS' REMUNERATION

Pursuant to authority delegated by the board of directors, the audit committee of the board of directors is responsible for the appointment, remuneration and retention of our independent auditors. The audit committee has selected and appointed KPMG, Dublin, a registered public accounting firm, or KPMG, as our independent auditors to audit our consolidated financial statements for the year ending December 31, 2020. Under Irish law, KPMG will be deemed to be reappointed as our independent auditors at the annual meeting without the necessity of a shareholder vote. However, our shareholders are being asked in this proposal to ratify such appointment on a non-binding advisory basis because we value our shareholders' views on the company's independent auditors. The board of directors and the audit committee intend to consider the results of this vote in making determinations in the future regarding the appointment of the company's independent auditors. In addition, our shareholders are being asked to authorize the board of directors, acting through the audit committee, to determine KPMG's remuneration. This authorization is required by Irish law.

KPMG has been engaged to audit our financial statements, beginning with our consolidated financial statements for the fiscal year ended December 31, 2012, since the consummation of the Azur Merger. Representatives of KPMG are expected to be present at the annual meeting, will have an opportunity to make a statement if they so desire, and will be available to respond to appropriate questions.

Proposal 2 is an ordinary resolution and must receive the affirmative vote of a majority of the votes cast in person or by proxy at the annual meeting (including any adjournment thereof) in order to be approved.

Independent Registered Public Accounting Firm Fees and Services

In connection with the audit of our 2019 financial statements, we entered into an engagement agreement with KPMG, Dublin, or KPMG, which sets forth the terms under which KPMG performed audit and tax services for the company.

The following table represents aggregate fees billed to us for the years ended December 31, 2019 and 2018 by KPMG, our independent registered public accounting firm (in thousands):

	Year Ended December 31,	
	2019	2018
Audit Fees	$2,483	$1,831
Audit-Related Fees	92	24
Tax Fees	1,169	946
Tax compliance services	*1,098*	*930*
Tax advisory services	*71*	*16*
All Other Fees	3	3
Total Fees	$3,746	$2,804

Audit Fees: Consists of fees and expenses for professional services in respect of the audit of the company's consolidated financial statements and of our internal control over financial reporting, the review of quarterly consolidated financial statements and statutory audits.

Audit-Related Fees: Consists of fees for assurance and services related to audit and other attestation services performed by KPMG as required by statute, regulation or contract and which are not reported under "Audit Fees."

Tax Fees: Consists of fees and expenses for professional services for tax compliance, tax advice and tax planning. Tax compliance services consist of professional services related to domestic and international tax compliance, and assistance with domestic and international tax return preparation. Tax advisory service fees relate to tax advice and planning services provided to us in connection with certain transactions undertaken by the company in 2019 and 2018. During the year ended December 31, 2019, fees and expenses of approximately $1,098,000 were billed in connection with tax compliance services, and fees and expenses of approximately $71,000 were billed in connection with tax advice and planning services. During the year ended December 31, 2018, fees and expenses of approximately $930,000 were billed in connection with tax compliance services, and fees and expenses of approximately $16,000 were billed in connection with tax advice and planning services.

All Other Fees: Consists of fees for products and services other than the services described above. For the years ended December 31, 2019 and December 31, 2018, these fees were paid in connection with access to the online accounting and tax research tool of KPMG.

All of the services and fees described above were approved by our audit committee.

As shown in the table above, less than 2% of the total fees that KPMG billed us for in 2019 were for services other than audit, audit-related and tax compliance services.

Pre-Approval Policies and Procedures

Our audit committee has a policy and procedures for the pre-approval of audit and non-audit services rendered by our independent registered public accounting firm. Our policy generally requires the pre-approval of specified services in the defined categories of audit services, audit-related services, and tax services up to specified amounts. Pre-approval may also be given as part of the audit committee's approval of the scope of the engagement of the independent auditor or on an individual explicit case-by-case basis before the independent auditor is engaged to provide each service. The pre-approval of services may be delegated to one or more of the audit committee's members, but the decision must be reported to the full audit committee at its next scheduled meeting.

Independence

Our audit committee determined that the rendering of the services other than audit services by our independent registered public accounting firm is compatible with maintaining the principal accountant's independence.

The board of directors recommends a vote "FOR" Proposal 2.

PROPOSAL 3
NON-BINDING ADVISORY VOTE ON EXECUTIVE COMPENSATION

Overview

Under the Dodd-Frank Act and Section 14A of the Exchange Act, our shareholders are entitled to vote to approve, on a non-binding advisory basis, the compensation of our named executive officers, or NEOs, as disclosed in this proxy statement in accordance with the compensation disclosure rules of the SEC. This non-binding advisory vote is commonly referred to as a "say-on-pay" vote.

At our 2019 annual meeting of shareholders, our shareholders indicated their preference that we hold a non-binding say-on-pay vote every year and our board of directors has adopted a policy that is consistent with that preference. At our 2019 annual meeting of shareholders, the shareholders also overwhelmingly approved our say-on-pay proposal, with approximately 90% of the total votes cast voting in favor of the proposal.

This year, we are again asking our shareholders to vote "FOR" the advisory approval of the compensation of our NEOs as disclosed in the "*Compensation Discussion and Analysis*," the compensation tables and the related narrative disclosure contained in this proxy statement beginning on page 32. As discussed in those disclosures, our compensation committee designs our executive compensation program with the following objectives and philosophy:

- **Attract, incentivize, reward and retain diverse, talented individuals with relevant experience in the life sciences industry through a competitive pay structure.** We reward individuals fairly over time and seek to retain those individuals who continue to meet our high expectations.
- **Deliver balanced total compensation packages to accomplish our business objectives and mission.** Our executive compensation program focuses on *total compensation*, combining short- and long-term components, cash and equity, and fixed and variable payments, in the proportions that we believe are the most appropriate to incentivize and reward our executive officers for achieving our corporate goals while minimizing incentives for excessive risk-taking or unethical conduct.
- **Align pay with our performance.** Our annual bonus awards are not earned unless pre-determined levels of performance are achieved against annual corporate objectives approved by our board of directors at the beginning of the year. Likewise, our stock option awards will not provide realizable value and our restricted stock unit, or RSU, awards will not provide increased value unless there is an increase in the value of our shares, which benefits all shareholders. We also have executive share ownership guidelines to further support our ownership culture and align the interests of executive officers and shareholders.

The compensation committee will continue to monitor the impact of COVID-19 on the on the global economy, our business and the design of our executive compensation program.

Say-on-Pay Vote

This vote is not intended to address any specific item of compensation, but rather the overall compensation of our NEOs and the philosophy, policies and practices described in this proxy statement. The board of directors is asking our shareholders to indicate their support for the compensation of our NEOs as described in this proxy statement by casting a non-binding advisory vote "FOR" the following resolution:

"**RESOLVED**, that the compensation paid to Jazz Pharmaceuticals' NEOs, as disclosed pursuant to Item 402 of Regulation S-K of the Exchange Act, including the Compensation Discussion and Analysis, compensation tables and narrative discussion, is hereby APPROVED."

Because the vote is advisory, it is not binding on the board of directors or the company. Nevertheless, the views expressed by our shareholders, whether through this vote or otherwise, are important to management and the board of directors and, accordingly, the board of directors and the compensation committee intend to consider the results of this vote in making determinations in the future regarding executive compensation arrangements.

Proposal 3 (continued)

Proposal 3 is an ordinary resolution and must receive the affirmative vote of a majority of the votes cast in person or by proxy at the annual meeting (including any adjournment thereof) in order to be approved.

Unless our board of directors changes the frequency of future advisory votes on the compensation of our NEOs, the next advisory vote on the compensation of our NEOs will be held at the 2021 annual meeting of shareholders.

The board of directors recommends a vote "FOR" Proposal 3.

PROPOSAL 4
APPROVAL OF AMENDMENT AND RESTATEMENT OF DIRECTORS PLAN

Overview

We are asking our shareholders in this Proposal 4 to approve an amendment and restatement of the Directors Plan in order to make the following material changes:

- increase the aggregate number of shares that may be issued under the Directors Plan by 500,000 shares, subject to adjustment for certain changes in our capitalization; and
- prohibit (i) the reduction of the exercise or strike price of any stock option or stock appreciation right granted under the Directors Plan and (ii) the cancellation of any stock option or stock appreciation right granted under the Directors Plan that has an exercise or strike price greater than the then-current fair market value of our ordinary shares in exchange for cash or other stock awards under the Directors Plan, unless our shareholders have approved such an action within 12 months prior to such an event.

Throughout this proxy statement, we refer to our Directors Plan, as we propose that it be amended and restated, as the "Proposed Directors Plan." Currently, our only active equity incentive plans are the Directors Plan (for our non-employee directors) and our 2011 Equity Incentive Plan, or the 2011 Plan (for our employees). Proposal 4 relates only to the Directors Plan, not the 2011 Plan.

Without the Proposed Directors Plan, we anticipate potentially running out of shares for stock awards that may be granted to our non-employee directors by 2021, as we would not be able to grant shares from the 2011 Plan to our non-employee directors. The 2011 Plan is used for grants to employees in order to benefit from specific exemptions under Irish law, which are only available for "employee" share schemes. Specifically, the exemptions disapply financial assistance rules prohibiting the giving of financial assistance by the company in connection with the acquisition of its shares and disapply requirements in respect of the payment for shares on issuance, which affords maximum flexibility in how we structure grants to employees. The Directors Plan (or, if approved, the Proposed Directors Plan) is the only plan under which we may grant stock awards to our non-employee directors.

Approval of the Proposed Directors Plan by our shareholders will allow us to continue to grant stock options and RSU awards to our non-employee directors pursuant to our current director compensation policy, as described under the section of this proxy statement entitled "*Director Compensation—Non-Employee Director Compensation Policy*". The Proposed Directors Plan will also allow us to further utilize a broad array of equity incentives in order to secure and retain the services of our non-employee directors, and to continue to provide long-term incentives that align the interests of our non-employee directors with the interests of our shareholders.

Proposal 4 is an ordinary resolution and must receive the affirmative vote of a majority of the votes cast in person or by proxy at the annual meeting (including any adjournment thereof) in order to be approved.

If this Proposal 4 is approved by our shareholders, the Proposed Directors Plan will become effective on the date of the annual meeting. In the event that our shareholders do not approve this Proposal 4, the Proposed Directors Plan will not become effective and the Directors Plan will continue in its current form.

Description of Proposed Directors Plan

The material features of the Proposed Directors Plan are outlined below. This summary is qualified in its entirety by reference to the complete text of the Proposed Directors Plan. Shareholders are encouraged to read the actual text of the Proposed Directors Plan, which is appended to this proxy statement as *Annex A* and may be accessed from the SEC's website at *www.sec.gov*.

Purpose

The purpose of the Proposed Directors Plan is to secure and retain the services of our non-employee directors and to provide incentives for our non-employee directors to exert maximum efforts for our success by giving them an opportunity to benefit from increases in the value of our ordinary shares through the grant of stock awards. The Proposed Directors Plan is also intended to provide a source of ordinary shares to be used to pay distributions under our Directors Deferred Plan, which is described under the section of this proxy statement entitled "*Director Compensation—Directors Deferred Compensation Plan,*" but only to the extent such ordinary shares were credited prior to August 15, 2010 to a non-employee director's stock account pursuant to our Directors Deferred Plan.

Types of Stock Awards

The terms of the Proposed Directors Plan provide for the grant of stock options, stock appreciation rights, restricted stock awards, RSU awards, and other stock awards.

Shares Available for Issuance

Subject to adjustment for certain changes in our capitalization, the total number of ordinary shares that may be issued under the Proposed Directors Plan will not exceed the sum of the following (which is referred to in this Proposal 4 as the "share reserve"):

(i) 200,000 shares (which were approved under the Directors Plan as of its effective date in 2007);

(ii) an automatic annual increase that began on January 1, 2008 and continued through January 1, 2016, in an amount equal to the sum of (a) the excess of (x) the number of ordinary shares subject to stock options granted during the applicable preceding calendar year, over (y) the number of ordinary shares added back to the share reserve during the applicable preceding calendar year pursuant to the provisions of the Proposed Directors Plan, plus (b) for the automatic annual increases occurring on or prior to January 1, 2010 only, the total number of ordinary shares credited to our non-employee directors' stock accounts pursuant to our Directors Deferred Plan during the applicable preceding calendar year; provided, however, that any such automatic annual increase may not exceed 200,000 ordinary shares; and

(iii) 500,000 newly requested shares.

We refer to the automatic annual increase described above as the "evergreen" provision, which was approved under the Directors Plan as of its effective date in 2007. Notwithstanding the foregoing, our board of directors had the authority to act, prior to the first day of any calendar year, to provide that there would be no increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year would be a lesser number of ordinary shares than would otherwise occur pursuant to the evergreen provision described above. The last automatic annual increase to the share reserve occurred on January 1, 2016 and no further automatic annual increases to the share reserve may occur under the Proposed Directors Plan.

If a stock award granted under the Proposed Directors Plan expires or otherwise terminates without all of the shares covered by the stock award having been issued, the shares not acquired under the stock award will again become available for issuance under the Proposed Directors Plan. If any shares subject to a stock award granted under the Proposed Directors Plan are not delivered to a participant because such shares are withheld for the payment of taxes, the number of shares that are not delivered will remain available for issuance under the Proposed Directors Plan. If the exercise price of a stock award granted under the Proposed Directors Plan is satisfied by tendering ordinary shares held by a participant (either by actual delivery or attestation), then the number of tendered shares will remain available for issuance under the Proposed Directors Plan.

The shares issuable under the Proposed Directors Plan are authorized but unissued or reacquired ordinary shares of the company, including shares repurchased by the company or any of its affiliates on the open market or otherwise.

Eligibility

Stock awards under the Proposed Directors Plan may only be granted to the non-employee directors of the company. As of June 3, 2020, there were 11 non-employee directors of the company, all of whom would be eligible to participate in the Proposed Directors Plan and may receive all types of stock awards under the Proposed Directors Plan.

Administration

The board of directors will administer the Proposed Directors Plan. Subject to the terms of the Proposed Directors Plan, the board of directors may determine the recipients, numbers and types of stock awards to be granted, and terms and conditions of the stock awards, including the period of their exercisability and vesting. Subject to the limitations set forth below, the board of directors also determines the fair market value applicable to a stock award and the exercise price of stock options and stock appreciation rights granted under the Proposed Directors Plan.

Repricing; Cancellation and Re-Grant of Stock Awards

The board of directors will not have the authority to (i) reduce the exercise or strike price of any outstanding stock option or stock appreciation right granted under the Proposed Directors Plan or (ii) cancel any outstanding stock option or stock appreciation right granted under the Proposed Directors Plan that has an exercise or strike price greater than the then-current fair market value of our ordinary shares in exchange for cash or other stock awards under the Proposed Directors Plan, unless our shareholders have approved such an action within 12 months prior to such an event.

Stock Options

Stock options may be granted under the Proposed Directors Plan pursuant to stock option agreements. The Proposed Directors Plan permits the grant of nonstatutory stock options, or NSOs, that are not qualified under section 422 of the U.S. Internal Revenue Code of 1986, as amended, or the Code. Individual stock option agreements may be more restrictive as to any or all of the permissible terms described in this section.

The exercise price of stock options granted under the Proposed Directors Plan will be 100% of the fair market value of the shares subject to the stock option on the date of grant.

The term of stock options granted under the Proposed Directors Plan may not exceed ten years. If a participant's service relationship with the company or any of its affiliates (referred to in this Proposal 4 as "continuous service") terminates (other than upon the participant's disability or death or upon a change in control, as defined in the Proposed Directors Plan and described in "*Description of the Proposed Directors Plan—Change in Control*" below), the participant may exercise any vested stock options for up to three months following the participant's termination of continuous service. If a participant's continuous service terminates due to the participant's disability or death (or the participant dies within the three-month period following termination of continuous service), the participant, or his or her beneficiary, as applicable, may exercise any vested stock options for up to 12 months following the participant's termination due to the participant's disability or for up to 18 months following the participant's death. If a participant's continuous service terminates upon or within 12 months following a change in control, the participant may exercise any vested stock options for up to 12 months following the change in control. Under the Proposed Directors Plan, the stock option term may be extended in the event that exercise of the stock option following a participant's termination of continuous service (other than upon the participant's disability or death or upon a change in control) is prohibited by applicable securities laws. In no event may a stock option be exercised after its original expiration date.

Acceptable forms of consideration for the purchase of ordinary shares pursuant to the exercise of a stock option under the Proposed Directors Plan are the following, provided that the nominal value of any newly issued shares is fully paid: (i) cash or check; (ii) delivery to the company (either by actual delivery or attestation) of ordinary shares; or (iii) payment pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board.

Stock options granted under the Proposed Directors Plan may become exercisable in cumulative increments, or "vest," as determined by the board of directors at the rate specified in the stock option agreement. Shares covered by different stock options granted under the Proposed Directors Plan may be subject to different vesting schedules as the board of directors may determine.

Generally, a participant may not transfer a stock option other than by will or the laws of descent and distribution. However, a stock option may be transferred upon written consent of the board of directors if (i) at the time of transfer, a Form S-8 registration statement under the U.S. Securities Act of 1933, as amended, is available for the issuance of ordinary shares upon the exercise of the transferred stock option, or (ii) the transfer is to the participant's employer or its affiliate at the time of transfer. In addition, until a participant transfers a stock option, the participant may designate a beneficiary who may exercise the stock option following the participant's death.

Restricted Stock Awards

Restricted stock awards may be granted under the Proposed Directors Plan pursuant to restricted stock award agreements. A restricted stock award may be granted in consideration for cash, check, bank draft or money order payable to the company, the recipient's services performed for the company or any of its affiliates, or any other form of legal consideration acceptable to the board of directors and permissible under applicable law, provided that the nominal value of any newly issued shares is fully paid. Ordinary shares acquired under a restricted stock award may be subject to forfeiture to the company in accordance with a vesting schedule to be determined by the board of directors. Rights to acquire ordinary shares under a restricted stock award may be transferred only upon such terms and conditions as are set forth in the restricted stock award agreement. A restricted stock award agreement may provide that any dividends paid on restricted stock will be subject to the same vesting conditions as apply to the shares subject to the restricted stock award. Upon a participant's termination of continuous service for any reason, any shares subject to restricted stock awards held by the participant that have not vested as of such termination date may be forfeited to or repurchased by us.

Restricted Stock Unit Awards

RSU awards may be granted under the Proposed Directors Plan pursuant to RSU award agreements. Payment of any purchase price may be made in any legal form acceptable to the board of directors and permissible under applicable law, provided that the nominal value of any newly issued shares is fully paid. The company will settle a payment due to a recipient of an RSU award by delivery of ordinary shares, by cash, by a combination of cash and shares, or in any other form of consideration determined by the board of directors and set forth in the RSU award agreement. RSU awards may be subject to vesting in accordance with a vesting schedule to be determined by the board of directors. Dividend equivalents may be credited in respect of ordinary shares covered by an RSU award. Except as otherwise provided in the applicable RSU award agreement, RSU awards that have not vested will be forfeited upon the participant's termination of continuous service for any reason.

Stock Appreciation Rights

Stock appreciation rights may be granted under the Proposed Directors Plan pursuant to stock appreciation right agreements. Each stock appreciation right will be denominated in ordinary share equivalents. The strike price of each stock appreciation right will be 100% of the fair market value of the shares subject to the stock appreciation right on the date of grant. The board of directors may also impose restrictions or conditions upon the vesting of stock appreciation rights that it deems appropriate. Stock appreciation rights may be paid in ordinary shares, in cash, in a combination of cash and shares, or in any other form of consideration approved by the board of directors and set forth in the stock appreciation right agreement, provided that the nominal value of the shares is fully paid. The term of stock appreciation rights granted under the Proposed Directors Plan may not exceed ten years. Stock appreciation rights will be subject to the same conditions upon termination of continuous service and restrictions on transfer as stock options under the Proposed Directors Plan.

Other Stock Awards

Other forms of stock awards valued in whole or in part by reference to, or otherwise based on, our ordinary shares may be granted either alone or in addition to other stock awards under the Proposed Directors Plan. Subject to the terms of the Proposed Directors Plan, the board of directors will have sole and complete authority to determine the persons to whom and the time or times at which such other stock awards will be granted, the number of ordinary shares to be granted and all other terms and conditions of such other stock awards, provided that the nominal value of any newly issued shares is fully paid.

Changes to Capital Structure

In the event of certain capitalization adjustments, the board of directors will appropriately adjust: (i) the class(es) and maximum number of securities subject to the Proposed Directors Plan; (ii) the class(es) and maximum number of securities by which the share reserve may increase automatically each year; and (iii) the class(es) and number of securities and price per share of shares subject to outstanding stock awards.

Corporate Transactions

In the event of a corporate transaction (as defined in the Proposed Directors Plan and described below), any surviving or acquiring corporation (or its parent company) may assume or continue any outstanding stock awards under the Proposed Directors Plan or may substitute similar stock awards for such outstanding stock awards, and any reacquisition or repurchase rights held by the company or any of its affiliates with respect to such outstanding stock awards may be assigned to the company's successor (or its parent company) in connection with the corporate transaction.

In the event of a corporate transaction in which the surviving or acquiring corporation (or its parent company) does not assume or continue such outstanding stock awards or substitute similar stock awards for such outstanding stock awards, then with respect to stock awards that have not been assumed, continued or substituted and that are held by participants whose continuous service has not terminated prior to the corporate transaction (referred to in this Proposal 4 as the "Active Participants"), the vesting (and exercisability, if applicable) of such stock awards will be accelerated in full to a date prior to the effective time of the corporate transaction (contingent upon the effectiveness of the corporate transaction), and such stock awards will terminate if not exercised (if applicable) at or prior to the effective time of the corporate transaction, and any reacquisition or repurchase rights held by the company or any of its affiliates with respect to such stock awards will lapse (contingent upon the effectiveness of the corporate transaction).

In the event of a corporate transaction in which the surviving or acquiring corporation (or its parent company) does not assume or continue such outstanding stock awards or substitute similar stock awards for such outstanding stock awards, then with respect to any other stock awards that have not been assumed, continued or substituted and that are held by persons other than Active Participants, the vesting (and exercisability, if applicable) of such stock awards will not be accelerated unless otherwise provided in the terms of the Proposed Directors Plan applicable to a change in control or in a written agreement between the company or any of its affiliates and the participant, and such stock awards will terminate if not exercised (if applicable) prior to the effective time of the corporate transaction; provided, however, that any reacquisition or repurchase rights held by the company or any of its affiliates with respect to such stock awards will not terminate and may continue to be exercised notwithstanding the corporate transaction.

In the event an outstanding stock award under the Proposed Directors Plan will terminate if not exercised prior to the effective time of a corporate transaction, the board of directors may provide that the participant may not exercise such stock award but will receive a payment, in such form as may be determined by the board of directors, equal in value to the excess, if any, of (i) the value of the property the participant would have received upon the exercise of such stock award, over (ii) the exercise price payable by the participant in connection with such exercise.

For purposes of the Proposed Directors Plan, a "corporate transaction" generally means the consummation of: (i) a sale or other disposition of all or substantially all of our assets; (ii) a sale or other disposition of at least 90% of our outstanding securities; (iii) a merger, consolidation or similar transaction after which we are not the surviving corporation; or (iv) a merger, consolidation or similar transaction after which we are the surviving corporation but our ordinary shares are converted or exchanged into other property by virtue of the transaction.

Change in Control

In the event that a participant (i) is required to resign his or her position as a non-employee director as a condition of a change in control (as defined in the Proposed Directors Plan and described below), or (ii) is removed from his or her position as a non-employee director in connection with a change in control, any outstanding stock awards held by such participant under the Proposed Directors Plan will become fully vested and exercisable immediately prior to the effectiveness of such resignation or removal (and contingent upon the effectiveness of such change in control).

For purposes of the Proposed Directors Plan, a "change in control" generally means: (i) a person, entity or group acquires ownership of more than 30% of the combined voting power of our outstanding securities (and other than on account of the acquisition of our securities directly from the company); (ii) there is consummated a compromise or arrangement sanctioned by the Irish courts under the 2014 Act, a scheme, contract or offer which has become binding on all of our shareholders pursuant to Section 457 of the 2014 Act or a bid pursuant to Regulation 23 or 24 of the European Communities (Takeover Bids (Directive 2004/25/EC)) Regulations 2006, an offer or reverse takeover transaction which has been completed pursuant to the Irish Takeover Panel Act, 1997, Takeover Rules, 2013, or a reorganization, merger, statutory share exchange, consolidation or similar transaction involving the company (each, a "Business Combination") and (a) immediately after the consummation of such Business Combination, our shareholders do not own more than 50% of the combined voting power of the surviving entity or its ultimate parent in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such Business Combination, (b) a person, entity or group acquires ownership of more than 30% of the combined voting power of the surviving entity or its ultimate parent through the Business Combination, or (c) at least a majority of the members of the board of directors of the ultimate parent (or if there is no parent, the surviving entity) immediately following such Business Combination were not Incumbent Board Members (as defined below) at the time our board of directors approved the execution of the definitive agreement providing for such Business Combination; (iii) our shareholders or our board of directors approves a complete dissolution or liquidation of the company, or a complete dissolution or liquidation of the company otherwise occurs (except for a liquidation into a parent corporation); (iv) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of our assets other than to an entity, more than 50% of the combined voting power of which is owned by our shareholders in substantially the same proportions as their ownership of our outstanding voting securities immediately prior to such sale, lease, exclusive license or other disposition; or (v) individuals who are members of our board of directors on the date the Directors Plan was adopted by our board of directors (or members of our board of directors approved or recommended by a majority vote of such members still in office, except for any such individual whose initial assumption of office occurs as a result of either an actual or threatened election contest or other actual or threatened solicitation of proxies or consents by or on behalf of any person or entity other than our board of directors) (the "Incumbent Board Members") cease to constitute a majority of our board of directors.

The Proposed Directors Plan provides that if the acceleration of vesting and exercisability of a participant's stock awards provided for in connection with a corporate transaction or change in control, together with payments and other benefits of the participant (collectively, a "change in control payment"), constitute a "parachute payment" within the meaning of section 280G of the Code and would be subject to the excise tax imposed by section 4999 of the Code, then the change in control payment will be either (i) provided to the participant in full, or (ii) provided to the participant as to such lesser extent that would result in no portion of the change in control payment being subject to the excise tax, whichever amount, when taking into account all applicable taxes (including the excise tax), results in the participant's receipt, on an after-tax basis, of the greatest amount of the change in control payment, notwithstanding that all or some portion of the change in control payment may be subject to the excise tax. If a reduction in the change in control payment is to be made, the reduction will occur in the manner that results in the greatest economic benefit for the participant.

The acceleration of vesting of a stock award in the event of a corporate transaction or change in control under the Proposed Directors Plan may be viewed as an anti-takeover provision, which may have the effect of discouraging a proposal to acquire or otherwise obtain control of the company.

Plan Amendments and Termination

The board of directors will have the authority to amend or terminate the Proposed Directors Plan at any time. However, no amendment or termination of the Proposed Directors Plan will impair any rights under stock awards granted prior to such amendment or termination unless agreed to by the affected participant. The company will obtain shareholder approval of any amendment to the Proposed Directors Plan as required by applicable law and listing requirements.

U.S. Federal Income Tax Consequences

The information set forth below is a summary only and does not purport to be complete. The information is based upon current U.S. federal income tax rules and therefore is subject to change when those rules change. Because the tax consequences to any recipient of a stock award may depend on his or her particular situation, each recipient should consult the recipient's tax adviser regarding the federal, state, local, and other tax consequences of the grant or exercise of a stock award or the disposition of shares acquired as a result of a stock award. The Proposed Directors Plan will not be qualified under the provisions of section 401(a) of the Code, and will not be subject to any of the provisions of the U.S. Employee Retirement Income Security Act of 1974, as amended. The company's ability to realize the benefit of any tax deductions described below will depend on its generation of taxable income, as well as the requirement of reasonableness, the provisions of section 162(m) and the satisfaction of its tax reporting obligations.

Nonstatutory Stock Options

Generally, there is no taxation upon the grant of a NSO if the stock option is granted with an exercise price equal to the fair market value of the underlying shares on the grant date. On exercise, a recipient will recognize ordinary income equal to the excess, if any, of the fair market value on the date of exercise of the shares over the exercise price. If the recipient is employed by the company or one of its affiliates, that income will be subject to withholding taxes. The recipient's tax basis in those shares will be equal to their fair market value on the date of exercise of the stock option, and the recipient's capital gain holding period for those shares will begin on that date.

Subject to the requirement of reasonableness, the provisions of section 162(m) and the satisfaction of a tax reporting obligation, the company will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the stock option.

Restricted Stock Awards

Generally, the recipient of a restricted stock award will recognize ordinary income at the time the shares are received equal to the excess, if any, of the fair market value of the shares received over any amount paid by the recipient in exchange for the shares. If, however, the shares are not vested when they are received (for example, if the recipient is required to work for a period of time in order to have the right to sell the shares), the recipient generally will not recognize income until the shares become vested, at which time the recipient will recognize ordinary income equal to the excess, if any, of the fair market value of the shares on the date they become vested over any amount paid by the recipient in exchange for the shares. A recipient may, however, file an election with the U.S. Internal Revenue Service, within 30 days following his or her receipt of the stock award, to recognize ordinary income, as of the date the recipient receives the award, equal to the excess, if any, of the fair market value of the shares on the date the award is granted over any amount paid by the recipient for the shares.

The recipient's basis for the determination of gain or loss upon the subsequent disposition of shares acquired from stock awards will be the amount paid for such shares plus any ordinary income recognized either when the shares are received or when the shares become vested.

Subject to the requirement of reasonableness, the provisions of section 162(m) and the satisfaction of a tax reporting obligation, the company will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the restricted stock award.

Restricted Stock Unit Awards

Generally, the recipient of an RSU award structured to conform to the requirements of section 409A of the Code or an exception to section 409A of the Code will recognize ordinary income at the time the shares are delivered equal to the excess, if any, of the fair market value of the ordinary shares received over any amount paid by the recipient in exchange for the ordinary shares. To conform to the requirements of section 409A of the Code, the ordinary shares subject to an RSU award may generally only be delivered upon one of the following events: a fixed calendar date (or dates), separation from service, death, disability or a change in control. If delivery occurs on another date, unless the RSU award otherwise complies with or qualifies for an exception to the requirements of section 409A of the Code, in addition to the tax treatment described above, the recipient will owe an additional 20% federal tax and interest on any taxes owed.

The recipient's basis for the determination of gain or loss upon the subsequent disposition of shares acquired from an RSU award will be the amount paid for such shares plus any ordinary income recognized when the shares are delivered.

Subject to the requirement of reasonableness, the provisions of section 162(m) and the satisfaction of a tax reporting obligation, the company will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the RSU award.

Stock Appreciation Rights

Stock appreciation rights may be granted separately from any other award or in tandem with other awards under the Proposed Directors Plan.

Where the stock appreciation rights are granted with a strike price equal to the fair market value of the underlying shares on the grant date, the recipient will recognize ordinary income equal to the fair market value of the shares or cash received upon such exercise.

Subject to the requirement of reasonableness, the provisions of section 162(m) and the satisfaction of a tax reporting obligation, the company will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the stock appreciation right.

New Plan Benefits

The proxy disclosure rules require us to disclose the "new plan benefits" in the following table. Our executive officers and other employees are not eligible to receive awards under the Proposed Directors Plan, but are included in the table below in accordance with SEC rules.

Proposed Directors Plan

Name and position	Dollar value	Number of shares
Bruce C. Cozadd *Chairman and CEO*	—	—
Daniel N. Swisher, Jr. *President and COO*	—	—
Matthew P. Young *Former Executive Vice President and CFO*	—	—
Robert Iannone *Executive Vice President, Research and Development*	—	—
Neena M. Patil *Senior Vice President and GC*	—	—
All current executive officers as a group	—	—
All current directors who are not executive officers as a group	$4,400,000 per annual general meeting period (1)	(1)
All employees, including all current officers who are not executive officers, as a group	—	—

(1) Awards granted under the Proposed Directors Plan to our non-employee directors are discretionary and are not subject to set benefits or amounts under the terms of the Proposed Directors Plan. However, pursuant to our director compensation policy, each of our current non-employee directors is eligible to receive a stock option and an RSU award in connection with each annual general meeting of our shareholders, provided that such individual will be continuing as a non-employee director following the date of such annual general meeting. The grant date value of such stock option together with such RSU award is equal to approximately $400,000, with generally 50% of the value delivered as a stock option and 50% of the value delivered as an RSU award, using the applicable ratio of stock option grants to RSU awards that is approved by the compensation committee on an annual basis. The actual share amounts for such stock options and RSU awards are to be determined by applying the value methodology used by the compensation committee for determining equity grants for employees generally and, therefore, such share amounts are not determinable at this time. On and after the date of the annual meeting, any such stock awards will be granted under the Proposed Directors Plan if this Proposal 4 is approved by our shareholders, unless otherwise determined by our board of directors or compensation committee. For additional information regarding our director compensation policy, see the section of this proxy statement entitled "*Director Compensation—Non-Employee Director Compensation Policy*".

Plan Benefits

The proxy disclosure rules also require us to disclose the information in the following table. The following table sets forth, for each of the individuals and groups indicated, the total number of ordinary shares subject to stock awards that have been granted (even if not currently outstanding) under the Directors Plan as of June 3, 2020. Our executive officers and other employees have never been eligible to receive awards under the Directors Plan, but are included in the table below in accordance with SEC rules.

Directors Plan

Name and position	Number of shares
Bruce C. Cozadd *Chairman and CEO*	—
Daniel N. Swisher, Jr. *President and COO*	—
Matthew P. Young *Former Executive Vice President and CFO*	—
Robert Iannone *Executive Vice President, Research and Development*	—
Neena M. Patil *Senior Vice President and GC*	—
All current executive officers as a group	—
All current directors who are not executive officers as a group	591,470
Each nominee for election as a director:	
Bruce C. Cozadd	—
Heather Ann McSharry	34,865
Anne O'Riordan	16,665
Rick E Winningham	86,365
Each associate of any executive officers, current directors or director nominees	—
Each other person who received or is to receive 5% of awards	—
All employees, including all current officers who are not executive officers, as a group	—

On June 3, 2020, the closing sales price of our ordinary shares on the Nasdaq Global Select Market was $118.74 per share.

The board of directors recommends a vote "FOR" Proposal 4.

PROPOSAL 5
APPROVAL OF CAPITAL REDUCTION

From time to time, Irish companies seek shareholder approval to create additional "distributable reserves". Under Irish law we need sufficient "distributable reserves" to repurchase or redeem our shares and/or to make other distributions to shareholders in the form of dividends.

Under our existing share repurchase program, the board of directors has authorized share repurchases of up to $1.52 billion, which must be funded out of our distributable reserves. As a result of repurchasing and redeeming shares under our share repurchase program to date, our distributable reserves have been reduced and, as at December 31, 2019, the distributable reserves of the Company were $880 million. However, we have accumulated significant share premium (approximately $870 million as of December 31, 2019), which is not considered part of distributable reserves under Irish law.

In this proposal, shareholders are being asked to approve a reduction of our share capital by up to the entire balance of our share premium account (which is analogous to additional paid in capital in the U.S.) as at December 31, 2019 (approximately $870 million), together with any additional sums added to the share premium account in the intervening period and prior to the effective date (i.e., the date of confirmation of the capital reduction by the Irish High Court) of the capital reduction (the "Authorized Amount"), to create additional "distributable reserves" in order to maintain our ability to continue to repurchase or redeem shares under our share repurchase program and to make distributions to shareholders.

Irish law also requires the Irish High Court's confirmation of the proposed reduction of share capital and for the resulting reserve to be treated as a "distributable reserve". If approved by shareholders and confirmed by the Irish High Court, this proposal will result in the reduction of the balance of our share premium account by up to the Authorized Amount, and the creation of a reserve in an equal amount to be treated as a "distributable reserve".

If shareholders approve this proposal, we will seek the Irish High Court's confirmation as soon as practicable. Although we are not aware of any reason why the Irish High Court would not confirm the reduction of capital so as to enable us to create "distributable reserves", there is no guarantee of such confirmation.

As required under Irish law, the resolution in respect of Proposal 5 is a special resolution that requires the affirmative vote of at least 75% of the votes cast.

The text of the resolution in respect of Proposal 5 is as follows:

"As a special resolution, that subject to and with the consent of the Irish High Court:

(a) in accordance with the provisions of section 84 of the Companies Act 2014, the share capital of the Company be reduced by the cancellation of the entire amount standing to the credit of the Company's share premium account as at the effective date of the capital reduction (the "Authorized Amount"), or such other lesser amount as one or more of the Company's directors, the Company Secretary or persons designated by the board of directors from time to time as officers of the Company ("Officers") or the Irish High Court may determine and the reserve resulting from the cancellation of the share premium shall be treated as profits available for distribution as defined by section 117 of the Irish Companies Act 2014 (and/or any corresponding provision of any amended or replacement legislation); and

(b) the board of directors, acting through one or more of the Company's directors, the Company Secretary or Officers, be and are hereby authorized, on behalf of the Company, to proceed to seek the confirmation of the Irish High Court to such reduction of share capital."

The board of directors recommends a vote "FOR" Proposal 5.

QUESTIONS AND ANSWERS ABOUT THESE PROXY MATERIALS AND VOTING

Why am I receiving these materials?

Our board of directors is soliciting your proxy to vote at the annual meeting, including at any adjournments or postponements of the annual meeting. This proxy statement contains important information regarding the annual meeting, the proposals on which you are being asked to vote, information you may find useful in determining how to vote and voting procedures.

Why did I receive a notice in the mail regarding the internet availability of proxy materials instead of a full set of proxy materials?

We are pleased to take advantage of SEC rules that allow companies to furnish their proxy materials over the internet. Most of our shareholders will not receive paper copies of our proxy materials (unless requested), and will instead be sent a Notice of Internet Availability of Proxy Materials, or Notice. All shareholders receiving a Notice will have the ability to access the proxy materials on the website referred to in the Notice and to request a printed set of the proxy materials. Instructions on how to access the proxy materials via the internet or to request a printed set of the proxy materials may be found in the Notice.

Why did I receive a full set of proxy materials in the mail instead of a notice regarding the internet availability of proxy materials?

We are providing shareholders who have previously requested a printed set of our proxy materials with paper copies of our proxy materials instead of a Notice.

What is the annual report included in the proxy materials?

Under applicable U.S. securities laws, we are required to send an annual report to security holders along with this proxy statement. We intend to satisfy this annual report requirement by sending the 2019 Annual Report on Form 10-K together with this proxy statement.

How do I attend the annual meeting?

The annual meeting will be held on Thursday, July 30, 2020, at 3:00 p.m. local time at our corporate headquarters located at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland. For directions to attend the annual meeting in person, please contact our Investor Relations department at +353.1.634.7892 (Ireland) or +1.650.496.2800 (United States) or by email at investorinfo@jazzpharma.com. Information on how to vote in person at the annual meeting is discussed below. However, you do not need to attend the annual meeting to vote your shares and, as noted in the next question, in light of the COVID-19 pandemic, we strongly recommend that you vote your shares in advance of the meeting as instructed below.

What are the potential impacts of the COVID-19 pandemic on the annual meeting?

In light of the ongoing COVID-19 pandemic, the company would like to emphasize that we consider the health of our shareholders, employees and other attendees a top priority. We are monitoring guidance issued by appropriate governmental health agencies, including the Irish Health Service Executive, or the HSE, the Irish government, the U.S. Center for Disease Control and Prevention and the World Health Organization, collectively, the Health Authorities, and we have implemented, and will continue to implement the measures advised by the relevant Health Authorities to minimize the spread of COVID-19. Information on such measures and on COVID-19 generally is available on the HSE's website at https://www.hse.ie/eng/services/news/newsfeatures/covid19-updates/.

As such, shareholders are strongly encouraged to vote their shares by proxy in advance at the annual meeting, as personal attendance at the annual meeting may present a health risk to themselves and others and is therefore not recommended. The annual meeting will be held in accordance with HSE and relevant Health Authority guidance.

In the event that alternative arrangements are necessitated due to public health recommendations regarding containment of COVID-19, which may include a change in date or time of the meeting, a change in venue due to the closure of or restrictions on access to the meeting venue and/or holding the meeting primarily by means of remote electronic communication, we will communicate this to shareholders by an announcement, which will be published on the investor relations page of the company's website found at https://investor.jazzpharma.com/news and filed with the Securities and Exchange Commission as additional soliciting materials. We advise shareholders to monitor the investor relations page regularly, as circumstances may change at short notice and we recommend that shareholders keep up-to-date with HSE and relevant Health Authority guidance regarding travel, self-isolation and health and safety precautions.

Who can vote at the annual meeting?

Only shareholders of record at the close of business on June 3, 2020, the record date for the annual meeting, will be entitled to vote at the annual meeting.

Shareholders of Record: Shares registered in your name

If, at the close of business on June 3, 2020, your shares were registered directly in your name with our transfer agent, Computershare Trust Company, N.A., then you are a shareholder of record. As a shareholder of record, you may vote in person at the annual meeting or vote by proxy. Whether or not you plan to attend the annual meeting, we urge you to vote by proxy over the telephone or via the internet as instructed below, or, for those shareholders who receive a paper proxy card in the mail, by mailing a completed proxy card.

Beneficial Owners: Shares registered in the name of a broker, bank or other agent

If, at the close of business on June 3, 2020, your shares were held not in your name, but rather in an account at a brokerage firm, bank or other agent, then you are the beneficial owner of shares held in "street name" and a Notice is being sent to you by that broker, bank or other agent. The broker, bank or other agent holding your account is considered to be the shareholder of record for purposes of voting at the annual meeting. As a beneficial owner, you have the right to direct your broker, bank or other agent regarding how to vote the shares in your account as set forth in the voting instructions in the Notice from your broker, bank or other agent. You are also invited to attend the annual meeting. However, since you are not the shareholder of record, you may not vote your shares in person at the annual meeting unless you request and obtain a valid proxy from your broker, bank or other agent.

What am I voting on?

There are five matters scheduled for a vote at the annual meeting:

- Election by separate resolutions of the four named nominees for director to hold office until the 2023 annual meeting of shareholders (*Proposal 1*).
- Ratification, on a non-binding advisory basis, of the appointment of KPMG as the independent auditors of the company for the fiscal year ending December 31, 2020 and the authorization, in a binding vote, of the board of directors, acting through the audit committee, to determine the independent auditors' remuneration (*Proposal 2*).
- Approval, on a non-binding advisory basis, of the compensation of our NEOs as disclosed in this proxy statement (*Proposal 3*).
- Approval of the amendment and restatement of the company's Amended and Restated 2007 Non-Employee Directors Stock Award Plan as disclosed in this proxy statement *(Proposal 4).*
- Approval of a capital reduction and creation of distributable reserves under Irish law (*Proposal 5*).

What are the board's voting recommendations?

The board of directors recommends that you vote your shares "FOR" each of the director nominees named in this proxy statement to hold office until the 2023 annual meeting of shareholders, and "FOR" each of the other four proposals.

What if another matter is properly brought before the annual meeting?

The board of directors knows of no other matters that will be presented for consideration at the annual meeting. If any other matters are properly brought before the annual meeting, it is the intention of the persons named in the accompanying proxy, referred to in this proxy statement as the "proxy holders," to vote on those matters in accordance with their best judgment.

How do I vote?

For the election of directors (*Proposal 1*), you may vote "FOR" or "AGAINST" each nominee, or you may abstain from voting for all or any of the nominees. For each of the other four proposals, you may vote "FOR" or "AGAINST" or abstain from voting.

Shareholders of Record: Shares registered in your name

If you are a shareholder of record, you may vote in person at the annual meeting, you may vote by electronic proxy over the telephone or via the internet as instructed below, or, for those shareholders who receive a paper proxy card in the mail, by mailing a completed proxy card. Whether or not you plan to attend the annual meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the annual meeting and vote in person even if you have already voted by proxy. **However, as noted above, in light of the COVID-19 pandemic, we strongly recommend that you vote your shares by proxy in advance of the meeting**.

- To vote in person, come to the annual meeting and we will give you a ballot when you arrive. Please bring your admission ticket or proof of ownership, as further discussed under "*Do I need a ticket to attend the annual meeting?*" below.
- To vote using a proxy card, simply complete, sign and date the proxy card that was mailed to you and return it promptly in the envelope provided. Proxy cards must be received by July 29, 2020. If you return your signed proxy card before this time, we will forward it to the company's registered office electronically in accordance with Irish law and we will vote your shares as you direct.
- To vote by telephone, dial toll-free +1.800.690.6903 within the United States, U.S. territories and Canada using a touch-tone phone and follow the recorded instructions to submit an electronic proxy card. You will be asked to provide the company number and control number from the enclosed proxy card. Your vote must be received by 11:59 p.m., U.S. Eastern Time, on July 29, 2020 to be counted.
- To vote via the internet, go to www.proxyvote.com to complete an electronic proxy card. You will be asked to provide the company number and control number from the enclosed proxy card. Your vote must be received by 11:59 p.m., U.S. Eastern Time, on July 29, 2020 to be counted.

Beneficial Owners: Shares registered in the name of a broker, bank or other agent

If you are a beneficial owner of shares registered in the name of your broker, bank or other agent, you should have received a Notice or the full set of proxy materials containing voting instructions from that broker, bank or other agent rather than from us. Simply follow the voting instructions in the Notice or the full set of proxy materials to ensure that your vote is counted. Alternatively, you may vote by telephone or via the internet as instructed by your broker, bank or other agent. To vote in person at the annual meeting, you must request and obtain a valid proxy from your broker, bank, or other agent. Follow the voting instructions from your broker, bank or other agent, or contact your broker, bank or other agent to request a proxy form. However, as noted above, in light of the COVID-19 pandemic, we strongly recommend that you vote your shares by proxy in advance of the meeting.

We provide internet proxy voting to allow you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. However, please be aware that you must bear any costs associated with your internet access, such as usage charges from internet access providers and telephone companies.

How many votes do I have?

On each matter to be voted upon, you have one vote for each ordinary share you owned as of the close of business on June 3, 2020.

If I am a shareholder of record and I do not vote, or if I return a proxy card or otherwise vote without giving specific voting instructions, what happens?

If you are a shareholder of record and you do not vote by completing your proxy card, vote by proxy via the internet or by telephone, or vote in person at the annual meeting, your shares will not be voted.

If you are a shareholder of record and you do not specify your vote on each proposal individually when voting by proxy via the internet or by telephone, or if you sign and return a proxy card without giving specific voting instructions, then the proxy holders will vote your shares in the manner recommended by the board of directors on all matters presented in this proxy statement and as the proxy holders may determine in their discretion with respect to any other matters properly presented for a vote at the annual meeting. The voting recommendations of the board of directors are set forth under "*What are the board's voting recommendations?*" above.

If I am a beneficial owner of shares held in street name and I do not provide my broker or bank with voting instructions, what happens?

If you are a beneficial owner of shares held in street name and you do not instruct your broker, bank or other agent how to vote your shares, your broker, bank or other agent may still be able to vote your shares in its discretion. In this regard, under the rules of the New York Stock Exchange (NYSE), brokers, banks and other securities intermediaries that are subject to NYSE rules may use their discretion to vote your "uninstructed" shares with respect to matters considered to be "routine" under NYSE rules, but not with respect to "non-routine" matters. In this regard, Proposals 1, 3 and 4 are considered to be "non-routine" matters under NYSE rules meaning that your broker may not vote your shares on those proposals in the absence of your voting instructions. However, Proposals 2 and 5 are considered to be "routine" matters under NYSE rules meaning that if you do not return voting instructions to your broker by its deadline, your shares may be voted by your broker in its discretion on Proposals 2 and 5.

If you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

What does it mean if I receive more than one set of proxy materials, more than one Notice, or a combination thereof?

If you receive more than one set of proxy materials, more than one Notice, or a combination thereof, your shares may be registered in more than one name or are registered in different accounts. Please follow the voting instructions on each set of proxy materials or Notices to ensure that all of your shares are voted.

Can I change my vote after submitting my proxy?

Yes. You can revoke your proxy at any time before the commencement of the annual meeting. If you are the record holder of your shares, you may revoke your proxy in any one of the following ways:

- You may submit another properly completed proxy card with a later date.
- You may grant a subsequent proxy by telephone or via the internet.
- You may send a timely written notice that you are revoking your proxy to our Company Secretary at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

- You may attend the annual meeting and vote in person. Simply attending the annual meeting will not, by itself, revoke your proxy.
- Your most recent proxy card or telephone or internet proxy is the one that is counted.

If your shares are held by your broker, bank or other agent as a nominee or agent, you should follow the instructions provided by your broker, bank or other agent.

Do I need a ticket to attend the annual meeting?

Yes, you will need an admission ticket or proof of ownership of ordinary shares to enter the annual meeting. If you are a shareholder of record and you received a full set of proxy materials in the mail, your admission ticket is attached to the proxy card sent to you. If you plan to attend the annual meeting, please so indicate when you vote and bring the ticket and valid photo identification with you to the annual meeting. If you are a shareholder of record and you received a Notice in the mail, your admission ticket is your Notice. Please bring your Notice and valid photo identification with you to the annual meeting. If your shares are held in the name of a bank, broker or other holder of record, your admission ticket is on your voting instruction form. If you do not bring your admission ticket, you will need proof of ownership to be admitted to the annual meeting. A recent brokerage statement or letter from a bank or broker is an example of proof of ownership. If you arrive at the annual meeting without an admission ticket, we will admit you only if we are able to verify that you are a shareholder of our company. For directions to attend the annual meeting in person, please contact our Investor Relations department at +353.1.634.7892 (Ireland) or +1.650.496.2800 (United States) or by email at investorinfo@jazzpharma.com.

How are votes counted?

Votes will be counted by the inspector of elections appointed for the meeting. The inspector of elections will separately count, with respect to the proposal to elect directors (*Proposal 1*), votes "FOR," "AGAINST," abstentions and broker non-votes; and, with respect to the other proposals, votes "FOR," "AGAINST," abstentions, and, as applicable, broker non-votes.

What are "broker non-votes"?

As discussed above, when a beneficial owner of shares held in street name does not give voting instructions to his or her broker, bank or other securities intermediary holding his or her shares as to how to vote on matters deemed to be "non-routine" under NYSE rules, the broker, bank or other such agent cannot vote the shares. These un-voted shares are counted as "broker non-votes." Proposals 1, 3 and 4 are considered to be "non-routine" matters under NYSE rules and we therefore expect broker non-votes in connection with those proposals.

As a reminder, if you are a beneficial owner of shares held in street name, in order to ensure your shares are voted in the way you would prefer, you must provide voting instructions to your broker, bank or other agent by the deadline provided in the materials you receive from your broker, bank or other agent.

How many votes are needed to approve each proposal?

Assuming that a quorum is present at the annual meeting, the following votes will be required for approval:

Proposal	Vote Required for Approval
Proposal 1	Each director nominee must receive the affirmative vote of a majority of the votes cast on his or her election to hold office until the 2023 annual meeting of shareholders.
Proposal 2	Affirmative vote of a majority of the votes cast
Proposal 3	Affirmative vote of a majority of the votes cast
Proposal 4	Affirmative vote of a majority of the votes cast
Proposal 5	Affirmative vote of 75% of the votes cast

What are the treatment and effect of abstentions and broker non-votes?

Abstentions and broker non-votes will be treated as shares present for purposes of determining the presence of a quorum for the transaction of business at the annual meeting. Abstentions and broker non-votes will not, however, be considered votes cast at the annual meeting. Because the approval of all of the proposals is based on the votes cast at the annual meeting, abstentions and, as applicable, broker non-votes will not have any effect on the outcome of voting on the proposals.

What is the quorum requirement?

A quorum of shareholders is necessary to hold a valid meeting. A quorum will be present if shareholders holding a majority of the issued and outstanding ordinary shares entitled to vote as of the record date are present at the annual meeting or represented by proxy. On the record date, there were 55,346,861 ordinary shares outstanding and entitled to vote. Your shares will be counted towards the quorum only if you submit a valid proxy (or if one is submitted on your behalf by your broker, bank or other agent) or, provided that you are a shareholder of record, if you vote in person at the annual meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum within one hour of the time scheduled for the annual meeting, the annual meeting will stand adjourned to August 6, 2020 at 3:00 p.m. local time at the same location, or such other time or place as the board of directors may determine.

How can I find out the results of the voting at the annual meeting?

Preliminary voting results will be announced at the annual meeting. In addition, final voting results will be published in a quarterly report on Form 10-Q or a current report on Form 8-K that we expect to file with the SEC within four business days after the annual meeting. If final voting results are not available to us in time to file a Form 10-Q or a Form 8-K within four business days after the annual meeting, we intend to file a Form 8-K to publish preliminary results and, within four business days after the final results are known to us, file an additional Form 8-K to publish the final results.

What are the Irish statutory financial statements and where can I access them?

We are presenting for consideration our Irish statutory financial statements, and the respective reports of the directors and the auditors thereon, at the annual meeting. Since we are an Irish company, we are required to prepare Irish statutory financial statements under applicable Irish company law and to deliver those financial statements together with the respective reports of the directors and the auditors thereon to shareholders of record in connection with our annual meetings of shareholders. The Irish statutory financial statements cover the results of operations and financial position of Jazz Pharmaceuticals plc for the year ended December 31, 2019. The Irish statutory financial statements were prepared in accordance with the International Financial Reporting Standards as adopted by the European Union and as applied in accordance with the 2014 Act. There is no requirement under Irish law that the Irish statutory financial statements be approved by the shareholders, and no such approval will be sought at the annual meeting.

Our Irish statutory financial statements, and the respective reports of the directors and the auditors thereon, will be delivered to shareholders of record in accordance with our obligations under Irish law. We will mail without charge, upon written request, a copy of the Irish statutory financial statements, together with the respective reports of the directors and the auditors thereon, to beneficial “street name” owners of our shares. Requests should be sent to: Jazz Pharmaceuticals plc, Attention: Company Secretary, Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

What proxy materials are available on the internet?

This proxy statement, our letter to shareholders and the 2019 Annual Report on Form 10-K are available at https://materials.proxyvote.com/G50871.

Who should I call if I have any questions?

If you require any assistance in voting your shares or have any other questions, please contact Alliance Advisors, our proxy solicitor, at +1.855.600.8108.

OTHER MATTERS

Presentation of Irish Statutory Financial Statements

Our Irish statutory financial statements for the fiscal year ended December 31, 2019, together with the reports of the directors and auditors thereon, will be presented and considered at the annual meeting in accordance with the requirements of the 2014 Act. Our Irish statutory financial statements have been approved by the board of directors. There is no requirement under Irish law that such statements be approved by shareholders, and no such approval will be sought at the annual meeting.

Registered and Principal Executive Offices

The registered and principal executive offices of Jazz Pharmaceuticals plc are located at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland. Our telephone number there is +353.1.634.7800.

Shareholder Proposals and Director Nominations for the 2021 Annual Meeting

Our shareholders may submit proposals on matters appropriate for shareholder action at shareholder meetings in accordance with Rule 14a-8 promulgated under the Exchange Act. For such proposals to be included in our proxy materials relating to our 2021 annual meeting of shareholders, all applicable requirements of Rule 14a-8 must be satisfied and, pursuant to Rule 14a-8, such proposals must be received by us no later than February 16, 2021. However, if our 2021 annual meeting of shareholders is not held between June 30, 2021 and August 29, 2021, then the deadline will be a reasonable time prior to the time that we begin to print and mail our proxy materials. Such proposals should be delivered to Jazz Pharmaceuticals plc, Attention: Company Secretary, Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

Our constitution provides that shareholder nominations of persons to be elected to the board of directors at an annual meeting must be made following written notice to our Company Secretary which is executed by a shareholder and accompanied by certain background and other information specified in our constitution. Such written notice and information must be received by our Company Secretary not later than the close of business on March 18, 2021 nor earlier than January 15, 2021; provided, however, that in the event our 2021 annual meeting of shareholders is not held between June 30, 2021 and August 29, 2021, notice must be delivered no earlier than 150 days prior to nor later than the later of 90 days prior to the date of the 2021 annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. Our constitution provides that other proposals may only be proposed at an annual meeting if either (i) it is proposed by or at the direction of our board of directors; (ii) it is proposed at the direction of the Irish High Court; or (iii) the chairman of the meeting decides, in his or her absolute discretion, that the proposal may properly be regarded as within the scope of the relevant meeting. In addition, the proxy solicited by our board of directors for the 2021 annual meeting of shareholders will confer discretionary voting authority with respect to (i) any proposal presented by a shareholder at that meeting for which we have not been provided with notice by May 2, 2021 and (ii), if we have received notice of such proposal by May 2, 2021, any matter, provided that (i) the 2021 proxy statement briefly describes such matter and how management's proxy holders intend to vote on it and (ii) the shareholder does not comply with the requirements of Rule 14a-4(c)(2) promulgated under the Exchange Act. On any other business which may properly come before the 2021 annual meeting of shareholders, or any adjournment thereof, and whether procedural or substantive in nature (including without limitation any motion to amend a resolution or adjourn the meeting) not specified in this proxy statement, the proxy holder will act at his or her discretion.

Householding of Proxy Materials

The SEC has adopted rules that permit companies and intermediaries (such as brokers) to satisfy the delivery requirements for Notices and proxy materials with respect to two or more shareholders sharing the same address by delivering a single Notice or a single set of proxy materials, as applicable, addressed to those shareholders. This process, which is commonly referred to as "householding" potentially means extra convenience for shareholders and cost savings for companies.

Other Matters (continued)

A number of brokers with account holders who are Jazz Pharmaceuticals shareholders will be "householding" Notices and our proxy materials. A single Notice or a single set of proxy materials, as applicable, may be delivered to multiple shareholders sharing an address unless contrary instructions have been received from the affected shareholders. Once you have received notice from your broker that it will be "householding" communications to your address, "householding" will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in "householding" and would prefer to receive a separate Notice or set of proxy materials, as applicable, in the future you may: (1) notify your broker, (2) direct your written request to Jazz Pharmaceuticals plc, Attention: Investor Relations, Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland or (3) contact our Investor Relations department at +353.1.634.7892 (Ireland) or +1.650.496.2800 (United States) or by email at investorinfo@jazzpharma.com. Shareholders who currently receive multiple copies of Notices or proxy materials at their address and would like to request "householding" of their communications should contact their broker. In addition, we will promptly deliver, upon written or oral request to the address or telephone number above, a separate copy of a Notice or set of proxy materials to a shareholder at a shared address to which a single Notice or set of proxy materials, as applicable, was delivered.

Annual Report on Form 10-K

We will mail without charge, upon written request, a copy of our 2019 Annual Report on Form 10-K, including the consolidated financial statements, schedules and list of exhibits, and any particular exhibit specifically requested. Requests should be sent to: Jazz Pharmaceuticals plc, Attention: Aislinn Doody, Company Secretary, Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland.

Special Note Regarding Forward-Looking Statements

This proxy statement contains forward-looking statements, including, but not limited to, statements related to our strategy to create shareholder value; expectations regarding regulatory milestones and anticipated product launches as well as the anticipated timing thereof, including with respect to the anticipated launches of lurbinectedin, JZP-258 and JZP-458; the goals of our ESG strategies and initiatives; our expectations as to the supply of our products in 2020 and of our product candidates to support planned U.S. launches; the intended effects of and goals related to our COVID-19 response, including with respect to our continuity plan and support of COVID-19 relief efforts; the design and goals of our Employee Diversity and Inclusion program; our efforts to operate our manufacturing facilities in an environmentally responsible way and the goals of our internal environmental policies and management systems; and other statements that are not historical facts. These forward-looking statements are based on our current plans, objectives, estimates, expectations and intentions and inherently involve significant risks and uncertainties. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of these risks and uncertainties, which include, without limitation, risks and uncertainties associated with: the scale, duration and evolving effects of the COVID-19 pandemic and resulting global economic and financial disruptions and the current and potential future negative impacts to our business operations and financial results, including the risk that our continuity plan and other COVID-19 responses may be ineffective in mitigating the negative impacts associated with the evolving effects of the COVID-19 pandemic; maintaining or increasing sales of and revenue from Xyrem; effectively commercializing our other products and product candidates; the time-consuming and uncertain regulatory approval process, including the risk that our current and planned regulatory submissions may not be submitted, accepted or approved by applicable regulatory authorities in a timely manner or at all; the costly and time-consuming pharmaceutical product development and the uncertainty of clinical success, including risks related to failure or delays in successfully initiating or completing clinical trials and assessing patients such as those being experienced, and expected to continue to be experienced, by us as a result of the COVID-19 pandemic; protecting and enhancing our intellectual property rights; delays or problems in the supply or manufacture of our products and product candidates, including as a result of the evolving effects of the COVID-19 pandemic; complying with applicable U.S. and non-U.S. regulatory requirements; complying with complex and increasingly stringent environmental, health and safety laws and regulations in the countries where we operate; obtaining and maintaining adequate coverage and reimbursement for our products; identifying and acquiring, in-licensing or developing additional products or product candidates, financing these transactions and successfully integrating acquired product candidates, products and businesses; challenges inherent in efficiently managing employees in diverse geographies and creating a positive workplace culture; our ability to achieve expected future financial performance and results and the uncertainty of future tax and other provisions and estimates; and other risks and uncertainties affecting the company, including those described from time to time under the caption “Risk Factors” and elsewhere in Jazz Pharmaceuticals plc’s SEC filings and reports (Commission File No. 001-33500), including our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 and future filings and reports by the company. Other risks and uncertainties of which we are not currently aware may also affect our forward-looking statements and may cause actual results and timing of events to differ materially from those anticipated. The forward-looking statements herein are made only as of the date of this proxy statement or as of the dates indicated in the forward-looking statements, even if they are subsequently made available by the company on its website or otherwise. We undertake no obligation to update or supplement any forward-looking statements to reflect actual results, new information, future events, changes in our expectations or other circumstances that exist after the date as of which the forward-looking statements were made.

Other Matters (continued)

General

Your proxy is solicited on behalf of our board of directors. Unless otherwise directed, at the annual meeting (or any adjournment thereof), proxies will be voted "FOR" all of the nominees listed in Proposal 1 and "FOR" Proposals 2 through 5. If any matter other than those described in this proxy statement properly comes before the annual meeting (or any adjournment thereof), it is the intention of the persons named in the accompanying proxy to vote on such matters in accordance with their best judgment.

By order of the board of directors,

/s/ Aislinn Doody
Aislinn Doody, Company Secretary
Dublin, Ireland

June 12, 2020

ANNEX A

Jazz Pharmaceuticals plc
Amended and Restated
2007 Non-Employee Directors Stock Award Plan

1. General.

The Company, by means of the Plan, seeks to retain the services of its Non-Employee Directors, to secure and retain the services of new Non-Employee Directors and to provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate by giving them an opportunity to benefit from increases in value of the Ordinary Shares through the grant of Stock Awards. The Plan is also intended to provide a source of Ordinary Shares to be used to pay distributions under the Company's Directors Deferred Compensation Plan, but only to the extent such Ordinary Shares were credited prior to August 15, 2010 to a Non-Employee Director's stock account pursuant to the Company's Directors Deferred Compensation Plan.

2. Administration.

(a) Administration by Board. The Board shall administer the Plan. The Board may not delegate administration of the Plan.

(b) Powers of Board. The Board shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine from time to time (A) which of the Non-Employee Directors eligible under the Plan shall be granted Stock Awards; (B) when and how each Stock Award shall be granted; (C) what type or combination of types of Stock Award shall be granted; (D) the provisions of each Stock Award granted (which need not be identical); (E) the number of Ordinary Shares with respect to which each Stock Award shall be granted; and (F) the Fair Market Value applicable to a Stock Award.

(ii) To determine the provisions of each Stock Award to the extent not specified in the Plan.

(iii) To construe and interpret the Plan and Stock Awards granted under it, and to establish, amend and revoke rules and regulations for its administration. The Board, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(iv) To amend the Plan or a Stock Award as provided in Section 10.

(v) To terminate or suspend the Plan as provided in Section 11.

(vi) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan.

(c) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith shall not be subject to review by any person and shall be final, binding and conclusive on all persons.

(d) Cancellation and Re-Grant of Stock Awards. The Board shall not have the authority to (i) reduce the exercise or strike price of any outstanding Option or SAR or (ii) cancel any outstanding Option or SAR that has an exercise or strike price (per share) greater than the then-current Fair Market Value of the Ordinary Shares in exchange for cash or other Stock Awards under the Plan, unless the shareholders of the Company have approved such an action within 12 months prior to such an event.

3. Shares Subject to the Plan.

(a) Share Reserve. Subject to the provisions of Section 9(a) relating to Capitalization Adjustments, the aggregate number of Ordinary Shares that may be issued under the Plan shall not exceed the sum of the following:

(i) two hundred thousand (200,000) Ordinary Shares (which were approved as of the Effective Date);

(ii) an automatic annual increase beginning on January 1, 2008 and ending on (and including) January 1, 2016, in an amount equal to the sum of (A) the excess of (x) the number of Ordinary Shares subject to Options granted during the preceding calendar year, over (y) the number of Ordinary Shares added back to the share reserve during the preceding calendar year pursuant to the provisions of Section 3(b), plus (B) for the automatic annual increases occurring on or prior to January 1, 2010 only, the aggregate number of Ordinary Shares credited to the Non-Employee Directors' stock accounts pursuant to the Company's Directors Deferred Compensation Plan during the applicable preceding calendar year; *provided, however,* that such automatic annual increase shall not exceed two hundred thousand (200,000) Ordinary Shares; and

(iii) five hundred thousand (500,000) Ordinary Shares (which were approved at the Company's 2020 annual general meeting of shareholders).

For the avoidance of doubt, no Ordinary Shares credited to the Non-Employee Directors' stock accounts pursuant to the Company's Directors Deferred Compensation Plan on or after August 15, 2010 shall act to increase the share reserve under this Section 3(a). Notwithstanding the foregoing, for purposes of Section 3(a)(ii), the Board may act prior to the first day of any calendar year, to provide that there shall be no increase in the share reserve for such calendar year or that the increase in the share reserve for such calendar year shall be a lesser number of Ordinary Shares than would otherwise occur pursuant to Section 3(a)(ii).

(b) Reversion of Shares to the Share Reserve. If a Stock Award shall for any reason expire or otherwise terminate, in whole or in part, without all of the Ordinary Shares covered by such Stock Award having been issued, the Ordinary Shares not acquired under such Stock Award shall revert to and again become available for issuance under the Plan. If any Ordinary Shares subject to a Stock Award are not delivered to an Awardholder because such Ordinary Shares are withheld for the payment of taxes, the number of Ordinary Shares that are not delivered to the Awardholder shall remain available for issuance under the Plan. If the exercise price of a Stock Award is satisfied by tendering Ordinary Shares held by the Awardholder (either by actual delivery or attestation), then the number of Ordinary Shares so tendered shall remain available for issuance under the Plan.

(c) Payment Shares. Subject to the overall limitation in Section 3(a) on the number of Ordinary Shares that may be issued pursuant to Stock Awards, Ordinary Shares may be used as the form of payment for distributions under the Company's Directors Deferred Compensation Plan but only to the extent such Ordinary Shares were credited prior to August 15, 2010 to a Non-Employee Director's stock account pursuant to the Company's Directors Deferred Compensation Plan.

(d) Source of Shares. The shares issuable under the Plan shall be authorized but unissued or reacquired Ordinary Shares, including Ordinary Shares repurchased by the Company or any Affiliate on the open market or otherwise.

4. Eligibility.

The persons eligible to receive Stock Awards are the Non-Employee Directors of the Company.

5. Option and SAR Provisions.

Each Option or SAR shall be in such form and shall contain such terms and conditions as required by the Plan. Each Option and SAR shall contain such additional terms and conditions, not inconsistent with the Plan, as the Board shall deem appropriate. Each Option and SAR shall include (through incorporation of provisions hereof by reference in the applicable Stock Award or otherwise) the substance of each of the following provisions:

(a) Term. No Option or SAR shall be exercisable after the expiration of ten (10) years from the date it was granted.

(b) Exercise Price. The exercise price (or strike price) of each Option or SAR shall be one hundred percent (100%) of the Fair Market Value of the Ordinary Shares subject to the Option or SAR on the date the Option or SAR is granted, provided that in all cases the exercise price (or strike price) is not less than the nominal value of an Ordinary Share. Each SAR will be denominated in Ordinary Share equivalents.

(c) Consideration for Options. The purchase price of Ordinary Shares acquired pursuant to an Option may be paid, to the extent permitted by applicable law, in any combination of the following; *provided, however*, that where Ordinary Shares are issued pursuant to the exercise of an Option the nominal value of each newly issued Ordinary Share is fully paid up: (i) cash or check, (ii) delivery to the Company (either by actual delivery or attestation) of Ordinary Shares, or (iii) to the extent permitted by law, pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of Ordinary Shares, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Awardholder must provide written notice of exercise to the Company in compliance with the provisions of the Award Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of Ordinary Shares equal to the number of Ordinary Share equivalents in which the Awardholder is vested under such SAR, and with respect to which the Awardholder is exercising the SAR on such date, over (B) the strike price that will be determined by the Board at the time of grant of the SAR. The appreciation distribution in respect to a SAR may be paid in Ordinary Shares, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Award Agreement evidencing such SAR; *provided, however*, that where Ordinary Shares are issued pursuant to a SAR the nominal value of each newly issued Ordinary Share is fully paid up.

(e) Transferability. Except as otherwise provided for in this Section 5(e), an Option or SAR shall not be transferable except by will or by the laws of descent and distribution and shall be exercisable only by the Awardholder during the life of the Awardholder. However, an Option or SAR may be transferred for no consideration upon written consent of the Board if (i) at the time of transfer, a Form S-8 registration statement under the Securities Act is available for the issuance of Ordinary Shares by the Company upon the exercise of such transferred Option or SAR, or (ii) the transfer is to the Awardholder's employer at the time of transfer or an affiliate of the Awardholder's employer at the time of transfer. Any such transfer is subject to such limits as the Board may establish, and subject to the transferee agreeing to remain subject to all the terms and conditions applicable to the Option or SAR prior to such transfer. The forgoing right to transfer the Option or SAR shall apply to the right to consent to amendments to the Award Agreement for such Option or SAR. In addition, until the Awardholder transfers the Option or SAR, an Awardholder may, by delivering written notice to the Company, in a form provided by or otherwise satisfactory to the Company, designate a third party who, in the event of the death of the Awardholder, shall thereafter be entitled to exercise the Option or SAR.

(f) Vesting. The total number of Ordinary Shares subject to an Option or SAR may vest and therefore become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to any Option or SAR provisions governing the minimum number of Ordinary Shares as to which an Option or SAR may be exercised.

(g) Early Exercise. The Option may, but need not, include a provision whereby the Optionholder may elect at any time before the Optionholder's Continuous Service terminates to exercise the Option as to any part or all of the Ordinary Shares subject to the Option prior to the full vesting of the Option. Any unvested Ordinary Shares so purchased may be subject to a repurchase option in favor of the Company or any Affiliate or to any other restriction the Board determines to be appropriate. The Company or Affiliate will not exercise its repurchase option until at least six (6) months (or such longer or shorter period of time required to avoid classification of the Option as a liability for financial accounting purposes) have elapsed following exercise of the Option unless the Board otherwise specifically provides in the Option.

(h) Termination of Continuous Service. In the event that an Awardholder's Continuous Service terminates (other than upon the Awardholder's death or Disability or upon a Change in Control), the Awardholder may exercise his or her Option or SAR (to the extent that the Awardholder was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date three (3) months following the termination of the Awardholder's Continuous Service, or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Awardholder does not exercise his or her Option or SAR within the time specified herein or in the Award Agreement (as applicable), the Option or SAR shall terminate.

(i) Extension of Termination Date. If the exercise of an Option or SAR following the termination of the Awardholder's Continuous Service (other than upon the Awardholder's death or Disability or upon a Change in Control) would be prohibited at any time solely because the issuance of Ordinary Shares would violate the registration requirements under the Securities Act, then the Option or SAR shall terminate on the earlier of (i) the expiration of a period of three (3) months after the termination of the Awardholder's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements, or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement.

(j) Disability of Awardholder. In the event that an Awardholder's Continuous Service terminates as a result of the Awardholder's Disability, the Awardholder may exercise his or her Option or SAR (to the extent that the Awardholder was entitled to exercise it as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date twelve (12) months following such termination of Continuous Service, or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination, the Awardholder does not exercise his or her Option or SAR within the time specified herein or in the Award Agreement, the Option or SAR shall terminate.

(k) Death of Awardholder. In the event that (i) an Awardholder's Continuous Service terminates as a result of the Awardholder's death, or (ii) the Awardholder dies within the three (3)-month period after the termination of the Awardholder's Continuous Service for a reason other than death, then the Option or SAR may be exercised (to the extent the Awardholder was entitled to exercise such Option or SAR as of the date of death) by the Awardholder's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance, or by a person designated to exercise the Option or SAR upon the Awardholder's death, but only within the period ending on the earlier of (i) the date eighteen (18) months following the date of death, or (ii) the expiration of the term of such Option or SAR as set forth in the Award Agreement. If, after the Awardholder's death, the Option or SAR is not exercised within the time specified herein, the Option or SAR shall terminate.

(l) Termination Upon Change in Control. In the event that an Awardholder's Continuous Service terminates as of, or within twelve (12) months following a Change in Control, the Awardholder may exercise his or her Option or SAR (to the extent that the Awardholder was entitled to exercise such Option or SAR as of the date of termination of Continuous Service) within such period of time ending on the earlier of (i) the date twelve (12) months following the effective date of the Change in Control, or (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after termination of Continuous Service, the Awardholder does not exercise his or her Option or SAR within the time specified herein or in the Award Agreement (as applicable), the Option or SAR shall terminate.

6. Provisions of Stock Awards other than Options and SARs.

(a) Restricted Stock Awards. Each Award Agreement evidencing a Restricted Stock Award shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. To the extent consistent with the Company's Bylaws, at the Board's election, Ordinary Shares may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse; or (ii) evidenced by a certificate, which certificate shall be held in such form and manner as determined by the Board. The terms and conditions of such Award Agreements may change from time to time, and the terms and conditions of separate Award Agreements need not be identical; *provided, however*, that each Award Agreement for a Restricted Stock Award shall conform to (through incorporation of the provisions hereof by reference in the agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash, check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate, or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law; *provided, however*, that where Ordinary Shares are issued pursuant to a Restricted Stock Award the nominal value of each newly issued Ordinary Share is fully paid up.

(ii) Vesting. Ordinary Shares awarded under an Award Agreement for a Restricted Stock Award may be subject to forfeiture to the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Continuous Service. If an Awardholder's Continuous Service terminates, the Company or any Affiliate may receive through a forfeiture condition or a repurchase right any or all of the Ordinary Shares held by the Awardholder that have not vested as of the date of termination of Continuous Service under the terms of the Award Agreement for a Restricted Stock Award.

(iv) Transferability. Rights to acquire Ordinary Shares under the Award Agreement for a Restricted Stock Award shall be transferable by the Awardholder only upon such terms and conditions as are set forth in the Award Agreement for such Restricted Stock Award, as the Board shall determine in its sole discretion, so long as the Ordinary Shares awarded under the Award Agreement remain subject to the terms of the Award Agreement.

(v) Dividends. An Award Agreement may provide that any dividends paid on Restricted Stock will be subject to the same vesting and forfeiture restrictions as apply to the Ordinary Shares subject to the Restricted Stock Award to which they relate.

(b) Restricted Stock Unit Awards. Each Award Agreement for a Restricted Stock Unit Award shall be in such form and shall contain such terms and conditions as the Board shall deem appropriate. The terms and conditions of such Award Agreements may change from time to time, and the terms and conditions of separate Award Agreements need not be identical; *provided, however*, that each Award Agreement for a Restricted Stock Unit Award shall conform to (through incorporation of the provisions hereof by reference in the Award Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid upon delivery of each Ordinary Share subject to the Restricted Stock Unit Award. The consideration to be paid (if any) for each Ordinary Share subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law; *provided, however*, that where Ordinary Shares are issued pursuant to a Restricted Stock Unit Award the nominal value of each newly issued Ordinary Share is fully paid up.

(ii) Vesting. At the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of Ordinary Shares, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Award Agreement for such Restricted Stock Unit Award.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the Ordinary Shares (or their cash equivalent) subject to a Restricted Stock Unit Award to a time after the vesting of such Restricted Stock Unit Award.

(v) Dividend Equivalents. Dividend equivalents may be credited in respect of Ordinary Shares covered by a Restricted Stock Unit Award, as determined by the Board and contained in the Award Agreement. At the sole discretion of the Board, such dividend equivalents may be converted into additional Ordinary Shares covered by the Restricted Stock Unit Award in such manner as determined by the Board. Any additional Ordinary Shares covered by the Restricted Stock Unit Award credited by reason of such dividend equivalents will be subject to all of the same terms and conditions of the underlying Award Agreement to which they relate.

(vi) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement, such portion of the Restricted Stock Unit Award that has not vested will be forfeited upon the Awardholder's termination of Continuous Service.

(c) Other Stock Awards. Other forms of Stock Awards valued in whole or in part by reference to, or otherwise based on, Ordinary Shares, including the appreciation in value thereof (e.g., options or share rights with an exercise price or strike price less than 100% of the Fair Market Value of the Ordinary Shares at the time of grant) may be granted either alone or in addition to Stock Awards provided for under Section 5 and the preceding provisions of this Section 6. Subject to the provisions of the Plan, the Board shall have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of Ordinary Shares (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards; *provided, however*, that where Ordinary Shares are issued pursuant to an Other Stock Award the nominal value of each newly issued Ordinary Share is fully paid up.

7. Covenants of the Company.

(a) Availability of Shares. During the terms of the Stock Awards, the Company shall keep available at all times the number of Ordinary Shares required to satisfy such Stock Awards.

(b) Securities Law Compliance. The Company shall seek to obtain from each regulatory commission or agency having jurisdiction over the Plan such authority as may be required to grant Stock Awards and to issue and sell Ordinary Shares upon exercise of the Stock Awards; *provided, however*, that this undertaking shall not require the Company to register under the Securities Act the Plan, any Stock Award or any Ordinary Shares issued or issuable pursuant to any such Stock Award. If, after reasonable efforts, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Ordinary Shares under the Plan, the Company shall be relieved from any liability for failure to issue and sell Ordinary Shares upon exercise of such Stock Awards unless and until such authority is obtained. A Non-Employee Director shall not be eligible for the grant of a Stock Award or the subsequent issuance of Ordinary Shares pursuant to the Stock Award if such grant or issuance would be in violation of any applicable securities law.

8. Miscellaneous.

(a) Use of Proceeds. Proceeds from the sale of Ordinary Shares pursuant to Stock Awards shall constitute general funds of the Company.

(b) Shareholder Rights. No Awardholder shall be deemed to be the holder of, or to have any of the rights of a holder with respect to, any Ordinary Shares subject to such Stock Award unless and until (i) such Awardholder has satisfied all requirements for exercise of the Stock Award pursuant to its terms, if applicable, and (ii) the issuance of the Ordinary Shares subject to such Stock Award has been entered into the books and records of the Company.

(c) No Service Rights. Nothing in the Plan, any instrument executed, or Stock Award granted pursuant thereto shall confer upon any Awardholder any right to continue to serve the Company as a Non-Employee Director or shall affect the right of the Company or an Affiliate to terminate the service of a Director pursuant to the Bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(d) Investment Assurances. The Company may require an Awardholder, as a condition of exercising or acquiring Ordinary Shares under any Stock Award, (i) to give written assurances satisfactory to the Company as to the Awardholder's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Stock Award; and (ii) to give written assurances satisfactory to the Company stating that the Awardholder is acquiring the Ordinary Shares subject to the Stock Award for the Awardholder's own account and not with any present intention of selling or otherwise distributing the Ordinary Shares. The foregoing requirements, and any assurances given pursuant to such requirements, shall be inoperative if (i) the issuance of the Ordinary Shares upon the exercise or acquisition of Ordinary Shares under the Stock Award has been registered under a then currently effective registration statement under the Securities Act, or (ii) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on share certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Ordinary Shares.

(e) Withholding Obligations. The Awardholder may satisfy any federal, state, local or foreign tax withholding obligation relating to the exercise or acquisition of Ordinary Shares under a Stock Award by any of the following means (in addition to the Company's right to withhold from any compensation paid to the Awardholder by the Company) or by a combination of such means: (i) tendering a cash payment; (ii) authorizing the Company to withhold Ordinary Shares from the Ordinary Shares otherwise issuable to the Awardholder as a result of the exercise or acquisition of Ordinary Shares under the Stock Award; *provided, however,* that no Ordinary Shares are withheld with a value exceeding the maximum amount of tax that may be required to be withheld by law (or such other amount as may be permitted while still avoiding classification of the Stock Award as a liability for financial accounting purposes); (iii) delivering to the Company owned and unencumbered Ordinary Shares; or (iv) by such other method as may be set forth in the Award Agreement.

(f) Electronic Delivery. Any reference herein to a "written" agreement or document shall include any agreement or document delivered electronically or posted on the Company's intranet.

9. Adjustments upon Changes in Ordinary Shares; Corporate Transactions.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board shall proportionately and appropriately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a), (ii) the class(es) and maximum number of securities by which the share reserve is to increase automatically each year pursuant to Section 3(a), and (iii) the class(es) and number of securities and price per Ordinary Share subject to outstanding Stock Awards. The Board shall make such adjustments, and its determination shall be final, binding and conclusive.

(b) Dissolution or Liquidation. In the event of a dissolution or liquidation of the Company, all outstanding Stock Awards (other than Stock Awards consisting of vested and outstanding Ordinary Shares not subject to a forfeiture condition or the Company's right of repurchase) shall terminate immediately prior to the completion of such dissolution or liquidation, and any Ordinary Shares subject to the Company's repurchase rights or subject to a forfeiture condition may be repurchased or reacquired by the Company notwithstanding the fact that the holder of such Stock Award is providing Continuous Service.

(c) Corporate Transaction.

(i) Stock Awards May Be Assumed. In the event of a Corporate Transaction, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all Stock Awards outstanding under the Plan or may substitute similar stock awards for Stock Awards outstanding under the Plan (including but not limited to, stock awards to acquire the same consideration paid to the shareholders of the Company pursuant to the Corporate Transaction), and any reacquisition or repurchase rights held by the Company or any Affiliate in respect of Ordinary Shares issued pursuant to Stock Awards may be assigned by the Company to the successor of the Company (or the successor's parent company, if any), in connection with such Corporate Transaction. A surviving corporation or acquiring corporation may choose to assume or continue only a portion of a Stock Award or substitute a similar stock award for only a portion of a Stock Award.

(ii) Stock Awards Held by Active Awardholders. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Stock Awards or substitute similar stock awards for such outstanding Stock Awards, then with respect to Stock Awards that have not been assumed, continued or substituted and that are held by Awardholders whose Continuous Service has not terminated prior to the effective time of the Corporate Transaction (referred to as the "***Active Awardholders***"), the vesting of such Stock Awards (and, if applicable, the time at which such Stock Awards may be exercised) shall (contingent upon the effectiveness of the Corporate Transaction) be accelerated in full to a date prior to the effective time of such Corporate Transaction as the Board shall determine (or, if the Board shall not determine such a date, to the date that is five (5) days prior to the effective time of the Corporate Transaction), and the Stock Awards shall terminate if not exercised (if applicable) at or prior to the effective time of the Corporate Transaction, and any reacquisition or repurchase rights held by the Company or any Affiliate with respect to such Stock Awards shall lapse (contingent upon the effectiveness of the Corporate Transaction).

(iii) Stock Awards Held by Former Awardholders. In the event of a Corporate Transaction in which the surviving corporation or acquiring corporation (or its parent company) does not assume or continue such outstanding Stock Awards or substitute similar stock awards for such outstanding Stock Awards, then with respect to any other Stock Awards that have not been assumed, continued or substituted and that are held by persons other than Active Awardholders, the vesting of such Stock Awards (and, if applicable, the time at which such Stock Awards may be exercised) shall not be accelerated unless otherwise provided in Section 9(d) or in a written agreement between the Company or any Affiliate and the holder of such Stock Awards, and such Stock Awards shall terminate if not exercised (if applicable) prior to the effective time of the Corporate Transaction; *provided, however,* that any reacquisition or repurchase rights held by the Company or any Affiliate with respect to such Stock Awards shall not terminate and may continue to be exercised notwithstanding the Corporate Transaction.

(iv) Payment for Stock Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event a Stock Award will terminate if not exercised prior to the effective time of a Corporate Transaction, the Board may provide, in its sole discretion, that the holder of such Stock Award may not exercise such Stock Award but will receive a payment, in such form as may be determined by the Board, equal in value to the excess, if any, of (i) the value of the property the holder of the Award would have received upon the exercise of the Stock Award, over (ii) the exercise price payable by the Awardholder in connection with such exercise.

(d) Change in Control. In the event that an Awardholder (i) is required to resign his or her position as a Non-Employee Director as a condition of a Change in Control, or (ii) is removed from his or her position as a Non-Employee Director in connection with a Change in Control, the outstanding Stock Awards held by such Awardholder shall become fully vested and exercisable immediately prior to the effectiveness of such resignation or removal (and contingent upon the effectiveness of such Change in Control).

(e) Parachute Payments.

(i) If the acceleration of the vesting and exercisability of Stock Awards provided for in Sections 9(c) and 9(d), together with payments and other benefits of an Awardholder, (collectively, the "***Payment***") (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, or any comparable successor provisions, and (ii) but for this Section 9(e) would be subject to the excise tax imposed by Section 4999 of the Code, or any comparable successor provisions (the "***Excise Tax***"), then such Payment shall be either (1) provided to such Awardholder in full, or (2) provided to such Awardholder as to such lesser extent that would result in no portion of such Payment being subject to the Excise Tax, whichever of the foregoing amounts, when taking into account applicable federal, state, local and foreign income and employment taxes, the Excise Tax, and any other applicable taxes, results in the receipt by such Awardholder, on an after-tax basis, of the greatest amount of the Payment, notwithstanding that all or some portion of the Payment may be subject to the Excise Tax.

(ii) Unless the Company and such Awardholder otherwise agree in writing, any determination required under this Section 9(e) shall be made in writing in good faith by the Accountant. If a reduction in the Payment is to be made as provided above, reduction shall occur in the manner that results in the greatest economic benefit for Awardholder.

(iii) For purposes of making the calculations required by this Section 9(e), the Accountant may make reasonable assumptions and approximations concerning applicable taxes and may rely on reasonable, good faith interpretations concerning the application of the Code and other applicable legal authority. The Company and the Awardholder shall furnish to the Accountant such information and documents as the Accountant may reasonably request in order to make such a determination. The Company shall bear all costs the Accountant may reasonably incur in connection with any calculations contemplated by this Section 9(e).

(iv) If, notwithstanding any reduction described above, the Internal Revenue Service (the "***IRS***") determines that the Awardholder is liable for the Excise Tax as a result of the Payment, then the Awardholder shall be obligated to pay back to the Company, within thirty (30) days after a final IRS determination or, in the event that the Awardholder challenges the final IRS determination, a final judicial determination, a portion of the Payment (the "***Repayment Amount***"). The Repayment Amount with respect to the Payment shall be the smallest such amount, if any, as shall be required to be paid to the Company so that the Awardholder's net after-tax proceeds with respect to the Payment (after taking into account the payment of the Excise Tax and all other applicable taxes imposed on the Payment) shall be maximized. The Repayment Amount with respect to the Payment shall be zero if a Repayment Amount of more than zero would not result in the Awardholder's net after-tax proceeds with respect to the Payment being maximized. If the Excise Tax is not eliminated pursuant to this paragraph, the Awardholder shall pay the Excise Tax.

(v) Notwithstanding any other provision of this Section 9(e), if (i) there is a reduction in the Payment as described above, (ii) the IRS later determines that the Awardholder is liable for the Excise Tax, the payment of which would result in the maximization of the Awardholder's net after-tax proceeds of the Payment (calculated as if the Payment had not previously been reduced), and (iii) the Awardholder pays the Excise Tax, then the Company shall pay or otherwise provide to the Awardholder that portion of the Payment that was reduced pursuant to this Section 9(e) contemporaneously or as soon as administratively possible after the Awardholder pays the Excise Tax so that the Awardholder's net after-tax proceeds with respect to the Payment are maximized.

(vi) If the Awardholder either (i) brings any action to enforce rights pursuant to this Section 9(e), or (ii) defends any legal challenge to his or her rights under this Section 9(e), the Awardholder shall be entitled to recover attorneys' fees and costs incurred in connection with such action, regardless of the outcome of such action; *provided, however,* that if such action is commenced by the Awardholder, the court finds that the action was brought in good faith.

10. Amendment of the Plan and Stock Awards.

(a) Amendment of Plan. Subject to the limitations, if any, of applicable law, the Board, at any time and from time to time, may amend the Plan. However, except as provided in Section 9(a) relating to Capitalization Adjustments, no amendment shall be effective unless approved by the shareholders of the Company to the extent shareholder approval is necessary to satisfy applicable law.

(b) Shareholder Approval. The Board, in its sole discretion, may submit any other amendment to the Plan for shareholder approval.

(c) No Impairment of Rights. Rights under any Stock Award granted before amendment of the Plan shall not be impaired by any amendment of the Plan unless (i) the Company requests the consent of the affected Awardholder, and (ii) such Awardholder consents in writing.

(d) Amendment of Stock Awards. The Board, at any time and from time to time, may amend the terms of any one or more Stock Awards; *provided, however,* that the rights under any Stock Award shall not be impaired by any such amendment unless (i) the Company requests the consent of the Awardholder, and (ii) the Awardholder consents in writing.

11. Termination or Suspension of the Plan.

(a) Plan Term. The Board may suspend or terminate the Plan at any time. No Stock Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan shall not impair rights and obligations under any Stock Award granted while the Plan is in effect except with the written consent of the Awardholder.

12. Effective Date of Plan.

The Plan became effective on May 31, 2007.

13. Choice of Law.

The law of the state of Delaware shall govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

14. Definitions.

As used in the Plan, the following definitions shall apply to the capitalized terms indicated below:

(a) "***Accountant***" means the independent public accountants of the Company.

(b) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405 of the Securities Act and any "holding company" or "subsidiary" of the Company as such terms are defined in Section 8 and 7 respectively of the Companies Act. The Board shall have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(c) "***Award Agreement***" means a written agreement between the Company and a Non-Employee Director evidencing the terms and conditions of a Stock Award grant. Each Award Agreement shall be subject to the terms and conditions of the Plan.

(d) "***Awardholder***" means a person to whom a Stock Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Stock Award.

(e) "***Board***" means the Board of Directors of the Company.

Annex A (continued)

(f) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Ordinary Shares subject to the Plan or subject to any Stock Award after the Effective Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, share dividend, dividend in property other than cash, large nonrecurring cash dividend, share split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Financial Accounting Standards Board Accounting Standards Codification Topic 718 (or any successor thereto), including, for the avoidance of doubt, capitalization of profits or reserves, capital distribution, rights issue, the conversion of one class of share to another or reduction of capital or otherwise. Notwithstanding the foregoing, the conversion of any convertible securities of the Company shall not be treated as a Capitalization Adjustment.

(g) "***Change in Control***" means the occurrence, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) any Exchange Act Person becomes the Owner, directly or indirectly, of securities of the Company representing more than thirty percent (30%) of the combined voting power of the Company's then outstanding securities. Notwithstanding the foregoing, a Change in Control shall not be deemed to occur on account of the acquisition of securities of the Company directly from the Company;

(ii) there is consummated a compromise or arrangement sanctioned by the Irish courts under the Companies Act, a scheme, contract or offer which has become binding on all shareholders of the Company pursuant to Section 457 of the Companies Act or a bid pursuant to Regulation 23 or 24 of the European Communities (Takeover Bids (Directive 2004/25/EC)) Regulations 2006 (as may be amended, updated or replaced from time to time), an offer or reverse takeover transaction which has been completed pursuant to the Irish Takeover Panel Act, 1997, Takeover Rules, 2013, or a reorganization, merger, statutory share exchange, consolidation or similar transaction involving (directly or indirectly) the Company (each, a "***Business Combination***") and (A) immediately after the consummation of such Business Combination, the shareholders of the Company immediately prior thereto do not Own, directly or indirectly, either outstanding voting securities representing more than fifty percent (50%) of the combined outstanding voting power of the surviving Entity or ultimate parent of the surviving Entity in such Business Combination in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such Business Combination, (B) an Exchange Act Person becomes the Owner, directly or indirectly, of securities representing more than thirty percent (30%) of the combined voting power of the surviving Entity or ultimate parent of the surviving Entity through the Business Combination, or (C) at least a majority of the members of the board of directors of the ultimate parent (or if there is no parent, the surviving Entity) immediately following such Business Combination were not Incumbent Board Members (as defined below) at the time the Board approved the execution of the definitive agreement providing for such Business Combination;

(iii) the shareholders of the Company approve or the Board approves a plan of complete dissolution or liquidation of the Company, or a complete dissolution or liquidation of the Company shall otherwise occur, except for a liquidation into a parent corporation;

(iv) there is consummated a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries, other than a sale, lease, exclusive license or other disposition of all or substantially all of the consolidated assets of the Company and its Subsidiaries to an Entity, more than fifty percent (50%) of the combined voting power of the voting securities of which are Owned by shareholders of the Company in substantially the same proportions as their Ownership of the outstanding voting securities of the Company immediately prior to such sale, lease, exclusive license or other disposition; or

(v) individuals who, on the date the Plan is adopted by the Board, are members of the Board (the "***Incumbent Board Members***") cease for any reason to constitute at least a majority of the members of the Board; *provided, however*, that if the appointment or election (or nomination for election) of any new Board member was approved or recommended by a majority vote of the Incumbent Board Members then still in office, such new member shall, for purposes of the Plan, be considered as an Incumbent Board Member, but excluding for purposes of the Plan any such individual whose initial assumption of office occurs as a result of either an actual or threatened election contest or other actual or threatened solicitation of proxies or consents by or on behalf of any person or Entity other than the Board.

Notwithstanding the foregoing or any other provision of the Plan, the definition of Change in Control (or any analogous term) in an individual written agreement between the Company or any Affiliate and the Awardholder shall supersede the foregoing definition with respect to Stock Awards subject to such agreement; *provided, however,* that (1) if no definition of Change in Control (or any analogous term) is set forth in such an individual written agreement, the foregoing definition shall apply, and (2) no Change in Control (or any analogous term) shall be deemed to occur with respect to Stock Awards subject to such an individual written agreement without a requirement that the Change in Control (or any analogous term) actually occur.

The Board may, in its sole discretion and without an Awardholder's consent, amend the definition of "Change in Control" to conform to the definition of "Change in Control" under Section 409A of the Code, and the regulations thereunder.

(h) "***Code***" means the Internal Revenue Code of 1986, as amended.

(i) "***Companies Act***" means the Companies Act 2014 of Ireland, together with all statutory modifications and re-enactments thereof and all statutes and statutory instruments which are to be read as one with, or construed or read together as one with, the aforementioned enactments and every statutory modification and re-enactment thereof for the time being in force.

(j) "***Company***" means:

(i) prior to a Change in Control, Jazz Pharmaceuticals plc; and

(ii) on or after a Change in Control, (A) Jazz Pharmaceuticals plc in the event that the surviving Entity resulting from a Change in Control is Jazz Pharmaceuticals plc, (B) the surviving Entity resulting from a Change in Control in the event that such surviving Entity is not Jazz Pharmaceuticals plc, (C) any Entity to which the assets of Jazz Pharmaceuticals plc and its Subsidiaries are sold, leased, exclusively licensed or otherwise disposed of in the event of a Change in Control under Section 14(g)(iv), or (D) any other successor to Jazz Pharmaceuticals plc in the event of a Change in Control, as applicable;

provided, however, that in the event Jazz Pharmaceuticals plc completes a reorganization that is not in connection with a Change in Control that results in Jazz Pharmaceuticals plc no longer being the ultimate parent company and reporting company under the Exchange Act, then "Company" means the ultimate parent that directly or indirectly holds Jazz Pharmaceuticals plc.

(k) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services, or (ii) serving as a member of the Board of Directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, shall not cause a Director to be considered a "Consultant" for purposes of the Plan.

(l) "***Continuous Service***" means that the Awardholder's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Awardholder renders service to the Company or an Affiliate as an Employee, Consultant or Director or a change in the entity for which the Awardholder renders such service, provided that there is no interruption or termination of the Awardholder's service with the Company or an Affiliate, shall not terminate an Awardholder's Continuous Service; *provided, however*, if the corporation for which an Awardholder is rendering service ceases to qualify as an Affiliate, as determined by the Board in its sole discretion, such Awardholder's Continuous Service shall be considered to have terminated on the date such corporation ceases to qualify as an Affiliate. For example, a change in status from a Non-Employee Director of the Company to a Consultant of an Affiliate or an Employee of the Company will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service shall be considered interrupted in the case of any leave of absence approved by that party, including sick leave, military leave or any other personal leave. Notwithstanding the foregoing, a leave of absence shall be treated as Continuous Service for purposes of vesting in a Stock Award only to such extent as may be provided in the Company's leave of absence policy or in the written terms of the Awardholder's leave of absence.

(m) "***Corporate Transaction***" means the consummation, in a single transaction or in a series of related transactions, of any one or more of the following events:

(i) a sale or other disposition of all or substantially all, as determined by the Board in its sole discretion, of the consolidated assets of the Company and its Subsidiaries;

(ii) a sale or other disposition of at least ninety percent (90%**)** of the outstanding securities of the Company;

(iii) a merger, consolidation or similar transaction following which the Company is not the surviving corporation; or

(iv) a merger, consolidation or similar transaction following which the Company is the surviving corporation but the Ordinary Shares outstanding immediately preceding the merger, consolidation or similar transaction are converted or exchanged by virtue of the merger, consolidation or similar transaction into other property, whether in the form of securities, cash or otherwise.

For the avoidance of doubt, any one or more of the above events may be effected pursuant to a compromise or arrangement sanctioned by the Irish courts under the Companies Act, a scheme, contract or offer which has become binding on all shareholders of the Company pursuant to Section 457 of the Companies Act or a bid pursuant to Regulation 23 or 24 of the European Communities (Takeover Bids (Directive 2004/25/EC)) Regulations 2006 (as may be amended, updated or replaced from time to time), or an offer or reverse takeover transaction which has been completed pursuant to the Irish Takeover Panel Act, 1997, Takeover Rules, 2013.

(n) "***Director***" means a member of the Board.

(o) "***Disability***" means, with respect to an Awardholder, the inability of such Awardholder to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, as provided in Section 22(e)(3) and 409A(a)(2)(c)(i) of the Code.

(p) "***Effective Date***" means May 31, 2007.

(q) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, shall not cause a Director to be considered an "Employee" for purposes of the Plan.

(r) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(s) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

(t) "***Exchange Act Person***" means any natural person, Entity or "group" (within the meaning of Section 13(d) or 14(d) of the Exchange Act), except that "Exchange Act Person" shall not include (i) the Company or any Subsidiary of the Company, (ii) any employee benefit plan of the Company or any Subsidiary of the Company or any trustee or other fiduciary holding securities under an employee benefit plan of the Company or any Subsidiary of the Company, (iii) an underwriter temporarily holding securities pursuant to a registered public offering of such securities, or (iv) an Entity Owned, directly or indirectly, by the shareholders of the Company in substantially the same proportions as their Ownership of shares of the Company.

(u) "***Fair Market Value***" means, as of any date, the value of the Ordinary Shares determined as follows:

(i) If the Ordinary Shares are listed on any established stock exchange or traded on the Nasdaq Global Select Market or the Nasdaq Global Market, the Fair Market Value of an Ordinary Share shall be the closing sales price for such Ordinary Share (or the closing bid, if no sales were reported) as quoted on such exchange (or the exchange or market with the greatest volume of trading in the Ordinary Shares) on the date of determination, as reported in *The Wall Street Journal* or such other source as the Board deems reliable.

(ii) If the Ordinary Shares are listed or traded on the Nasdaq Capital Market, the Fair Market Value of an Ordinary Share shall be the mean between the bid and asked prices for the Ordinary Shares on the date of determination, as reported in *The Wall Street Journal* or such other source as the Board deems reliable. Unless otherwise provided by the Board, if there is no closing sales price (or closing bid if no sales were reported) for the Ordinary Shares on the date of determination, then the Fair Market Value shall be the mean between the bid and asked prices for the Ordinary Shares on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Ordinary Shares, the Fair Market Value shall be determined by the Board in good faith and in a manner that complies with Section 409A of the Code.

(v) "***Non-Employee Director***" means a Director who is not an Employee.

(w) "***Nonstatutory Stock Option***" means an Option not intended to qualify as an incentive stock option within the meaning of Section 422 of the Code and the regulations promulgated thereunder.

(x) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act and the rules and regulations promulgated thereunder.

(y) "***Option***" means a Nonstatutory Stock Option granted pursuant to the Plan.

(z) "***Optionholder***" means a person to whom an Option is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Option.

(aa) "***Ordinary Share***" or "***Ordinary Shares***" means the ordinary shares of the Company of nominal value US$0.0001 per share.

(bb) "***Other Stock Award***" means an award based in whole or in part by reference to the Ordinary Shares which is granted pursuant to the terms and conditions of Section 6(c).

(cc) "***Own***," "***Owned***," "***Owner***," "***Ownership***" A person or Entity shall be deemed to "Own," to have "Owned," to be the "Owner" of, or to have acquired "Ownership" of securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(dd) "***Plan***" means this Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan.

(ee) "***Restricted Stock Award***" means an award of Ordinary Shares which is granted pursuant to the terms and conditions of Section 6(a).

(ff) "***Restricted Stock Unit Award***" means a right to receive Ordinary Shares which is granted pursuant to the terms and conditions of Section 6(b).

(gg) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(hh) "***Securities Act***" means the Securities Act of 1933, as amended.

(ii) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than fifty percent (50%) of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation shall have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other Entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than fifty percent (50%).

(jj) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Ordinary Shares that is granted pursuant to the terms and conditions of Section 5.

(kk) "***Stock Award***" means any right to receive Ordinary Shares granted under the Plan, including a Nonstatutory Stock Option, a Restricted Stock Award, a Restricted Stock Unit Award, a Stock Appreciation Right or any Other Stock Award.

Adopted by the Board of Directors of Jazz Pharmaceuticals, Inc. on May 1, 2007.

Approved by the stockholders of Jazz Pharmaceuticals, Inc. on May 9, 2007.
Amended and restated by the Board of Directors of Jazz Pharmaceuticals, Inc. on August 11, 2010.

Amended and restated by the Board of Directors of Jazz Pharmaceuticals, Inc. on October 24, 2011.

Adopted by the Board of Directors of Azur Pharma plc on December 21, 2011.

Approved by the shareholders of Azur Pharma plc on January 3, 2012.

Amended and restated by the Board of Directors of Jazz Pharmaceuticals plc on May 5, 2016.

Approved by the shareholders of Jazz Pharmaceuticals plc on August 4, 2016.

Amended and restated by the Board of Directors of Jazz Pharmaceuticals plc on November 3, 2016.

Amended and restated by the Board of Directors of Jazz Pharmaceuticals plc on April 30, 2020.

Approved by the shareholders of Jazz Pharmaceuticals plc on , 2020.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2019

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission File Number: 001-33500

JAZZ PHARMACEUTICALS PUBLIC LIMITED COMPANY

(Exact name of registrant as specified in its charter)

Ireland	**98-1032470**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**

Fifth Floor, Waterloo Exchange
Waterloo Road, Dublin 4, Ireland D04 E5W7
011-353-1-634-7800
(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary shares, nominal value $0.0001 per share	**JAZZ**	**The Nasdaq Stock Market LLC**

Securities registered pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant, as of June 28, 2019, the last business day of the registrant's most recently completed second fiscal quarter, was approximately $7,869,781,340 based upon the last sale price reported for the registrant's ordinary shares on such date on The Nasdaq Global Select Market. The calculation of the aggregate market value of voting and non-voting common equity excludes 1,418,007 ordinary shares of the registrant held by executive officers, directors and shareholders that the registrant concluded were affiliates of the registrant on that date. Exclusion of such shares should not be construed to indicate that any such person possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the registrant or that such person is controlled by or under common control with the registrant.

As of February 18, 2020, a total of 56,133,306 ordinary shares, nominal value $0.0001 per share, of the registrant were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Certain information required by Part III, Items 10-14 of this Form 10-K is incorporated by reference to the registrant's definitive Proxy Statement for the 2020 Annual General Meeting of Shareholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this Form 10-K, provided that if such Proxy Statement is not filed within such period, such information will be included in an amendment to this Form 10-K to be filed within such 120-day period.

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JAZZ PHARMACEUTICALS PLC
2019 ANNUAL REPORT ON FORM 10-K

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We own or have rights to various copyrights, trademarks, and trade names used in our business in the U.S. and/or other countries, including the following: Jazz Pharmaceuticals®, Xyrem® (sodium oxybate) oral solution, Sunosi® (solriamfetol), Defitelio® (defibrotide sodium), Defitelio® (defibrotide), Erwinaze® (asparaginase *Erwinia chrysanthemi*), Erwinase®, CombiPlex®, Vyxeos® (daunorubicin and cytarabine) liposome for injection and Vyxeos® liposomal 44 mg/100 mg powder for concentrate for solution for infusion. This report also includes trademarks, service marks and trade names of other companies. Trademarks, service marks and trade names appearing in this Annual Report on Form 10-K are the property of their respective owners.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, which are subject to the "safe harbor" created by those sections. Forward-looking statements are based on our management's beliefs and assumptions and on information currently available to our management. In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "could," "would," "expect," "plan," "anticipate," "believe," "estimate," "project," "predict," "propose," "intend," "continue," "potential," "possible," "foreseeable," "likely," "unforeseen" and similar expressions intended to identify forward-looking statements. These statements involve known and unknown risks, uncertainties and other factors which may cause our actual results, performance, time frames or achievements to be materially different from any future results, performance, time frames or achievements expressed or implied by the forward-looking statements. We discuss many of these risks, uncertainties and other factors in this Annual Report on Form 10-K in greater detail under the heading "Risk Factors." Given these risks, uncertainties and other factors, you should not place undue reliance on these forward-looking statements. Also, these forward-looking statements represent our estimates and assumptions only as of the date of this filing. You should read this Annual Report on Form 10-K completely and with the understanding that our actual future results may be materially different from what we expect. We hereby qualify our forward-looking statements by our cautionary statements. Except as required by law, we assume no obligation to update our forward-looking statements publicly, or to update the reasons that actual results could differ materially from those anticipated in these forward-looking statements, even if new information becomes available in the future.

NOTE REGARDING COMPANY REFERENCE

In this report, unless otherwise indicated or the context otherwise requires, all references to "Jazz Pharmaceuticals," "the registrant," "we," "us," and "our" refer to Jazz Pharmaceuticals plc and its consolidated subsidiaries.

PART I

Item 1. Business

Overview

Jazz Pharmaceuticals plc is a global biopharmaceutical company dedicated to developing life-changing medicines for people with serious diseases – often with limited or no options. We have a diverse portfolio of marketed medicines and novel product candidates, from early- to late-stage development, in key therapeutic areas. Our focus is in neuroscience, including sleep medicine and movement disorders, and in oncology, including hematologic and solid tumors.

Our lead marketed products are:

- **Xyrem® (sodium oxybate) oral solution**, the only product approved by the U.S. Food and Drug Administration, or FDA, and marketed in the U.S. for the treatment of both cataplexy and excessive daytime sleepiness, or EDS, in both adult and pediatric patients with narcolepsy;
- **Sunosi® (solriamfetol)**, a product approved by the FDA and marketed in the U.S. to improve wakefulness in adult patients with EDS associated with narcolepsy or obstructive sleep apnea, or OSA, and also approved in Europe in January 2020 by the European Commission, or EC;
- **Defitelio® (defibrotide sodium)**, a product approved in the U.S. for the treatment of adult and pediatric patients with hepatic veno-occlusive disease, or VOD, also known as sinusoidal obstruction syndrome, or SOS, with renal or pulmonary dysfunction following hematopoietic stem cell transplantation, or HSCT, and in Europe (where it is marketed as Defitelio® (defibrotide)) for the treatment of severe VOD in adults and children undergoing HSCT therapy;
- **Erwinaze® (asparaginase** *Erwinia chrysanthemi***)**, a treatment approved in the U.S. and in certain markets in Europe (where it is marketed as Erwinase®) for patients with acute lymphoblastic leukemia, or ALL, who have developed hypersensitivity to *E. coli*-derived asparaginase; and
- **Vyxeos® (daunorubicin and cytarabine) liposome for injection**, a product approved in the U.S. and in Europe (where it is marketed as Vyxeos® liposomal 44 mg/100 mg powder for concentrate for solution for infusion) for the treatment of adults with newly-diagnosed therapy-related acute myeloid leukemia, or t-AML, or AML with myelodysplasia-related changes, or AML-MRC.

Over the last five years, we achieved multiple significant regulatory approvals, including most recently the European approval of Sunosi, and executed on five product launches. Over the next two years, we look forward to three additional potential regulatory approvals and related product launches (lurbinectedin, JZP-258 and JZP-458), as well as the commencement of the rolling launch of Sunosi in Europe by mid-2020. In February 2020, the FDA accepted for filing with priority review the new drug application, or NDA, for lurbinectedin for the treatment of relapsed small cell lung cancer, or SCLC, a product candidate for which we recently acquired exclusive U.S. development and commercialization rights. In January 2020, we submitted an NDA to the FDA seeking marketing approval for JZP-258, an oxybate product candidate that contains 92%, or approximately 1,000 to 1,500 milligrams per day, less sodium than Xyrem, for the treatment of cataplexy and EDS in narcolepsy patients seven years of age and older. We also have in development JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the treatment of pediatric and adult patients with ALL or lymphoblastic lymphoma, or LBL, who are hypersensitive to *E. coli*-derived asparaginase products, and expect to submit a biologics license application, or BLA, to the FDA for JZP-458 as early as the fourth quarter of 2020.

Our strategy to create shareholder value is focused on:

- Strong financial execution through growth in sales of our current lead marketed products;
- Building a diversified product portfolio and development pipeline through a combination of our internal research and development efforts and obtaining rights to clinically meaningful and differentiated on- or near-market products and early- to late-stage product candidates through acquisitions, collaborations, licensing arrangements, partnerships and venture investments; and
- Maximizing the value of our products and product candidates by continuing to implement our comprehensive global development plans, including through generating additional clinical data and seeking regulatory approval for new indications and new geographies.

In 2019, consistent with our strategy, we continued to expand and advance our research and development pipeline in our sleep/neuroscience and hematology/oncology therapeutic areas, both by conducting activities internally and by leveraging partnerships with third parties. For a summary of our ongoing research and development activities, see “Business—Research and Development” in this Part I, Item 1.

Our Commercialized Products

Sleep Medicine and Neuroscience

Xyrem. Xyrem is the only product approved by the FDA and marketed in the U.S. for the treatment of both cataplexy and EDS in both adult and pediatric patients with narcolepsy. Sodium oxybate, the active pharmaceutical ingredient, or API, in Xyrem, is a formulation of the sodium salt of gamma-hydroxybutyrate, an endogenous neurotransmitter and metabolite of gamma-aminobutyric acid.

Narcolepsy is a chronic, debilitating neurological disorder characterized by EDS and the inability to regulate sleep-wake cycles normally. It affects an estimated one in 2,000 people in the U.S., with symptoms typically appearing in childhood. There are five primary symptoms of narcolepsy, including EDS, cataplexy, disrupted nighttime sleep, sleep-related hallucinations, and sleep paralysis. While patients with narcolepsy may not experience all five symptoms, EDS is an essential symptom of narcolepsy, is present in all narcolepsy patients and is characterized by chronic, pervasive sleepiness as well as sudden irresistible and overwhelming urges to sleep (inadvertent naps and sleep attacks). Narcolepsy may affect many areas of life, including limiting a patient's education and employment opportunities, and may lead to difficulties at work, school, or in daily life activities like driving, operating machinery or caring for children. Patients with narcolepsy may also suffer from significant medical comorbidities, including cardiac disorders, depression, suicide risk, anxiety, diseases of the digestive system and respiratory diseases.

Cataplexy, the sudden loss of muscle tone with retained consciousness, can be one of the most debilitating symptoms of narcolepsy. Cataplexy is present in approximately 70% of patients with narcolepsy. Cataplexy can range from slight weakness or a drooping of facial muscles to the complete loss of muscle tone resulting in postural collapse. It may also impair a patient's vision or speech. Cataplexy is often triggered by strong emotions such as laughter, anger or surprise. Cataplexy can severely impair a patient's quality of life and ability to function.

Xyrem was approved in the U.S. for the treatment of cataplexy in adult patients with narcolepsy in 2002 and was approved for EDS in adult patients with narcolepsy in 2005. In October 2018, Xyrem was also approved in the U.S. for the treatment of cataplexy or EDS in pediatric narcolepsy patients ages seven and older. The American Academy of Sleep Medicine recommends Xyrem as a standard of care for the treatment of both cataplexy and EDS associated with narcolepsy.

In the fourth quarter of 2019, the average number of active Xyrem patients in the U.S. was approximately 14,950, and we believe that there are significantly more patients with narcolepsy who might benefit from treatment with Xyrem. In an effort to reach more patients who might benefit from our medicine, we continue to implement initiatives such as outreach to prescribers who treat narcolepsy, physician/healthcare provider education, enhanced patient and physician support services and unbranded disease awareness programs for the public.

Our marketing, sales and distribution of Xyrem in the U.S. are subject to a risk evaluation and mitigation strategy, or REMS, which is required by the FDA to mitigate the risks of serious adverse outcomes resulting from inappropriate prescribing, abuse, misuse and diversion of Xyrem. Under the Xyrem REMS, all of the Xyrem sold in the U.S. must be dispensed and shipped directly to patients or caregivers through a central pharmacy. Xyrem may not be stocked in retail pharmacies. Physicians and patients must complete an enrollment process prior to fulfillment of Xyrem prescriptions, and each physician and patient must receive materials concerning the serious risks associated with Xyrem before the physician can prescribe, or a patient can receive, the product. The central certified pharmacy must monitor and report instances of patient or prescriber behavior giving rise to a reasonable suspicion of abuse, misuse or diversion of Xyrem, and maintains enrollment and prescription monitoring information in a central database. The central pharmacy ships the product directly to the patient (or caregiver) by a courier service.

We have had exclusive agreements with Express Scripts Specialty Distribution Services, Inc., or ESSDS, the central pharmacy for Xyrem, to distribute Xyrem in the U.S. and provide patient support services related to Xyrem since 2002. Our current agreement with ESSDS, which expires on July 1, 2020, may be terminated by either party at any time without cause on 180 days' prior written notice to the other party. We are actively engaged in a selection process to identify the best provider of central pharmacy services, at the conclusion of which we expect to enter into a new agreement with ESSDS or another comparable service provider that we have selected. We own certain intellectual property rights relating to the Xyrem REMS and patient support programs, such as standard operating procedures and business rules. Should we decide to select a different service provider, the agreement provides for ESSDS to assist in the orderly transfer of the services that ESSDS provides to us and the related intellectual property, including intellectual property related to the patient database, to any new pharmacy that we may engage. Any new agreement will include standard terms and conditions, including terms around use of intellectual property.

In 2019, net product sales of Xyrem were $1.6 billion, which represented 77% of our total net product sales.

Sunosi. Sunosi received FDA approval in March 2019 and was launched in the U.S. in July 2019 to improve wakefulness in adult patients with EDS associated with narcolepsy or OSA. Sunosi was also approved in January 2020 by the EC to improve wakefulness and reduce EDS in adults with narcolepsy (with or without cataplexy) or OSA, and we expect to commence a rolling launch of Sunosi in Europe by mid-2020 as we make pricing and reimbursement submissions in European countries.

OSA, commonly referred to as sleep apnea, is a highly prevalent disease, and EDS, a major symptom of OSA, is characterized by the inability to stay awake and alert during the day resulting in unplanned lapses into sleep or drowsiness. Although positive airway pressure therapy, with its most common form being continuous positive airway pressure, or CPAP, has been shown to be an effective therapy for sleep apnea that frequently results in improvement in EDS in many patients, not all patients tolerate CPAP therapy and among those who tolerate CPAP, usage is highly variable. EDS may persist in people with OSA despite using CPAP.

In 2019, net product sales of Sunosi were $3.7 million.

Hematology and Oncology

Defitelio. Defibrotide, the API in Defitelio, has been approved for the treatment of VOD, a potentially life-threatening complication of HSCT, and is in development for other complications following HSCT, including prevention of VOD, prevention of acute Graft versus Host Disease, or aGvHD, as well as complications following anti-cancer treatment, including prevention of chimeric antigen receptor T-cell, or CAR T-cell, therapy-associated neurotoxicity. Defibrotide is the sodium salt of a complex mixture of single-stranded oligodeoxyribonucleotides derived from porcine DNA. Defibrotide mediates its effects via interaction with endothelial cells. Non-clinical data suggest that defibrotide stabilizes endothelial cells by reducing endothelial cell activation and by protecting them from further damage.

Stem cell transplantation is a frequently used treatment modality for hematologic cancers and other conditions in both adults and children. Certain conditioning regimens used as part of HSCT can damage the cells that line the hepatic vessels, which is thought to lead to the development of VOD, also referred to as SOS, a blockage of the small vessels in the liver, that can lead to liver failure and potentially result in significant dysfunction in other organs such as the kidneys and lungs. Severe VOD is the most extreme form of VOD and is associated with multi-organ failure and high rates of morbidity and mortality. An analysis of retrospective data, prospective cohort studies and clinical trials published between 1979 and 2007 found that the 100-day mortality rate in severe VOD cases is greater than 80%.

The EC granted marketing authorization under exceptional circumstances for Defitelio for the treatment of severe VOD in adults and children undergoing HSCT in 2013. We commenced a rolling launch of Defitelio in European countries in 2014. In countries where we currently commercialize Defitelio, we are working to maintain current levels of market access.

In 2016, the FDA approved our NDA for Defitelio for the treatment of adult and pediatric patients with VOD with renal or pulmonary dysfunction following HSCT. We launched Defitelio in the U.S. shortly after FDA approval. We also launched defibrotide in Canada in 2017. In June 2019, Nippon Shinyaku Co., Ltd., the partner to whom we have granted exclusive rights to develop and commercialize defibrotide in Japan, received marketing authorization from Japan's Ministry of Health, Labour and Welfare and launched defibrotide in Japan in September 2019.

In 2019, Defitelio/defibrotide product sales were $172.9 million, which represented 8% of our total net product sales.

Erwinaze. Erwinaze (called Erwinase in markets outside the U.S.) is a biologic product used in conjunction with chemotherapy to treat patients with ALL who have developed hypersensitivity to *E. coli*-derived asparaginase. Originally developed by Public Health England, a national executive agency of the United Kingdom, or UK, Erwinaze is an asparaginase, a type of enzyme that can deprive leukemic cells of an amino acid essential for their growth. It is derived from a rare bacterium (*Erwinia chrysanthemi*) and is immunologically distinct from *E. coli*-derived asparaginase and suitable for patients with hypersensitivity to *E. coli*-derived treatments.

For ALL patients with hypersensitivity to *E. coli*-derived asparaginase, Erwinaze can be a crucial component of their therapeutic regimen. Current treatment guidelines and protocols recommend switching a patient receiving *E. coli*-derived asparaginase to treatment with Erwinaze if the patient's hypersensitivity reaction to the *E. coli*-derived asparaginase is clinically meaningful, indicating that the hypersensitivity reaction has resulted in an intervention or interruption in infusion occurring in the patient's treatment regimen. While treatment protocols for pediatric, adolescent and young adult (up to age 39) patients commonly include asparaginase, adult protocols do not.

First approved by the FDA under a BLA for administration via intramuscular injection in conjunction with chemotherapy, Erwinaze was launched in the U.S. in 2011. In 2014, the FDA approved a supplemental BLA for administration of Erwinaze via intravenous infusion in conjunction with chemotherapy.

Erwinaze is exclusively licensed to us for worldwide marketing, sales and distribution by Porton Biopharma Limited, or PBL, a company that is wholly owned by the UK Department of Health and Social Care. PBL also manufactures the product for us and is our sole supplier for Erwinaze. We are obligated to make tiered royalty payments to PBL based on worldwide net sales of Erwinaze. Our license and supply agreement with PBL, which includes our license to Erwinaze trademarks and manufacturing know-how, expires on December 31, 2020. Unless we and PBL enter into a new agreement, we will lose our rights to exclusively market Erwinaze effective December 31, 2020, other than our right to sell certain Erwinaze inventory for a post-termination sales period of 12 months and certain other post-termination rights, including but not limited to intellectual property and data ownership. Either party also has the right to terminate the agreement prior to December 31, 2020 in the event of the other party's uncured material breach or insolvency.

In 2019, net product sales of Erwinaze were $177.5 million, which represented 8% of our total net product sales.

Vyxeos. Vyxeos is a liposomal formulation of a fixed ratio combination of daunorubicin and cytarabine for intravenous infusion that is indicated for the treatment of adults with newly-diagnosed t-AML or AML-MRC and has been shown to have synergistic effects at killing leukemia cells in vitro and in animal models. Vyxeos is the first drug delivery combination product based on our CombiPlex technology platform to be approved by the FDA and the EC.

AML is a rapidly progressing and life-threatening blood cancer that begins in the bone marrow, which produces most of the body's new blood cells. AML cells crowd out healthy cells and move aggressively into the bloodstream to spread cancer to other parts of the body. AML is a relatively rare disease representing about 1% of all new cancer cases and has the lowest survival rate of any form of leukemia. Patients with newly diagnosed t-AML or AML-MRC may have a particularly poor prognosis.

In 2017, we launched Vyxeos in the U.S. after the FDA approved our NDA for the treatment of adults with newly-diagnosed t-AML or AML-MRC. In August 2018, the EC granted marketing authorization for Vyxeos, and, as part of our rolling launch of Vyxeos in Europe, we are continuing to make pricing and reimbursement submissions in European countries.

In 2019, Vyxeos product sales were $121.4 million, which represented 6% of our total net product sales.

Research and Development

A key aspect of our growth strategy is our continued investment in our evolving and expanding research and development activities. We actively explore new options for patients including novel compounds, small molecule advancements, biologics and innovative delivery technologies. While we are focused on opportunities within our sleep/neuroscience and hematology/oncology therapeutic areas, such as our recent expansion into movement disorders and solid tumors, we are also exploring and investing in adjacent therapeutic areas that could further diversify our portfolio.

Our development activities encompass all stages of development and currently include clinical testing of new product candidates and activities related to clinical improvements of, or additional indications or new clinical data for, our existing marketed products. We have also expanded into preclinical exploration of novel therapies, including precision medicines in hematology and oncology. We conduct most of these activities by leveraging our growing internal research and development function, but we have also entered into collaborations with third parties for the research and development of innovative early-stage product candidates and have supported third parties seeking to perform clinical studies that will generate additional data related to our products. We also seek out investment opportunities in support of development of early-stage technologies in our therapeutic areas and adjacencies.

Our current and planned development activities in our sleep and neuroscience therapeutic area are focused on JZP-258, JZP-324 and JZP-385, as well as exploring additional indications for Sunosi, including major depressive disorder.

JZP-258. JZP-258 is an oxybate product candidate with a unique composition of cations resulting in 92%, or approximately 1,000 to 1,500 milligrams per day, less sodium than Xyrem. In January 2020, we submitted an NDA for JZP-258 for the treatment of both cataplexy and EDS in patients with narcolepsy and in connection with this submission, redeemed the priority review voucher, or PRV, we acquired in May 2018. Given the well-accepted relationship between dietary sodium and blood pressure as well as published hypertension guidelines underscoring that excessive consumption of sodium is independently associated with an increased risk of stroke, cardiovascular disease and other adverse outcomes, we believe that the lower sodium content of JZP-258 has the potential to offer a clinically meaningful benefit to patients compared to Xyrem. We are also conducting a Phase 3 clinical trial of JZP-258 for the treatment of idiopathic hypersomnia, a chronic neurological disorder that is primarily characterized by EDS and which currently has no approved therapies in the U.S.

JZP-324. We are also pursuing early-stage activities related to the development of JZP-324, a low sodium, oxybate formulation with the potential for once-nightly dosing that we believe could provide a clinically meaningful option for some narcolepsy patients.

JZP-385. JZP-385 is a T-type calcium channel modulator that is a small molecule currently in development for the treatment of essential tremor. We acquired JZP-385 in our acquisition of Cavion, Inc., or Cavion, a clinical-stage biotechnology company, in August 2019. We expect to initiate a Phase 2b study of JZP-385 in the fourth quarter of 2020.

Our current and planned development activities in our hematology and oncology therapeutic area are focused on JZP-458, lurbinectedin and exploring additional indications for Defitelio and Vyxeos, generating additional clinical data for Vyxeos, including in combination with other therapeutic agents, and the research and development of new product candidates.

JZP-458. JZP-458 is a recombinant *Erwinia* asparaginase that uses a novel *Pseudomonas fluorescens* expression platform, which is being developed for use as a component of a multi-agent chemotherapeutic regimen in the treatment of pediatric and adult patients with ALL or LBL, who are hypersensitive to *E. coli*-derived asparaginase products. JZP-458 was granted Fast Track designation by the FDA in October 2019 for the treatment of this patient population, and in December 2019, the first patient was enrolled in the pivotal Phase 2/3 clinical study for JZP-458 conducted in collaboration with the Children's Oncology Group. We expect to submit a BLA to the FDA for JZP-458 as early as the fourth quarter of 2020.

Lurbinectedin. In furtherance of our interest in and efforts to expand our oncology therapeutic area, in December 2019, we entered into an exclusive license agreement with Pharma Mar, S.A., or PharmaMar, pursuant to which we obtained exclusive U.S. development and commercialization rights to lurbinectedin, a product candidate under clinical investigation for the treatment of patients with relapsed SCLC. Lurbinectedin was granted orphan drug designation for SCLC by the FDA in August 2018, and PharmaMar submitted an NDA to the FDA in December 2019 for accelerated approval of lurbinectedin for relapsed SCLC based on data from a Phase 2 trial. In February 2020, the FDA accepted the NDA for filing with priority review with a Prescription Drug User Fee Act, or PDUFA, date of August 16, 2020. The term of our license agreement with PharmaMar extends until the latest of: (i) expiration of the last PharmaMar patent covering lurbinectedin in the U.S. (subject to certain exclusions), (ii) expiration of regulatory exclusivity for lurbinectedin in the U.S. and (iii) 12 years after the first commercial sale of lurbinectedin in the U.S. We also have the right to terminate the agreement at will upon a specified notice period, provided that the effective date of such termination is not within one year of the signing of the agreement. Either party can terminate the agreement for the other party's uncured material breach or bankruptcy.

Defitelio. Our Defitelio clinical development strategy generally focuses on the prevention and treatment of serious diseases associated with stem cell transplantation and endothelial cell damage. In addition to clinical trials we are sponsoring, there are more than 20 investigator-sponsored trials ongoing in the U.S. and EU evaluating defibrotide in multiple conditions.

Vyxeos. Our Vyxeos clinical development strategy is designed to target potential new patient segments across the AML landscape and to generate clinical data on Vyxeos when used in combination with other therapeutic agents. As reflected in the table below, we are pursuing this strategy by sponsoring clinical trials, working with cooperative groups who are conducting clinical trials, and partnering with The University of Texas MD Anderson Cancer Center, or MD Anderson. In August 2018, we announced a five-year collaboration with MD Anderson to evaluate potential treatment options for hematologic malignancies, with a near-term focus on Vyxeos, and shortly thereafter, commenced development activities under this collaboration. In addition, there are multiple ongoing investigator-sponsored trials studying Vyxeos.

CombiPlex Platform. We are also evaluating the use of our CombiPlex delivery technology platform in a number of therapeutic combinations in oncology as part of our internal oncology research and development activities. CombiPlex enables the design and rapid evaluation of various combinations of therapies to deliver enhanced anti-cancer activity by identifying an optimal synergistic ratio of drugs in vitro and fixing this ratio in a nanoscale delivery complex that maintains and then coordinates the release of the synergistic combination after administration. CombiPlex utilizes two proprietary nanoscale delivery platforms: liposomes to control the release and distribution of water-soluble drugs and drugs that are both water- and fat-soluble (amphipathic), and nanoparticles to control the release and distribution of non-water-soluble (hydrophobic) drugs.

Through third parties, we are also pursuing preclinical and clinical research and development activities in hematology and in precision oncology under a number of licensing and collaboration agreements, including with:

- ImmunoGen, Inc., or ImmunoGen, for opt-in rights to license a hematology-related antibody-drug conjugate product candidate granted orphan drug designation by the FDA;
- Codiak BioSciences, Inc., or Codiak, for an exclusive, worldwide, royalty-bearing license to develop, manufacture and commercialize potential therapeutic candidates directed at five targets to be developed using Codiak's engEx™ precision engineering platform for exosome therapeutics;
- Pfenex, Inc., or Pfenex, for rights to an early-stage long-acting *Erwinia* asparaginase and an option to negotiate a license for a recombinant pegaspargase product candidate;

- XL-protein GmbH, or XLp, for rights to use XLp's PASylation® technology to extend the plasma half-life of selected asparaginase product candidates; and
- Redx Pharma, or Redx, for pre-clinical collaboration activities related to the pan-RAF inhibitor program that we purchased from Redx for the potential treatment of RAF and RAS mutant tumors.

Below is a summary of our key ongoing and planned development projects related to our products and pipeline and their corresponding current stages of development:

Sleep and Neuroscience

Product Candidates	Description
Submitted for Regulatory Approval	
JZP-258 (oxybate; 92% sodium reduction)	Cataplexy and EDS in narcolepsy
Phase 3	
JZP-258 (oxybate; 92% sodium reduction)	Idiopathic hypersomnia
Sunosi	EDS in major depressive disorder (planned study)
Phase 2b	
JZP-385	Essential tremor (planned study)
Preclinical	
JZP-324	Oxybate once-nightly formulation

Hematology and Oncology

Product Candidates	Description
Submitted for Regulatory Approval	
Lurbinectedin	Relapsed SCLC (exclusive U.S. license)
Phase 3	
Defitelio	Prevention of VOD in high- and very high-risk patients following HSCT
Vyxeos	AML or high-risk Myelodysplastic Syndrome, or MDS (AML19 and AML 18) (cooperative group studies)
Vyxeos	Newly diagnosed adults with standard- and high-risk AML (AML Study Group cooperative group study)
Vyxeos	Newly diagnosed pediatric patients with AML (planned Children's Oncology Group cooperative group study)
Lurbinectedin	Relapsed SCLC (ATLANTIS) (exclusive U.S. license)
Phase 2/3	
JZP-458 (recombinant *Erwinia* asparaginase)	ALL/LBL
Phase 2	
Defitelio	Prevention of aGvHD following allogeneic HSCT
Defitelio	Prevention of CAR T-cell therapy-associated neurotoxicity
Vyxeos + venetoclax	De novo or relapsed/refractory, or R/R, AML (MD Anderson collaboration study)
Vyxeos	High-risk MDS (European Myelodysplastic Syndromes Cooperative Group cooperative group study)
Vyxeos	Newly diagnosed older adults with high-risk AML (planned cooperative group study)
Vyxeos + venetoclax	High-risk AML (planned cooperative group study)
Phase 1	
Vyxeos + gemtuzumab	R/R AML or hypomethylating agent failure MDS (MD Anderson collaboration study)
Vyxeos + venetoclax	Low intensity Vyxeos therapy for first-line, unfit AML (Phase 1b study)
Vyxeos + other approved therapies	First-line, fit AML (Phase 1b study)
Vyxeos	Low intensity dosing for higher risk MDS (MD Anderson collaboration study)
IMGN632	R/R CD123+ hematological malignancies (Jazz opt-in opportunity with ImmunoGen)
IMGN632 +/- venetoclax/azacitidine	CD123+ AML (Jazz opt-in opportunity with ImmunoGen; Phase 1b/2 study)
Preclinical	
CombiPlex	Solid tumors candidate
CombiPlex	Hematology/oncology exploratory activities
JZP-341 (long-acting *Erwinia* asparaginase)	ALL and other hematological malignancies (collaboration with Pfenex)
Recombinant pegaspargase	Hematological malignancies (Jazz opt-in opportunity with Pfenex)
Defitelio	Exploratory activities
Exosome NRAS candidate	Hematological malignancies (collaboration with Codiak)
Exosome STAT3 candidate	Hematological malignancies (collaboration with Codiak)
Exosome-based candidates	Solid tumors/hematological malignancies (collaboration with Codiak)
Pan-RAF inhibitor program	RAF and RAS mutant tumors (acquired from Redx, which is continuing development)

In 2020 and beyond, we expect that our research and development expenses will continue to increase from previous levels, particularly as we prepare for anticipated regulatory submissions and data read-outs from clinical trials, initiate and undertake additional clinical trials and related development work and potentially acquire rights to additional product candidates.

Commercialization Activities

We have commercial operations primarily in the U.S., Europe and Canada. In the U.S., our products are commercialized through a number of teams, including a team of experienced, trained sales professionals who provide education and promote Xyrem, Sunosi, Defitelio, Erwinaze and Vyxeos to healthcare providers in the appropriate specialties for each product, a team that interacts with payors and institutions to ensure access and coverage for the products, and a team that distributes the products throughout the U.S. healthcare system (wholesalers, pharmacies, hospitals, and community and academic institutions) and provides patient services.

In Canada and in approved markets in Europe where we commercialize Defitelio, Erwinase and Vyxeos, we have a field force of hematology specialists. In markets where these products either are not approved or are unable to be promoted under local regulation, we have medical affairs personnel responsible for responding to medical information requests and for providing information consistent with local treatment protocols with respect to such products. In certain European markets, we have a team of medical science liaisons in preparation for our rolling launch of Sunosi in Europe. We are currently in the process of recruiting a sales team in some of those markets. Outside the U.S., we directly market Xyrem in Canada for the treatment of cataplexy in patients with narcolepsy. We also utilize distributors in certain markets outside the U.S. where we do not market our products directly.

Our commercial activities include marketing related services, distribution services and commercial support services. We employ third party vendors, such as advertising agencies, market research firms and suppliers of marketing and other sales support-related services, to assist with our commercial activities. We also provide reimbursement support for our U.S. markets.

We believe that the size of our sales force is appropriate to effectively reach our target audience in the specialty markets in which we currently operate. We promote Defitelio, Erwinaze and Vyxeos to many hematology and oncology specialists who operate in the same hospitals, and we believe that we benefit from operational synergies from this overlap. Continued growth of our current marketed products and the launch of any future products, including potentially JZP-258, lurbinectedin and JZP-458, may require further expansion of our field force and support organization in and outside the U.S.

Competition

The biopharmaceutical industry is highly competitive. Our products compete, and our product candidates may in the future compete, with currently existing therapies, product candidates currently under development by us and others and/or future product candidates, including new chemical entities that may be safer, more effective or more convenient than our products. Any products that we develop may be commercialized in competitive markets, and our competitors, which include large global pharmaceutical companies and small research-based companies and institutions, may succeed in developing products that render our products obsolete or noncompetitive.

With respect to competition we face from generic drugs, certain U.S. state laws allow for, and in some instances in the absence of specific instructions from the prescribing physician mandate, the dispensing of generic products rather than branded products when a generic version is available. Generic competition often results in decreases in the prices at which branded products can be sold.

In particular, our products and most advanced product candidates face or may face competition as described below:

- *Xyrem*. While Xyrem is currently the only product approved by the FDA and marketed in the U.S. for the treatment of both cataplexy and EDS in both adult and pediatric patients with narcolepsy, we and others have launched products to treat EDS in narcolepsy and may in the future launch products to treat cataplexy in narcolepsy that are competitive with or disrupt the market for Xyrem. In the future, we expect Xyrem to face competition from authorized generic and generic versions of sodium oxybate. For a description of generic versions of sodium oxybate and/or new products for treatment of cataplexy and/or EDS that could compete with, or otherwise disrupt the market for, Xyrem, as well as a description of our settlement agreements with abbreviated new drug application, or ANDA, filers, see the risk factor under the heading “The introduction of new products in the U.S. market that compete with, or otherwise disrupt the market for, our oxybate products and product candidates would adversely affect sales of our oxybate products and product candidates” in Part I, Item 1A of this Annual Report on Form 10-K.

  In addition to generic competition, Xyrem may face competition in the future from our JZP-258 product candidate, if approved, as well as from other new sodium oxybate formulations for treatment of narcolepsy. We are aware that Avadel Pharmaceuticals plc is conducting a Phase 3 clinical trial of a once-nightly formulation of sodium oxybate which uses its proprietary technology for the treatment of EDS and cataplexy in patients with narcolepsy, and that Avadel has indicated that it intends to seek approval

using an NDA approval pathway under Section 505(b)(2) and referencing the safety and efficacy data for Xyrem. Xyrem may also face competition from new branded entrants to treat EDS in narcolepsy such as pitolisant. Other companies have announced that they have product candidates in various phases of development to treat the symptoms of narcolepsy, such as Axsome Therapeutics, Inc.'s reboxetine.

In addition, we are also aware that prescribers often prescribe branded or generic medications for cataplexy before prescribing or instead of prescribing Xyrem and that payors often require patients to try such medications before they will cover Xyrem, even if they are not approved for this use. For example, prescribers often treat mild cataplexy with drugs that have not been approved by the FDA for this indication, including tricyclic antidepressants and selective serotonin reuptake inhibitors or selective norepinephrine reuptake inhibitors. We are also aware that branded or generic stimulants may be prescribed off label for treatment of EDS in narcolepsy. Wake-promoting agents Provigil® (modafinil) and Nuvigil® (armodafinil), and their generic equivalents are approved for the treatment of EDS in narcolepsy and other conditions, and may be used in conjunction with or instead of Xyrem.

- *Sunosi*. Sunosi faces competition from existing branded and generic products that treat EDS or improve wakefulness in adult patients with narcolepsy or OSA in a competitive retail pharmacy market. To successfully commercialize Sunosi, we need to differentiate Sunosi from other branded and generic products that treat EDS in patients with narcolepsy, including stimulants, wake-promoting agents, such as Provigil and Nuvigil, and generic versions of stimulants and wake-promoting agents. We are also aware that stimulants are prescribed off-label for patients to treat excessive sleepiness in OSA. Like Xyrem, Sunosi may face competition from new branded entrants such as pitolisant, a drug that was approved by the FDA in August 2019 for the treatment of EDS in adult patients with narcolepsy and became commercially available in the U.S. in the fourth quarter of 2019, and that has also been approved and marketed in Europe to treat adult patients with narcolepsy with or without cataplexy. Sunosi may also face competition from other products in development as potential treatments for EDS in patients with narcolepsy or OSA.
- *JZP-258*. We expect that, if approved, JZP-258 will face competition similar to that described above for Xyrem, including from new branded entrants in narcolepsy and/or from generic or authorized generic sodium oxybate products.
- *Defitelio*. While there is currently no direct competition to Defitelio to treat severe VOD, changes in the types of conditioning regimens used as part of HSCT may affect the incidence of VOD diagnosis and demand for Defitelio.
- *Erwinaze*. While there is currently no direct competition to Erwinaze to treat ALL patients with hypersensitivity to E. coli-derived asparaginase, we and other companies have developed or are developing new treatments for ALL. Some new asparaginase treatments could reduce the rate of hypersensitivity in patients with ALL, and new treatment protocols are being developed and approved for ALL that may not include asparaginase-containing regimens, including some for the treatment of relapsed or refractory ALL patients. We have experienced frequent intermittent shortages of the product that have impacted prescribing habits for Erwinaze, including prescribers' use of alternate methods to address hypersensitivity reactions. As a biologic product, Erwinaze also faces potential competition from biosimilar products.
- *Vyxeos*. With respect to Vyxeos, there are a number of alternative established therapies in AML. A key consideration in the treatment of AML patients is the patient's suitability for chemotherapy. The AML patient population studied in the Vyxeos Phase 3 clinical trial supporting our NDA included 60-75 year old fit patients, or those deemed able to tolerate intensive induction chemotherapy. Prior to Vyxeos, the most widely recognized option for the treatment of newly-diagnosed t-AML and AML-MRC in fit patients was cytarabine in combination with daunorubicin, known as 7+3, which is still used today in this population, along with other intensive chemotherapy regimens, particularly in patients under the age of 60. Also, since Vyxeos was approved, several other products have been approved by the FDA or are in development as treatment options for newly diagnosed AML patients eligible for intensive chemotherapy, such as targeted agents (e.g. midostaurin, enasidenib and ivosidenib), immunotherapies (e.g., gemtuzumab ozogamicin and CAR-T-cell therapy), and agents disrupting leukemia cell survival (e.g., glasdegib). We are also aware of the increasing use of venetoclax combined with either a hypomethylating agent or low-dose cytarabine, a treatment approved by the FDA in newly diagnosed AML patients who are age 75 years or older, or who have comorbidities that preclude use of intensive induction chemotherapy.
- *Lurbinectedin.* We expect that, if approved, lurbinectedin will face competition from topotecan, which is currently the only approved treatment in second line SCLC in the U.S., as well as other regimens for relapsed SCLC currently recommended in compendia guidelines. There are also a number of products and immunotherapies in development for the treatment of second line SCLC in various phases of development.

An important part of our corporate strategy is to build a diversified product pipeline, including by acquiring or in-licensing and developing, or partnering to license and develop, additional products and product candidates that we believe are highly differentiated and have significant commercial potential. Our ability to continue to grow our product portfolio requires that we compete successfully with other

pharmaceutical companies, many of which may have substantially greater financial sales and marketing resources, to acquire or in-license products and product candidates.

Customers

In the U.S., Xyrem is sold to one specialty pharmacy, ESSDS, which ships Xyrem directly to patients. Also in the U.S., Sunosi is distributed through a retail channel consisting of numerous distributors who sell Sunosi to retail pharmacies. Defitelio, Erwinaze and Vyxeos are sold to hospital customers through subsidiary specialty distributors of McKesson Corporation, or McKesson. We have distribution services agreements made in the ordinary course of business with McKesson and a pharmacy services agreement with ESSDS that provides for the distribution of Xyrem to patients. For more information regarding our relationship with ESSDS, see "Business—Our Commercialized Products" in this Part I, Item 1. Purchases are made on a purchase order basis.

In certain countries in Europe, Defitelio, Erwinase and Vyxeos are sold pursuant to marketing authorizations. We distribute these products through Durbin PLC, a UK-based wholesaler and distributor, and O&M Movianto Nederland BV, our centralized European logistics services provider, to hospitals and local wholesalers in Europe where we market these products directly and, in other markets in Europe and elsewhere where we do not market these products directly, to local distributors and wholesalers. In countries where there is no marketing authorization, Defitelio, Erwinase and Vyxeos are sold pursuant to named patient programs, temporary use authorizations or similar authorizations.

We directly market Xyrem in Canada for the treatment of cataplexy in patients with narcolepsy. Xyrem is also sold in 22 countries by UCB Pharma Limited, or UCB (which has rights to market Xyrem in 54 countries).

Information on our total revenues by product and revenues attributed to customers who represented at least 10% of our total revenues in each of 2019, 2018 and 2017 is included in Note 18, Revenues, of the Notes to Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K.

Manufacturing

We have a manufacturing and development facility in Athlone, Ireland where we manufacture Xyrem and certain development-stage oxybate product candidates. We also have a manufacturing plant in Italy where we produce the defibrotide drug substance. Other than these two facilities, we currently do not have our own commercial manufacturing or packaging capability for our other products, product candidates or their APIs. As a result, our ability to develop and supply products in a timely and competitive manner depends primarily on our third party suppliers being able to meet our ongoing commercial and clinical trial needs for API, other raw materials, packaging materials and finished products.

Lead Marketed Products

Xyrem. Xyrem is manufactured by us in our Athlone facility and by Patheon Pharmaceuticals Inc., which we refer to together with its affiliates as Patheon, under a Master Manufacturing Services Agreement, or the Patheon Agreement, entered into with Patheon in 2015. We manufacture Xyrem in our Athlone facility for most of our U.S. commercial supply and rely on Patheon to supply Xyrem for other markets, though we are not required to purchase Xyrem exclusively from Patheon. The current term of the Patheon Agreement will expire on December 31, 2022, subject to further automatic two-yearly extensions if Patheon is then providing manufacturing services for any product, unless either party provides 18 months' prior notice of termination at least 18 months prior to the end of the then current term. In addition, we may terminate the Patheon Agreement for any reason upon 12 months' prior written notice, and each party has the right to terminate the agreement in the event of the other party's uncured material breach.

Siegfried USA, LLC and its European affiliates, or Siegfried, supply sodium oxybate, the API of Xyrem, to Patheon and our Athlone facility. Although Siegfried has been our only supplier of sodium oxybate since 2012, we have the right to purchase a portion of our worldwide requirements of sodium oxybate from other suppliers. The agreement with Siegfried expires in April 2024, subject to automatic three-year extensions until either party provides notice to the other of its intent to terminate the agreement at least 18 months before the end of the then-current term. During the term of the agreement and, under certain circumstances for 18 months after the agreement terminates, Siegfried is not permitted to manufacture sodium oxybate for any other company.

Xyrem is a Schedule III controlled substance in the U.S., and the API of Xyrem is the sodium salt of gamma-hydroxybutyric acid, which is a Schedule I controlled substance in the U.S. As a result, Xyrem is subject to regulation by the U.S. Drug Enforcement Administration, or DEA, under the Controlled Substances Act, or CSA, and its manufacturing and distribution are highly restricted. Quotas from the DEA are required in order to manufacture and package sodium oxybate and Xyrem in the U.S. For information related to DEA

quota requirements, see "Business—Government Regulation—Other Post-Approval Pharmaceutical Product Regulation—Controlled Substance Regulations" in this Part I, Item 1.

Sunosi. Siegfried AG is our sole supplier of both the API and finished product for Sunosi for both commercial sale as well as development activities. Although Siegfried AG is currently our only manufacturer and supplier of Sunosi, we have the right to purchase a portion of our worldwide requirements of API and drug product from other suppliers. Under our agreement, we provide periodic rolling forecasts to Siegfried AG, and a portion of each rolling forecast is binding. The initial term of the agreement with Siegfried AG will expire on December 31, 2024 and will then be subject to automatic one-year extensions until either party provides notice to the other of its intent to terminate the agreement (either in whole or in part) at least 18 months before the end of the then-current term. Each party also has the right to terminate the agreement in the event of the other party's uncured material breach or insolvency. Solriamfetol, the API of Sunosi, was designated a Schedule IV controlled substance by the DEA under the CSA.

Defitelio. We are our sole supplier of, and we believe that we are currently the sole worldwide producer of, the defibrotide API. We manufacture the defibrotide API from porcine DNA in a single facility located in Villa Guardia, Italy. Patheon currently processes the defibrotide API into its finished vial form under a specific product agreement entered into under the Patheon Agreement. Patheon is the sole provider of our commercial and clinical supply of Defitelio; however, we are not required to purchase Defitelio exclusively from Patheon. If Patheon does not or is not able to supply us with Defitelio for any reason, it may take time and resources to implement and execute the necessary technology transfer to another processor, and such delay could negatively impact our anticipated revenues from Defitelio and could potentially cause us to breach contractual obligations with customers or to violate local laws requiring us to deliver the product to those in need.

Erwinaze. Erwinaze is exclusively licensed to us, and manufactured for us, by PBL, which is our sole supplier for Erwinaze. Our license and supply agreement with PBL, which includes an exclusive right to market, sell or distribute Erwinaze, an exclusive license to Erwinaze trademarks, and a non-exclusive license to PBL's manufacturing know-how, will expire on December 31, 2020. For information related to our agreement with PBL, see "Business—Our Commercialized Products—Erwinaze" in this Part I, Item 1.

A continuing and significant challenge to maintaining sales of Erwinaze and a barrier to increasing sales is PBL's inability to consistently supply product that meets specifications in quantities that are adequate to meet market demand. We experienced limited product availability of Erwinaze and supply disruptions globally in 2019 and may experience continued supply disruptions in 2020. Such supply instability will continue to adversely impact our ability to generate sales of and revenues from Erwinaze and our business, financial condition, results of operations and growth prospects could be materially adversely affected. For a more complete description of supply issues related to Erwinaze, see the risk factor under the heading "*Delays or problems in the supply of our products for sale or for use in clinical trials, loss of our single source suppliers or failure to comply with manufacturing regulations could materially and adversely affect our business, financial condition, results of operations and growth prospects"* in Part I, Item 1A of this Annual Report on Form 10-K.

Vyxeos. Vyxeos is manufactured by Baxter Oncology GmbH, or Baxter, which is a sole source supplier from a single site location, using our CombiPlex technology platform. CombiPlex products represent formulations with increased manufacturing complexities associated with producing drug delivery vehicles encapsulating two or more drugs that are maintained at a fixed ratio and, in the case of Vyxeos, two drugs that are co-encapsulated in a freeze-dried format. There have been batch failures at Baxter due to mechanical, component and other issues, and batches have been produced that have otherwise not been in compliance with applicable specifications. We are continuing to work with Baxter to address manufacturing complexities. Our manufacturing agreement with Baxter expires in August 2022, subject to automatic three-year renewal terms, unless terminated by either party 24 months prior to the end of the initial term or any renewal term. Each party has the right to terminate the agreement for breach, subject to customary cure periods, and each party may terminate the agreement immediately in the event of the other party's insolvency. While other contract manufacturers may be able to produce Vyxeos, the proprietary technology that supports the manufacture of Vyxeos is not easily transferable. The marketing authorization in the European Union, or EU, for Vyxeos also requires us to comply with certain manufacturing-related post-approval commitments.

Product Candidates

JZP-258 is currently manufactured at our Athlone facility, and we expect to manufacture this product commercially at our Athlone facility should this candidate receive regulatory approval.

Clinical development supply of lurbinectedin is currently manufactured by Baxter and GP Pharm S.A., and its API is manufactured by PharmaMar. PharmaMar retains manufacturing rights for the API for potential future U.S. commercial supply of lurbinectedin. If lurbinectedin is approved by the FDA, launch quantities of lurbinectedin and ongoing supply of the API will be supplied to us by PharmaMar under a separate agreement to be entered into between us and PharmaMar. We also expect to enter into a manufacturing agreement for ongoing commercial supply of the drug product lurbinectedin with Baxter, GP Pharm S.A. and/or another comparable manufacturer.

JZP-458 is currently manufactured by Patheon, and the API of JZP-458 is manufactured by AGC Biologics A/S.

For further discussion of the challenges we face with respect to supply of our products and product candidates, see the risk factor under the heading "*Delays or problems in the supply of our products for sale or our for use in clinical trials, loss of our single source suppliers or failure to comply with manufacturing regulations could materially and adversely affect our business, financial condition, results of operations and growth prospects"* in Part I, Item 1A of this Annual Report on Form 10-K.

Patents and Proprietary Rights

We actively seek to patent, or to acquire or obtain licenses to third party patents, to protect our products and product candidates and related inventions and improvements that we consider important to our business. We own a portfolio of U.S and non-U.S. patents and patent applications and have licensed rights to a number of issued patents and patent applications. Our owned and licensed patents and patent applications cover or relate to our products and product candidates, including certain formulations, used to treat particular conditions, distribution methods and methods of administration, drug delivery technologies and delivery profiles and methods of making and use. Patents extend for varying periods according to the date of the patent filing or grant and the legal term of patents in the various countries where patent protection is obtained. The patent laws of non-U.S. countries differ from those in U.S., and the degree of protection afforded by non-U.S. patents may be different from the protection offered by U.S. patents. In addition to patents, our products and product candidates are in some instances protected by various regulatory exclusivities. For a description of those exclusivities and their regulatory background, see "Business—Government Regulation—Marketing Exclusivity—The Hatch-Waxman Act" in this Part I, Item 1.

The patents, patent applications and regulatory exclusivities that relate to our marketed products include:

- *Xyrem*. We currently have nine issued, unexpired patents in the U.S. relating to Xyrem. All but two of these patents are listed in the FDA's publication "Approved Drug Products with Therapeutic Equivalence Evaluations," or the Orange Book. Our patents relate to Xyrem's stable and microbially resistant formulation, its method of use, including its restricted distribution system, its method of administration, and a drug-drug interaction, or DDI, between Xyrem and divalproex sodium. In October 2018, as a result of the FDA's grant of pediatric exclusivity, an additional six months was added to the original expiration dates of all of our Orange Book-listed patents that existed at that time. As a result, our Orange Book-listed patents have periods of exclusivity between June 2020 and September 2033.

  Some of our Xyrem patents have been subject to patent litigation with the companies who filed ANDAs seeking to market a generic version of Xyrem, including challenge through the inter partes review, or IPR, procedures of the Patent Trial and Appeal Board, or PTAB, of the U.S. Patent and Trademark Office, or USPTO. Some IPR petitions were dismissed by the PTAB. However, in July 2018, the United States Court of Appeals for the Federal Circuit upheld on appeal PTAB decisions finding that six patents associated with the Xyrem REMS and three claims of a seventh REMS patent were unpatentable. As a result, we will not be able to enforce patents or claims that the PTAB found unpatentable. Although we have settled all patent litigation against the nine companies that filed ANDAs, it is possible that additional companies may challenge our U.S. patents for Xyrem in the future. For a description of our Xyrem settlements, see "Business—Competition" in this Part I, Item 1.

  A Xyrem formulation patent that had issued in multiple non-U.S. countries expired in December 2019. The European Patent Office has issued a method of administration patent relating to the DDI between Xyrem and divalproex sodium that will expire in February 2034. That patent is licensed to UCB as the marketing authorization holder outside of the U.S. and Canada, and UCB has the right to enforce it. In addition to our issued patents, we have patent applications relating to Xyrem pending in the U.S. and other countries.

- *Sunosi*. We acquired worldwide development, manufacturing and commercial rights to solriamfetol from Aerial BioPharma LLC, or Aerial, in 2014, including Aerial's patent rights relating to solriamfetol, other than in certain jurisdictions in Asia where SK Biopharmaceuticals Co., Ltd. retains rights. We have a portfolio of U.S. and non-U.S. patents and patent applications for solriamfetol relating to various compositions, formulations and methods of use. Four of our U.S. patents are method of use patents covering treatment of sleep-related conditions expiring between June 2026 and August 2027. Two other U.S. patents cover, respectively, the formulation of solriamfetol and the method of treating select conditions with formulations of solriamfetol (both expiring in September 2037). A request for a patent term extension for one of the above method of use patents has been filed. Sunosi has also been granted orphan drug exclusivity for narcolepsy in the U.S.

- *Defitelio*. The unique process of deriving defibrotide from porcine DNA is extensive and uses both chemical and biological processes that rely on complex characterization methods. We have U.S. and non-U.S. patents and patent applications relating to various compositions, methods of use and methods of characterization, expiring at various times between April 2021 and November 2035. None of these patents are listed in the Orange Book. Defibrotide has been granted orphan drug exclusivity by the FDA to treat and prevent VOD until March 2023. Defibrotide has also been granted orphan drug designation by the EC and

the Korean Ministry of Food and Drug Safety to treat and prevent VOD, by the Commonwealth of Australia-Department of Health for the treatment of VOD and by the EC for the prevention of aGvHD. We acquired the rights to defibrotide for the treatment and prevention of VOD in North America, Central America and South America from Sigma-Tau Pharmaceuticals, Inc. in 2014.

- *Erwinaze*. Erwinaze has no patent protection. It had been granted orphan drug exclusivity by the FDA for the treatment of ALL in the U.S. until November 2018, and as a biological product approved under a BLA, we believe that it is protected by exclusivity that prevents approval of a biosimilar in the U.S. through late 2023 under the U.S. Biologics Price Competition and Innovation Act, or BPCIA. In the EU, the regulatory data protection that provides an exclusivity period for Erwinase has lapsed. Any new marketing authorizations for Erwinase in other EU member states will not receive any regulatory data protection.
- *Vyxeos*. We have a portfolio of U.S. and non-U.S. patents and patent applications for Vyxeos and the CombiPlex technology platform relating to various compositions and methods of making and use. These include six U.S. patents covering Vyxeos compositions and methods of use expiring between April 2025 and September 2034 and two U.S. patents covering CombiPlex (which also cover Vyxeos) expiring in January 2027. These patents are listed in the Orange Book. Vyxeos has been granted orphan drug exclusivity by the FDA until August 2024, seven years from its FDA approval, for the treatment of adults with newly-diagnosed t-AML or AML-MRC. In addition, Vyxeos has been granted orphan drug designation by the EC until August 2028, ten years from its EC approval for the treatment of adults with newly-diagnosed t-AML or AML-MRC.

We also rely on trade secrets and other unpatented proprietary information to protect our products and commercial position, particularly with respect to our products with limited or no patent protection, such as Erwinaze.

The patents and/or patent applications that relate to our product candidates include:

- *JZP-258.* We have U.S. patents and patent applications that relate to our product candidate JZP-258. These patents expire December 2033.
- *JZP-385*. Through the acquisition of Cavion in 2019, we obtained a portfolio of U.S. and non-U.S. patents and patent applications, including rights relating to compositions and methods of using JZP-385. The portfolio includes a U.S. composition of matter patent relating to JZP-385, which expires in 2027.
- *JZP-458*. We obtained worldwide rights from Pfenex, including Pfenex's patent rights relating to JZP-458, in 2016 to develop and commercialize multiple early-stage hematology product candidates, including a license to a U.S. process patent relating to JZP-458, which expires in 2026.
- *Lurbinectedin*. In December of 2019, we entered into an exclusive license agreement with PharmaMar pursuant to which we obtained exclusive U.S. development and commercialization rights to lurbinectedin, including a license to a U.S. composition of matter patent, which expires in 2024.

In addition, we have rights to a number of trademarks and service marks, and pending trademark and service mark applications, in the U.S. and elsewhere in the world to further protect the proprietary position of our products. For a discussion of the challenges we face in obtaining or maintaining patent and/or trade secret protection, see the risk factors under the heading "Risks Related to Our Intellectual Property" in Part I, Item 1A of this Annual Report on Form 10-K.

Government Regulation

As a global pharmaceutical company, our activities are subject to extensive regulation in the U.S., the EU and other countries where we do business. Regulatory requirements encompass the entire life cycle of pharmaceutical products, from research and development activities to marketing approval, manufacturing, labeling, packaging, adverse event and safety reporting, storage, advertising, promotion, sale, pricing and reimbursement, recordkeeping, distribution, importing and exporting. Regulations differ from country to country and are constantly evolving.

Testing and Approval of Pharmaceutical Products

We are not permitted to market a product in a country until we receive approval from the relevant regulatory authority, such as the FDA in the U.S. and the EC or the competent authorities of the EU member states. An application for marketing approval must contain information generated by the applicant, also called a sponsor, demonstrating the quality, safety and efficacy of the product candidate, including data from preclinical and clinical trials, proposed product packaging and labeling and information pertaining to product formulation and the manufacture and analytical testing of the API and the finished product.

In the U.S., the FDA reviews and, if warranted, approves applications for marketing approval. The process for obtaining marketing approval in the U.S. for a drug or biologic product candidate generally includes:

- conducting preclinical laboratory and animal testing and submitting the results to the FDA in an investigational new drug, or IND, application requesting approval to test the product candidate in human clinical trials;
- conducting adequate and well-controlled human clinical trials to establish the safety and efficacy of the product candidate in the desired indication;
- submitting an NDA, supplemental NDA, or sNDA, or BLA, as appropriate, to the FDA seeking approval for a specific indication; and
- completing inspections by the FDA of the facilities where the product candidate is manufactured, analyzed and stored to demonstrate compliance with current Good Manufacturing Practices, or cGMP, and any requested FDA audits of the clinical trial sites that generated the data supporting the application.

Human clinical trials conducted before approval of a product generally proceed in three sequential phases, although the phases may overlap. In Phase 1, the initial introduction of the product candidate in humans, the product candidate is typically tested to assess metabolism, pharmacokinetics, pharmacological actions and side effects associated with increasing doses. Phase 2 usually involves clinical trials in a limited patient population to determine the effectiveness of the product candidate for a particular indication or indications, dosage tolerance and optimum dosage and to identify common adverse effects and safety risks. If a product candidate demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2, Phase 3 clinical trials are undertaken to obtain additional information about clinical efficacy and safety in a larger number of patients. Clinical trials must be conducted in accordance with specific protocols, as well as FDA requirements related to conducting the trials and recording and reporting the results, commonly referred to as good clinical practices, to ensure that the resulting data are credible and accurate and that the trial participants are adequately protected. The FDA enforces good clinical practices through periodic inspections of trial sponsors, clinical investigators and trial sites.

Once an NDA, sNDA or BLA has been compiled and submitted, the FDA performs an initial review before it accepts the application for filing. The FDA may refuse to file an application and/or request additional information before acceptance. Once accepted for filing, the FDA begins an in-depth review of the application. Under the current goals and policies agreed to by the FDA under PDUFA for a new molecular entity, the FDA has ten months from the filing decision in which to complete its initial review of a standard application and respond to the applicant, and eight months for a priority application. The FDA does not always meet its PDUFA goal dates, and in certain circumstances, the PDUFA goal date may be extended.

The FDA also has various programs, including Fast Track, Priority Review, Breakthrough Therapy and Accelerated Approval (Subpart H and E), that are intended to expedite the process for reviewing certain applications and/or provide for approval on the basis of surrogate endpoints or restricted distribution. Generally, products may be eligible for one or more of these programs if they are intended for serious or life-threatening diseases or conditions, have potential to address unmet medical needs, or may provide meaningful benefit over existing treatments. For example, the FDA granted Vyxeos Breakthrough Therapy and Fast Track designations and also granted Priority Review with respect to our NDA for Vyxeos for the treatment of t-AML and AML-MRC that was approved in August 2017. In addition, a PRV may be used to obtain priority review by the FDA for one of our future regulatory submissions. We have used the PRV we acquired in May 2018 to obtain priority review for our JZP-258 NDA, which is under review by the FDA.

During its review of an application, the FDA evaluates whether the product demonstrates the required level of safety and efficacy for the indication for which approval is sought and also conducts the inspections and audits described above. The FDA may also refer an application to an advisory committee, typically a panel of clinicians, for review, evaluation and a non-binding recommendation as to whether the application should be approved. When the FDA completes its evaluation, it issues either an approval letter or a complete response letter. A complete response letter generally outlines what the FDA considers to be the deficiencies in the application and may indicate that substantial additional testing or information is required in order for the FDA to approve the product. If and when identified deficiencies have been addressed to the FDA's satisfaction after a review of the resubmission of the application, or if the decision is reversed through an administrative appeal, the FDA will issue an approval letter.

Even if a product is approved, the approval may be subject to limitations based on the FDA's interpretation of the data submitted in the application. For example, as a condition of approval, the FDA may require the sponsor to agree to certain post-marketing requirements, such as conducting Phase 4, or post-approval, clinical trials to gain additional safety data or to document a clinical benefit in the case of products approved under Accelerated Approval regulations. The FDA's approval of the BLA for Erwinaze includes a number of post-marketing commitments and requirements. Several post-marketing commitments and requirements were also mandated by the FDA in connection with its approval of Defitelio, including the requirement that we conduct a clinical trial to analyze the safety of defibrotide versus best supportive care in the prevention of VOD in adult and pediatric patients, and its approval of Vyxeos, including the requirement that we

conduct a safety study to characterize infusion-related reactions in patients treated with Vyxeos and a clinical trial to determine dosing to minimize toxicity in patients with moderate and severe renal impairment.

In addition, if the FDA determines that a REMS is necessary to ensure that the benefits of the product outweigh the risks, a sponsor may be required to include a proposed REMS (either as part of the application or after approval), which may include a patient package insert or a medication guide to provide information to consumers about the product's risks and benefits; a plan for communication to healthcare providers; or conditions on the product's prescribing or distribution referred to as elements to assure safe use. Xyrem is required to have a REMS. For more discussion regarding the Xyrem REMS, see the risk factors under the headings "*The distribution and sale of our oxybate products are subject to significant regulatory restrictions, including the requirements of a REMS, and these regulatory requirements subject us to risks and uncertainties, any of which could negatively impact sales of Xyrem and if approved, JZP-258"* and "Risks Related to Our Intellectual Property" in Part I, Item 1A of this Annual Report on Form 10-K.

The EU and many individual countries have regulatory structures similar to the U.S. for conducting preclinical and clinical testing and applying for marketing approval or authorization, although specifics may vary widely from country to country. Clinical trials in the EU must be conducted in accordance with the requirements of the EU Clinical Trials Directive, which may be replaced with the new EU Clinical Trials Regulation in 2022, and applicable good clinical practice standards. In the EU, there are several procedures for requesting marketing authorization which can be more efficient than applying for authorization on a country-by-country basis. There is a "centralized" procedure allowing submission of a single marketing authorization application to the European Medicines Agency, or EMA. If the EMA issues a positive opinion, the EC will grant a centralized marketing authorization that is valid in all EU member states and three of the four European Free Trade Association countries (Iceland, Liechtenstein and Norway). The centralized procedure is mandatory for certain medicinal products, including orphan medicinal products and biotechnology-derived medicinal products, and optional for others. There is also a "decentralized" procedure allowing companies to file identical applications to several EU member states simultaneously for product candidates that have not yet been authorized in any EU member state and a "mutual recognition" procedure allowing companies that have a product already authorized in one EU member state to apply for that authorization to be recognized by the competent authorities in other EU member states. The UK's withdrawal from the EU on January 31, 2020, commonly referred to as Brexit, has, however, created significant uncertainty concerning the future relationship between the UK and the EU. The impact of Brexit on the on-going validity in the UK of current EU authorizations for medicinal products, whether granted through the centralized procedure, decentralized procedure, or mutual recognition, and on the future process for obtaining marketing authorization for pharmaceutical products manufactured or sold in the UK is unknown.

The maximum timeframe for the evaluation of an application in the EU under the centralized procedure is 210 days, subject to certain exceptions and clock stops. An initial marketing authorization granted in the EU is valid for five years, with renewal subject to re-evaluation of the risk-benefit profile of the product. Once renewed, the authorization is usually valid for an unlimited period unless the national competent authority or the EC decides on justified grounds to proceed with one additional five-year renewal.

In the EU, if an applicant can demonstrate that comprehensive data on the efficacy and safety of the product under normal conditions of use cannot be provided due to certain specified objective and verifiable reasons, products may be granted marketing authorization "under exceptional circumstances." A marketing authorization granted under exceptional circumstances is valid for five years, subject to an annual reassessment of conditions imposed by the EC. The marketing authorization in the EU for Defitelio was granted under exceptional circumstances because it was not possible to obtain complete information about the product due to the rarity of the disease and because ethical considerations prevented conducting a study directly comparing Defitelio with best supportive care or a placebo. As a result, the marketing authorization requires us to comply with a number of post-marketing obligations, including obligations relating to the manufacture of the drug substance and finished product, the submission of data concerning patients treated with the product collected through a third-party patient registry and the establishment of a multi-center, multinational and prospective observational patient registry to investigate the long-term safety, health outcomes and patterns of utilization of Defitelio during normal use. We are in the process of conducting the post-authorization study in the EU to provide further data on long-term safety, health outcomes and patterns of utilization of Defitelio in normal use.

Similar to the use of REMS in the U.S. to ensure that the benefits of a product outweigh its risks, in the EU and other countries we are required and may, in the future in relation to new products, be required to agree to post-marketing obligations in the marketing authorization for our products, to include a patient package insert or a medication guide to provide information to consumers about the product's risks and benefits, to implement a plan for communication to healthcare providers, and to impose restrictions on the product's distribution. For example, the marketing authorization in the EU for Vyxeos requires us to comply with certain manufacturing-related post-approval commitments.

After approval, certain changes to the approved product, such as adding new indications, making certain manufacturing changes, modifying a REMS, or making certain additional labeling claims, are subject to further regulatory review and approval. Obtaining approval

for a new indication generally requires that additional clinical studies be conducted to demonstrate that the product is safe and effective for the new intended use. Such regulatory reviews can result in denial or modification of the planned changes, or requirements to conduct additional tests or evaluations that can substantially delay or increase the cost of the planned changes.

Manufacture of Pharmaceutical Products

The manufacturing process for pharmaceutical products is highly regulated, and regulators may shut down manufacturing facilities that they believe do not comply with regulations. We and the third party suppliers of our products are subject to cGMP, which are extensive regulations governing manufacturing processes, stability testing, recordkeeping and quality standards as defined by the FDA, the EC, the EMA, competent authorities of EU member states and other regulatory authorities. The FDA also periodically inspects manufacturing facilities and the sponsor's and manufacturer's records related to manufacturing, and assesses compliance with cGMP. Following such inspections, the FDA may issue notices on Form FDA 483 and warning letters. For example, the FDA issued a warning letter to PBL, the Erwinaze manufacturer, in January 2017 indicating that it was not satisfied with PBL's responses to a Form 483 issued to PBL and citing significant violations of cGMP for finished pharmaceuticals and significant deviations from cGMP for APIs. As recently as August 2018, the FDA conducted an inspection of the PBL manufacturing facility and issued an FDA Form 483 to PBL citing observations related to items referenced in the existing warning letter as well as other manufacturing practices, including data and records management. In addition to Form FDA 483 notices and warning letters, failure to comply with the statutory and regulatory requirements may result in suspension of manufacturing, product seizure, withdrawal of the product from the market, administrative, civil and criminal penalties, among other enforcement remedies both in the U.S. and in non-U.S. countries.

In the EU, a manufacturing authorization is required to manufacture medicinal products, and the manufacturing authorization holder must comply with various requirements set out in applicable EU laws, regulations and guidance. These requirements include compliance with EU cGMP standards when manufacturing products and their APIs, including APIs manufactured outside of the EU with the intention of importing them into the EU. In addition to inspection reports, manufacturers and marketing authorization holders may be subject to civil, criminal or administrative sanctions, including suspension of manufacturing authorization, in cases of non-compliance with the EU or EU member states' requirements applicable to manufacturing.

Sales and Marketing of Pharmaceutical Products

Advertising and Promotional Activities

The FDA regulates advertising and promotional activities for products in the U.S., requiring advertising, promotional materials and labeling to be truthful and not misleading, and products to be marketed only for their approved indications and in accordance with the provisions of the approved label. The FDA actively investigates allegations of off-label promotion in order to enforce regulations prohibiting these types of activities. The FDA routinely issues informal and more formal communications such as untitled letters or warning letters interpreting its authority over these matters. While such communications may not be considered final agency decisions, many companies may decide not to contest the agency's interpretations so as to avoid disputes with the FDA, even if they believe the claims they were making to be truthful, not misleading and otherwise lawful.

In the EU, the advertising and promotion of our products are subject to laws governing promotion of medicinal products, interactions with physicians, misleading and comparative advertising and unfair commercial practices. For example, applicable laws require that promotional materials and advertising in relation to medicinal products comply with the product's Summary of Product Characteristics, or SmPC, as approved by the competent authorities in connection with a marketing authorization approval. The SmPC is the document that provides information to physicians concerning the safe and effective use of the product. Promotional activity that does not comply with the SmPC is considered off-label and is prohibited in the EU. Other applicable laws at the EU level and in the individual EU member states also apply to the advertising and promotion of medicinal products, including laws that prohibit the direct-to-consumer advertising of prescription-only medicinal products and further limit or restrict the advertising and promotion of our products to the general public and to health care professionals. Violations of the rules governing the promotion of medicinal products in the EU could be penalized by administrative measures, fines and imprisonment.

Fraud and Abuse

We are also subject to numerous fraud and abuse laws and regulations globally. In the U.S., there are a variety of federal and state laws restricting certain marketing practices in the pharmaceutical industry pertaining to healthcare fraud and abuse, including anti-kickback laws and false claims laws. Our sales, marketing, patient support and medical activities may be subject to scrutiny under these laws. The U.S. federal healthcare program Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving anything of value to induce (or in return for) the referral of business, including the purchase, recommendation or prescription of a particular drug reimbursable under Medicare, Medicaid or other federally financed healthcare programs. The statute has been interpreted

to apply to arrangements between pharmaceutical companies on one hand and patients, prescribers, purchasers and formulary managers on the other. Although there are a number of statutory exemptions and regulatory safe harbors protecting certain common manufacturer business arrangements and activities from prosecution and administrative sanction, the exemptions and safe harbors are drawn narrowly and are subject to regulatory revision or changes in interpretation by the U.S Department of Justice, or DOJ, and the Office of Inspector General of the U.S. Department of Health and Human Services, or OIG. Practices or arrangements that involve remuneration may be subject to scrutiny if they do not qualify for an exemption or safe harbor. Violations of the federal Anti-Kickback Statute may be established without providing specific intent to violate the statute, and may be punishable by civil, criminal, and administrative fines and penalties, damages, imprisonment, and/or exclusion from participation in federal healthcare programs.

The federal civil False Claims Act prohibits, among other things, any person from knowingly presenting, or causing to be presented, a false or fraudulent claim for payment of federal funds, or knowingly making, or causing to be made, a false statement to get a false claim paid. A claim resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim. The False Claims Act also permits a private individual acting as a "whistleblower" to bring actions on behalf of themselves and the federal government alleging violations of the statute and to share in any monetary recovery. Violations of the False Claims Act may result in significant financial penalties (including mandatory penalties on a per claim or statement basis), treble damages and exclusion from participation in federal health care programs.

Pharmaceutical companies are subject to other federal false claim and statements laws, some of which extend to non-government health benefit programs. For example, the healthcare fraud provisions under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, or HIPAA, impose criminal liability for, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud any health care benefit program, including private third party payors, or falsifying or covering up a material fact or making any materially false or fraudulent statement in connection with the delivery of or payment for health care benefits, items or services. Violations of HIPAA fraud provisions may result in criminal, civil and administrative penalties, fines and damages, including exclusion from participation in federal healthcare programs.

The majority of individual states also have statutes or regulations similar to the federal anti-kickback law and the False Claims Act, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor. Other states restrict whether and when pharmaceutical companies may provide meals to health care professionals or engage in other marketing-related activities, and certain states and cities require identification or licensing of sales representatives.

Other Post-Approval Pharmaceutical Product Regulation

Safety Reporting/Pharmacovigilance

The FDA, the EMA and other governmental authorities track information on side effects and adverse events reported during clinical studies and after marketing approval. We are required to file periodic safety update reports with the authorities concerning adverse events. If, upon review, an authority determines that any events and/or reports indicate a trend or signal, they can require a change in a product label, restrict sales and marketing, require post-approval safety studies, require a labor intensive collection of data regarding the risks and benefits of marketed products and ongoing assessments of those risks and benefits and/or require or conduct other actions, potentially including withdrawal or suspension of the product from the market. For example, if the EMA has concerns that the risk-benefit profile of a product has changed, it can, following an investigation procedure, adopt an opinion advising that the existing marketing authorization for the product be varied or suspended and requiring the marketing authorization holder to conduct post-authorization safety studies. The opinion is then submitted for approval by the EC. Also, from time to time, the FDA issues drug safety communications on its adverse event reporting system based on its review of reported adverse events.

The FDA and the competent authorities of the EU member states on behalf of the EMA also periodically inspect our records related to safety reporting. Following such inspections, the FDA may issue notices on FDA Form 483 and warning letters that could cause us to modify certain activities. An FDA Form 483 notice, if issued, can list conditions the FDA investigators believe may have violated relevant FDA regulations or guidance. Failure to adequately and promptly correct the observation(s) can result in a warning letter or other regulatory enforcement action. Similarly, the EMA's Pharmacovigilance Risk Assessment Committee may propose to the Committee for Medicinal Products for Human Use that the marketing authorization holder be required to take specific steps. Non-compliance can lead to the variation, suspension or withdrawal of marketing authorization or imposition of financial penalties or other enforcement measures.

Sunshine Act and Transparency Laws

The Physician Payment Sunshine Act requires tracking of payments and transfers of value to physicians and teaching hospitals and ownership interests held by physicians and their families, and reporting to the federal government and public disclosure of these data. Beginning in 2022, reporting will also be required of information regarding payments and transfers of value provided to physician

assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, and certified nurse-midwives. A number of states now require pharmaceutical companies to report expenses relating to the marketing and promotion of pharmaceutical products and to report gifts and payments to healthcare providers in the states. Government agencies and private entities may inquire about our marketing practices or pursue other enforcement activities based on the disclosures in those public reports.

Outside the U.S., interactions between pharmaceutical companies and physicians are also governed by strict laws, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct. The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products, which is prohibited in the EU, is governed by the national anti-bribery laws of the EU member states, as described below in "Business—Government Regulation—Anti-Corruption Legislation" in this Part I, Item 1. Violation of these laws could result in substantial fines and imprisonment. Certain EU member states require that payments made to physicians be publicly disclosed. Moreover, agreements with physicians must often be the subject of prior notification and approval by the physician's employer, his/her competent professional organization, and/or the competent authorities of the individual EU member states. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Controlled Substance Regulations

A drug product approved by the FDA may be subject to scheduling as a controlled substance under the CSA depending on the drug's potential for abuse. Controlled substances that are pharmaceutical products are subject to a high degree of regulation under the CSA, which establishes, among other things, certain registration, manufacturing quotas, security, recordkeeping, reporting, import, export and other requirements administered by the DEA. The DEA classifies controlled substances into five schedules. Schedule I substances by definition have a high potential for abuse, have no currently "accepted medical use" in the U.S., lack accepted safety for use under medical supervision, and may not be prescribed, marketed or sold in the U.S. Pharmaceutical products approved for use in the U.S. may be listed as Schedule II, III, IV or V, with Schedule II substances considered to present the highest potential for abuse or dependence and Schedule V substances the lowest relative risk of abuse. The API of Xyrem, sodium oxybate, is regulated by the DEA as a Schedule I controlled substance, and Xyrem is regulated as a Schedule III controlled substance. The API of Sunosi, solriamfetol, is regulated as a Schedule IV controlled substance. Individual states also impose similar requirements for controlled substances.

The DEA limits the quantity of certain Schedule I controlled substances that may be manufactured and procured in the U.S. in any given calendar year through a quota system and, as a result, quotas from the DEA are required in order to manufacture and package sodium oxybate and Xyrem in the U.S. Accordingly, we require DEA quotas for Siegfried, our U.S.-based sodium oxybate supplier, to procure sodium oxybate and for Patheon, our U.S.-based Xyrem supplier, to obtain the sodium oxybate from Siegfried in order to manufacture and supply us with Xyrem. Xyrem manufactured at our plant in Ireland enters the U.S. as a Schedule III drug and thus does not require a manufacturing quota.

As a Schedule III drug, Xyrem is also subject to DEA and state regulations relating to manufacturing, storage, distribution and physician prescription procedures, including limitations on prescription refills. In addition, the third parties who perform our clinical and commercial manufacturing, distribution, dispensing and clinical studies for Xyrem are required to maintain necessary DEA registrations and state licenses. The DEA periodically inspects facilities for compliance with its rules and regulations.

Other Regulations

There are many other requirements and restrictions in the U.S. and elsewhere imposed on pharmaceutical companies and their activities, including those related to the posting of information relating to clinical studies and their outcomes, the export and importation of products, required authorizations for distributors, the identification or licensing of sales representatives, restrictions on the ability of manufacturers to offer co-pay support to patients for certain prescription drugs, implementation of required compliance programs or marketing codes of conduct, protection of the environment, taxation and work safety. Non-compliance with such requirements may result in civil, criminal or administrative sanctions.

Anti-Corruption Legislation

Our business activities outside of the U.S. are subject to the U.S. Foreign Corrupt Practices Act, or FCPA, and similar anti-bribery or anti-corruption laws, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct or rules of other countries in which we operate, including the UK Bribery Act of 2010, or the UK Bribery Act. The FCPA and similar anti-corruption laws in other countries generally prohibit the offering, promising, giving, or authorizing others to give anything of value, either directly or indirectly, to U.S. or non-U.S. government officials in order to improperly influence any act or decision, secure an improper advantage, or obtain or retain business. The FCPA also requires public companies to make and keep books and records that accurately and fairly reflect the

transactions of the company and to devise and maintain an adequate system of internal accounting controls. The UK Bribery Act prohibits giving, offering, or promising bribes to any person, including UK and non-UK government officials and private persons, as well as requesting, agreeing to receive, or accepting bribes from any person. In addition, under the UK Bribery Act, companies that carry on a business or part of a business in the UK may be held liable for bribes given, offered or promised to any person, including UK and non-UK government officials and private persons in any country, by employees and persons associated with the company in order to obtain or retain business or a business advantage for the company. Liability is strict, with no element of a corrupt state of mind, but a defense of having in place adequate procedures designed to prevent bribery is available. As described above, our business is heavily regulated and therefore involves significant interaction with government officials in many countries. Additionally, in certain countries, the health care providers who prescribe pharmaceuticals are employed by their government, and the purchasers of pharmaceuticals are government entities; therefore, our dealings with these prescribers and purchasers may be subject to the FCPA, the UK Bribery Act and similar laws. Recently the Securities and Exchange Commission, or SEC, and the DOJ have increased their FCPA enforcement activities with respect to pharmaceutical companies. In addition, under the Dodd-Frank Wall Street Reform and Consumer Protection Act, private individuals who report to the SEC original information that leads to successful enforcement actions may be eligible for a monetary award. We engage in ongoing efforts designed to ensure our compliance with these laws, including due diligence, training, policies, procedures, and internal controls. However, there is no certainty that all employees and third party business partners (including our distributors, wholesalers, agents, contractors, and other partners) will comply with anti-bribery laws. In particular, we do not control the actions of our suppliers and other third party agents, although we may be liable for their actions. Violation of these laws may result in civil or criminal sanctions, which could include monetary fines, criminal penalties, and disgorgement of past profits.

Data Protection and Privacy

We are also subject to data protection and privacy laws and regulations globally, which may place restrictions on our ability to transfer, access and use personal data across our business. The legislative and regulatory landscape for privacy and data security continues to evolve. There has been increased attention to privacy and data security issues that could potentially affect our business, including the EU General Data Protection Regulation, which went into effect on May 25, 2018 and imposes penalties up to 4% of annual global turnover. In addition, laws and regulations enacted in the United States, Europe, Asia and Latin America, including the new California Consumer Privacy Act of 2018, which went into effect January 1, 2020, increases potential enforcement and litigation activity. In order to manage these evolving risks, we have adopted a global privacy program including certification to the EU-U.S. and Swiss-U.S. Privacy Shield Programs.

Marketing Exclusivity

The Hatch-Waxman Act

The marketing approval process described above for the U.S. is premised on the applicant being the owner of, or having obtained a right of reference to, all of the data required to prove the safety and effectiveness of a drug product. This type of marketing application, sometimes referred to as a "full" or "stand-alone" NDA, is governed by Section 505(b)(1) of the United States Federal Food, Drug, and Cosmetic Act, or FDCA. A Section 505(b)(1) NDA contains full reports of investigations of safety and effectiveness, which includes the results of preclinical and clinical trials, together with detailed information on the manufacture and composition of the product, in addition to other information. As an alternative, the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Act, provides two abbreviated approval pathways for certain drug products.

The first path, under Section 505(b)(2) of the FDCA, usually is used for the approval of a product that is similar, but not identical, to a previously-approved brand-name product, referred to as the reference listed drug, or RLD. Under this path, the applicant is permitted to rely to some degree on the FDA's finding that the RLD is safe and effective and must submit its own product-specific data on safety and effectiveness only to the extent necessary to bridge the differences between the products. The second abbreviated path established under the Hatch-Waxman Act is for the approval of generic drugs. Section 505(j) of the FDCA permits the submission of an ANDA for a generic version of an approved, brand-name drug. Generally, an ANDA must contain data and information showing that the proposed generic product and the RLD (i) have the same active ingredient, in the same strength and dosage form, to be delivered via the same route of administration, (ii) are intended for the same uses, and (iii) are bioequivalent. This data and information are provided instead of data and information independently demonstrating the proposed generic product's safety and effectiveness.

The Hatch-Waxman Act requires an ANDA or a Section 505(b)(2) NDA applicant to certify that there are no patents listed for that product in the Orange Book, or that for each Orange Book-listed patent either the listed patent has expired, the listed patent will expire on a particular date and approval is sought after patent expiration, or the listed patent is invalid or will not be infringed by the manufacture, use or sale of the new product. A certification that approval is sought after patent expiration is called a "Paragraph III Certification." A certification that the new product will not infringe the RLD's Orange Book-listed patents, or that such patents are invalid, is called a

"Paragraph IV Certification." If a relevant patent covers an approved method of use, an ANDA or Section 505(b)(2) NDA applicant can also file a statement, called, in the case of an ANDA, a "section viii statement," that the application does not seek approval of the method of use covered by the listed patent. With such a statement, the applicant must "carve out" the protected method of use (typically an indication and related material) from the proposed product's labeling. If the applicant makes a Paragraph III Certification, the ANDA or the Section 505(b)(2) NDA will not be approved until the listed patents claiming the RLD have expired.

If the applicant has provided a Paragraph IV Certification to the FDA, the applicant must also send a notice of that certification to the NDA holder and the relevant patent holders once the FDA accepts the ANDA or the Section 505(b)(2) NDA for filing. The NDA and patent holders then have 45 days to initiate a patent infringement lawsuit. Filing the lawsuit triggers an automatic stay on FDA's approval of the ANDA or the Section 505(b)(2) NDA until the earliest of 30 months after the NDA holder's receipt of the notice of Paragraph IV Certification, expiration of the patent, certain settlements of the lawsuit, or a decision in the infringement case that is favorable to the applicant. The FDA may issue tentative approval of an application if the application meets all conditions for approval but cannot receive effective approval because the 30-month stay or another period of regulatory exclusivity has not expired. If an ANDA or Section 505(b)(2) NDA is approved before conclusion of any relevant patent litigation, the applicant can choose to launch the product, but does so "at risk" of being liable for damages, and potentially treble damages, if the RLD sponsor or patent holder ultimately prevails in patent litigation.

Under the Hatch-Waxman Act, newly approved drugs and indications may benefit from statutory periods of non-patent marketing exclusivity that can potentially delay review or approval of an ANDA or Section 505(b)(2) application. For example, the Hatch-Waxman Act provides five-year marketing exclusivity to the first applicant to gain approval of an NDA for a new chemical entity, meaning a drug containing an active moiety that the FDA has not previously approved. During this period, the FDA cannot accept for review an ANDA or a Section 505(b)(2) NDA for a product containing the same moiety, except that an application containing a Paragraph IV Certification may be submitted after four years, which may trigger the litigation and stay described above. The Hatch-Waxman Act also provides three years of marketing exclusivity with the approval of an NDA, including a Section 505(b)(2) NDA, for a product containing a previously-approved moiety but that incorporates a change (such as a new indication, dosage form or strength) from an approved product with the same moiety, if the change required clinical data from new investigations that were conducted or sponsored by the applicant. This three-year exclusivity does not preclude submission of the ANDA or Section 505(b)(2) NDA for such a product, but prevents the FDA from giving final approval to such product.

The Hatch-Waxman Act also permits a patent term extension of up to five years (but not beyond 14 years from the date of approval) for an NDA, including a Section 505(b)(2) NDA, that is approved for a product that contains an active ingredient that has not previously been approved. The extension, which compensates for patent term lost during product development and the FDA regulatory review process, is generally equal to the sum of one-half the time between the effective date of an IND application and the submission date of an NDA, and all of the time between the submission date of an NDA and the approval of that application. It is available for only one patent for a given product, and it must be a patent that claims the product or a method of using or manufacturing the product. The USPTO, in consultation with the FDA, reviews and approves applications for patent term extension.

Orphan Drug and Other Exclusivities

Some jurisdictions, including the U.S., may designate drugs or biologics for relatively small patient populations as orphan drugs. The FDA grants orphan drug designation to drugs or biologics intended to treat a rare disease or condition, which is one that affects fewer than 200,000 individuals in the U.S., or more than 200,000 individuals, but for which there is no reasonable expectation that the cost of developing the product and making it available in the U.S. for the disease or condition will be recovered from U.S. sales of the product. Orphan drug designation does not shorten the duration of the regulatory review process or lower the approval standards, but can provide important benefits, including consultation with the FDA. If a product is approved for its orphan designated use, it may be entitled to orphan drug exclusivity, which blocks the FDA from approving for seven years any other application for a product that is the same drug for the same indication. If there is a previously-approved product that is the same drug for the same indication, orphan drug designation requires the sponsor to provide a plausible hypothesis of clinical superiority over the approved product, whereas orphan drug exclusivity requires the sponsor to actually demonstrate clinical superiority. Clinical superiority can be established by way of greater efficacy, greater safety, or making a major contribution to patient care. Additionally, a later product can be approved if the sponsor holding orphan drug exclusivity consents, or cannot adequately supply the market. Orphan drug exclusivity does not prevent approval of another sponsor's application for different indications or uses of the same drug, or for different drugs for the same indication. Defibrotide has been granted orphan drug exclusivity by the FDA to treat and prevent VOD until March 2023. Vyxeos has been granted orphan drug exclusivity by the FDA for the treatment of AML until August 2024.

Biologic products approved under a BLA are subject to the BPCIA, which authorizes an abbreviated approval pathway for a biological product that is "biosimilar" to an already approved biologic, or reference product. The BPCIA provides periods of exclusivity that protect a reference product from competition by biosimilars. The FDA may not accept a biosimilar application for review until four years after the date

of first licensure of the reference product, and the biosimilar cannot be licensed until 12 years after the reference product was first licensed. We believe that Erwinaze, which was approved under a BLA in November 2011, is subject to an exclusivity period that will prevent approval of a biosimilar in the U.S. into November 2023.

Under certain circumstances, the exclusivity periods applicable to drugs and biologics and the patent-related protections applicable to drugs may be eligible for a six-month extension if the sponsor submits pediatric data that fairly respond to a written request from the FDA for such data. This exclusivity may be granted even if the data does not support a pediatric indication. We consider seeking pediatric exclusivity for our products whenever appropriate. For example, in response to a written request from the FDA, we conducted a Phase 3 clinical trial to assess the safety and efficacy of Xyrem in children and adolescents aged seven to 17 who have narcolepsy with cataplexy, and submitted study results in a supplement to the Xyrem NDA, seeking approval for this indication. In October 2018, FDA approved the sNDA and notified us that we had been granted pediatric exclusivity, extending by six months the preclusive effect of our Orange Book-listed patents for Xyrem, as well as the three-year regulatory exclusivity period granted to the Xyrem pediatric indication because of the clinical studies that were necessary for approval of the sNDA.

In the EU, orphan drug designation may be granted to products that can be used to treat life-threatening diseases or chronically debilitating conditions with an incidence of no more than five in 10,000 people or that, for economic reasons, would be unlikely to be developed without incentives. Orphan designated medicinal products are entitled to a range of benefits during the development and regulatory review process and ten years of market exclusivity in all EU member states upon approval. As in the U.S., a similar medicinal product with the same orphan indication may be approved, notwithstanding orphan product exclusivity, if the exclusivity holder gives consent or if the manufacturer of the original orphan medicinal product is unable to supply sufficient quantities. Marketing authorization may also be granted to a similar medicinal product with the same orphan indication if the similar product is deemed safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity granted in relation to the original orphan medicinal product may, in addition, be reduced to six years if it can be demonstrated on the basis of available evidence that the original orphan medicinal product is sufficiently profitable not to justify maintenance of market exclusivity. Defibrotide has been granted orphan drug designation by the EC and the Korean Ministry of Food and Drug Safety to treat and prevent VOD, by the Commonwealth of Australia-Department of Health for the treatment of VOD and by the EC for the prevention of aGvHD. Vyxeos has been granted orphan drug designation by the EC until August 2028.

Pharmaceutical Pricing, Reimbursement by Government and Private Payors and Patient Access

Pricing and Reimbursement

Successful commercialization of our products depends in significant part on adequate financial coverage and reimbursement from third party payors, including governmental payors (such as the Medicaid and Medicare programs in the U.S.), managed care organizations and private health insurers. Third party payors decide which drugs will be reimbursed and establish reimbursement and co-pay levels and conditions for reimbursement. Third party payors are increasingly challenging the prices charged for medical products and services by examining their cost effectiveness, as demonstrated in pharmacoeconomic and/or clinical studies, in addition to their safety and efficacy. In some cases, for example, third party payors try to encourage the use of less expensive products, when available, through their prescription benefits coverage and reimbursement, co-pay and prior authorization policies. The process for determining whether a payor will provide coverage for a product may be separate from the process for setting the price or reimbursement rate that the payor will pay for the product once coverage is approved. Third party payors may require prior approval before covering a specific product, or may require patients and health care providers to try other covered products first. Third party payors may also limit coverage to specific products on an approved list, or formulary, which might not include all of the approved products for a particular indication. For certain categories of products, third party payors, principally through contracted pharmacy benefit managers, or PBMs, negotiate rebates with drug manufacturers for inclusion of products on their formularies in specific positions or coverage criteria. Beginning in the third quarter of 2019, we have been entering into agreements with certain PBMs to provide rebates for our products where coverage was provided and products were listed in certain formulary positions, among other conditions. We expect to enter into additional agreements in 2020.

Medicaid is a joint federal and state program that is administered by the states for low-income and disabled beneficiaries. Medicare is a federal program that is administered by the federal government covering individuals age 65 and over as well as those with certain disabilities. Medicare Part B pays physicians who administer our products. Under the Medicaid Drug Rebate program, as a condition of having federal funds made available to the states for our drugs under Medicare Part B, we are required to pay a rebate to each state Medicaid program for our covered outpatient drugs that are dispensed to Medicaid beneficiaries and paid for by a state Medicaid program. Medicaid rebates are based on pricing data we report on a monthly and quarterly basis to the U.S. Centers for Medicare & Medicaid Services, or CMS, the federal agency that administers the Medicaid Drug Rebate program, several state Medicaid supplemental rebate programs and other governmental pricing programs. These data include the average manufacturer price and, in the case of innovator products, the best price for each drug which, in general, represents the lowest price available from the manufacturer to any entity in the U.S. in any pricing structure, calculated to include all applicable sales and associated rebates, discounts and other price concessions. For

the federal government to determine Medicare Part B payments to physicians, we are required to provide average sales price, or ASP, information for certain of our products to the CMS on a quarterly basis. The ASP is calculated based on a statutorily defined formula as well as regulations and interpretations of the statute by CMS. This information is used to compute Medicare payment rates, with rates for Medicare Part B drugs outside the hospital outpatient setting and in the hospital outpatient setting consisting of ASP plus a specified percentage. If we become aware that our reporting for a prior quarter was incorrect, or has changed as a result of recalculation of the pricing data, we are obligated to resubmit the corrected data for up to three years after those data originally were due.

Federal law requires that any company that participates in the Medicaid Drug Rebate program also participate in the Public Health Service's 340B program, or the 340B program, in order for federal funds to be available for the manufacturer's drugs under Medicaid and Medicare Part B. The 340B program, which is administered by the Health Resources and Services Administration, or HRSA, requires participating manufacturers to agree to charge statutorily defined covered entities no more than the 340B "ceiling price" for the manufacturer's covered drugs used in an outpatient setting. These 340B covered entities include a variety of community health clinics and other entities that receive health services grants from the Public Health Service, as well as hospitals that serve a disproportionate share of low-income patients. The 340B ceiling price is calculated using a statutory formula, which is based on the average manufacturer price and rebate amount for the covered outpatient drug as calculated under the Medicaid Drug Rebate program, and in general, products subject to Medicaid price reporting and rebate liability are also subject to the 340B ceiling price calculation and discount requirement. A new regulation regarding the calculation of the 340B ceiling price and the imposition of civil monetary penalties on manufacturers that knowingly and intentionally overcharge covered entities became effective on January 1, 2019. We also are required to report our 340B ceiling prices to HRSA on a quarterly basis. In addition, legislation may be introduced that, if passed, would further expand the 340B program to additional covered entities or would require participating manufacturers to agree to provide 340B discounted pricing on drugs used in an inpatient setting.

In order to be eligible to have our products paid for with federal funds under the Medicaid and Medicare Part B programs and purchased by certain federal agencies and grantees, we also participate in the U.S. Department of Veterans Affairs, or VA, Federal Supply Schedule, or FSS, pricing program. Under this program, we are obligated to make our products available for procurement on an FSS contract under which we must comply with standard government terms and conditions and charge a price to certain federal agencies that is no higher than the statutory Federal Ceiling Price, or FCP. The FCP is based on the non-federal average manufacturer price, or Non-FAMP, which we calculate and report to the VA on a quarterly and annual basis. We also participate in the Tricare Retail Pharmacy program, under which we pay quarterly rebates on utilization of innovator products that are dispensed through the Tricare Retail Pharmacy network to Tricare beneficiaries. The rebates are calculated as the difference between the annual Non-FAMP and FCP. Pricing and rebate calculations vary across products and programs, are complex, and are often subject to interpretation by us, governmental or regulatory agencies and the courts, which can change and evolve time.

In addition, in the U.S., drug pricing by pharmaceutical companies is currently, and is expected to continue to be, under close scrutiny, including with respect to companies that have increased the price of products after acquiring those products from other companies. There are numerous ongoing efforts at the federal and state level seeking to indirectly or directly regulate drug prices to reduce overall healthcare costs using tools such as price ceilings, value-based pricing and increased transparency and disclosure obligations. Several states have passed or are considering legislation that purports to require companies to report proprietary pricing information. For example, in 2017, California adopted a prescription drug price transparency state bill requiring advance notice and an explanation for price increases of certain drugs that exceed a specified threshold. Similar bills have been previously introduced at the federal level and additional legislation could be introduced this year.

Similar to what is occurring in the U.S., political, economic and regulatory developments outside of the U.S. are also subjecting the healthcare industry to fundamental changes and challenges. Pressure by governments and other stakeholders on prices and reimbursement levels continue to exist. In various EU member states we expect to be subject to continuous cost-cutting measures, such as lower maximum prices, lower or lack of reimbursement coverage and incentives to use cheaper, usually generic, products as an alternative. Health technology assessment, or HTA, of medicinal products is becoming an increasingly common part of the pricing and reimbursement procedures in some EU member states, including countries representing major markets. The HTA process, which is governed by the national laws of these countries, is the procedure according to which the assessment of the public health impact, therapeutic impact and the economic and societal impact of use of a given medicinal product in the national healthcare systems of the individual country is conducted. HTA generally compares attributes of individual medicinal products, as compared with other treatment options available on the market. The outcome of HTA regarding specific medicinal products will often influence the pricing and reimbursement status granted to these medicinal products by the competent authorities of individual EU member states. On January 31, 2018, the EC adopted a proposal for an HTA regulation intended to boost cooperation among EU member states in assessing health technologies, including new medicinal products. The proposal provides that EU member states will be able to use common HTA tools, methodologies, and procedures across the EU. Individual EU member states will continue to be responsible for assessing non-clinical (e.g., economic, social and ethical) aspects of health technologies, and making decisions on pricing and reimbursement.

In the EU, our products are marketed through various channels and within different legal frameworks. The making available or placing on the EU market of unauthorized medicinal products is generally prohibited. However, the competent authorities of the EU member states may exceptionally and temporarily allow and reimburse the supply of such unauthorized products, either on a named patient basis or through a compassionate use process, to individual patients or a group of patients with a chronically or seriously debilitating disease or whose disease is considered to be life-threatening, and who cannot be treated satisfactorily by an authorized medicinal product. Such reimbursement may no longer be available if authorization for named patient or compassionate use programs expire or is terminated or if marketing authorization is granted for the product. In some EU member states, authorization and reimbursement policies may also delay commercialization of our products, or may adversely affect our ability to sell our products on a profitable basis. After initial price and reimbursement approvals, reductions in prices and changes in reimbursement levels can be triggered by multiple factors, including reference pricing systems and publication of discounts by third party payors or authorities in other countries. In the EU, prices can be reduced further by parallel distribution and parallel trade, or arbitrage between low-priced and high-priced EU member states.

For more information, see the risk factors under the headings "*Adequate coverage and reimbursement from third party payors may not be available for our products, which could diminish our sales or affect our ability to sell our products profitably,*" "*The pricing of pharmaceutical products has come under increasing scrutiny as part of a global trend toward healthcare cost containment and resulting changes in healthcare law and policy may impact our business in ways that we cannot currently predict, which could have a material adverse effect on our business and financial condition*" and *"If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate program or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects"* in Part I, Item 1A of this Annual Report on Form 10-K.

Patient Assistance Programs

We have various patient assistance programs to help patients access our products, including co-pay coupons for certain products, services that help patients determine their insurance coverage for our products, and a free product program. We also make grants to independent charitable foundations that help financially needy patients with their premium, and co-pay and co-insurance obligations. There has been enhanced scrutiny of company-sponsored patient assistance programs, including insurance premium and co-pay assistance programs and donations to third-party charities that provide such assistance, as well as reimbursement support offerings.

The OIG has established guidelines for pharmaceutical manufacturers who make donations to charitable organizations providing co-pay assistance to Medicare patients. Such donations are unlikely to run afoul of the anti-kickback laws provided that the organizations receiving donations, among other things, are *bona fide* charities, are entirely independent of and not controlled by the manufacturer, provide aid to applicants on a first-come basis according to consistent financial criteria, and do not link aid to use of a donor's product. In 2016 and 2017, we received subpoenas from the U.S. Attorney's Office for the District of Massachusetts requesting documents related to our support of charitable organizations that provide financial assistance to Medicare patients. In April 2019, we finalized our civil settlement agreement with the DOJ and OIG, and entered into a corporate integrity agreement requiring us to maintain our ongoing corporate compliance program and obligating us to implement or continue, as applicable, a set of defined corporate integrity activities to ensure compliance with OIG's policies around charitable contributions for a period of five years from the effective date of the corporate integrity agreement.

U.S. Healthcare Reform

The Patient Protection and Affordable Care Act, as amended by the Healthcare and Education Reconciliation Act of 2010, which we refer to together as the Healthcare Reform Act, was intended to expand healthcare coverage within the U.S., primarily through the imposition of health insurance mandates on employers and individuals, the provision of subsidies to eligible individuals enrolled in plans offered on the health insurance exchanges, and the expansion of the Medicaid program. This law has substantially changed the way healthcare is financed by both governmental and private insurers and significantly impacts the pharmaceutical industry. Changes that may affect our business include those governing enrollment in federal healthcare programs, reimbursement changes, benefits for patients within a coverage gap in the Medicare Part D prescription drug program (commonly known as the "donut hole"), rules regarding prescription drug benefits under the health insurance exchanges, changes to the Medicaid Drug Rebate program, expansion of the 340B program, and fraud and abuse and enforcement. These changes have impacted previously existing government healthcare programs and have resulted in the development of new programs, including Medicare payment for performance initiatives.

Certain provisions of the Healthcare Reform Act have been subject to judicial challenges, as well as efforts to repeal or replace them or to alter their interpretation or implementation. For example, the U.S. Tax Cuts and Jobs Act of 2017, signed into law in December 2017, includes a provision repealing, effective January 1, 2019, the tax-based shared responsibility payment, commonly referred to as the "individual mandate," imposed by the Healthcare Reform Act on certain individuals who fail to maintain qualifying health coverage for all or

part of a year. Additional legislative changes, regulatory changes, and judicial challenges related to the Healthcare Reform Act remain possible. The nature and extent of any additional legislative changes, regulatory changes, or judicial challenges to the Healthcare Reform Act are uncertain at this time.

Employees

As of February 18, 2020, we had approximately 1,620 employees worldwide. We consider our employee relations to be good.

Environment, Health and Safety

Our operations are subject to complex and increasingly stringent environmental, health and safety laws and regulations in the countries where we operate and, in particular, in Italy and Ireland where we have manufacturing facilities. Our manufacturing activities involve the controlled storage, use and disposal of chemicals and solvents. Environmental and health and safety authorities in Italy and Ireland administer laws governing, among other matters, the emission of pollutants into the air (including the workplace), the discharge of pollutants into bodies of water, the storage, use, handling and disposal of hazardous substances, the exposure of persons to hazardous substances, and the general health, safety and welfare of employees and members of the public. In certain cases, such laws, directives and regulations may impose strict liability for pollution of the environment and contamination resulting from spills, disposals or other releases of hazardous substances or waste. Costs, damages and/or fines may result from the presence, investigation and remediation of such contamination at properties currently or formerly owned, leased or operated by us or at off-site locations, including where we have arranged for the disposal of hazardous substances or waste. In addition, we may be subject to third party claims, including for natural resource damages, personal injury and property damage, in connection with such contamination.

About Jazz Pharmaceuticals plc

Jazz Pharmaceuticals plc was formed under the laws of Ireland (registered number 399192) as a private limited liability company in March 2005 under the name Azur Pharma Limited and was subsequently re-registered as a public limited company under the name Azur Pharma Public Limited Company, or Azur Pharma, in October 2011. On January 18, 2012, the businesses of Jazz Pharmaceuticals, Inc. and Azur Pharma were combined in a merger transaction, in connection with which Azur Pharma was re-named Jazz Pharmaceuticals plc and we became the parent company of and successor to Jazz Pharmaceuticals, Inc.

Our predecessor, Jazz Pharmaceuticals, Inc., was incorporated in California in March 2003 and was reincorporated in Delaware in January 2004.

Available Information

The mailing address of our headquarters is Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland, and our telephone number at that location is 353-1-634-7800. Our website is www.jazzpharmaceuticals.com.

We file or furnish pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as applicable, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, amendments to those reports, proxy statements and other information electronically with the SEC. Through a link on our website, we make copies of our periodic and current reports, amendments to those reports, proxy statements and other information available, free of charge, as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. Information found on, or accessible through, our website is not a part of, and is not incorporated into, this Annual Report on Form 10-K.

Item 1A. Risk Factors

We have identified the following risks and uncertainties that may have a material adverse effect on our business, financial condition or results of operations. The risks described below are not the only ones we face. Additional risks not presently known to us or that we currently believe are immaterial may also significantly impair our business operations. Our business could be harmed by any of these risks. The trading price of our ordinary shares could decline due to any of these risks, and you may lose all or part of your investment. In assessing these risks, you should also refer to the other information contained in this Annual Report on Form 10-K, including our consolidated financial statements and accompanying notes.

Risks Related to Our Lead Products and Product Candidates

Our inability to maintain or increase sales from our sleep therapeutic area would have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Our current business is substantially dependent on Xyrem® (sodium oxybate) oral solution, and our financial results are significantly influenced by sales of Xyrem. A significant decline in sales of Xyrem could cause us to reduce our operating expenses or seek to raise additional funds, which would have a material adverse effect on our business, financial condition, results of operations and growth prospects, including on our ability to acquire, in-license or develop new products to grow our business. While our future plans assume that sales of Xyrem will increase, there is no guarantee that we can maintain sales of Xyrem at or near current levels, or that Xyrem sales will continue to grow. Our ability to maintain or increase Xyrem product sales is subject to a number of risks and uncertainties as discussed in greater detail below, including those related to the introduction of authorized generic and generic versions of sodium oxybate and/or new products for treatment of cataplexy and/or excessive daytime sleepiness, or EDS, in narcolepsy in the U.S. market, increased pricing pressure from, changes in policies by, or restrictions on reimbursement imposed by, third party payors, challenges to our intellectual property around Xyrem, and continued acceptance of Xyrem by physicians and patients.

As for other products and product candidates in our sleep and neuroscience therapeutic area, we obtained approval of Sunosi® (solriamfetol) in 2019 in the U.S. and in January 2020 in the European Union, or EU, for the treatment of EDS associated with narcolepsy or obstructive sleep apnea, or OSA. Our ability to realize the anticipated benefits from our investment in Sunosi is subject to a number of risks and uncertainties, including market acceptance of Sunosi; our ability, in a competitive retail pharmacy market, to differentiate Sunosi from other products that are prescribed to treat excessive sleepiness in patients with OSA or EDS in patients with narcolepsy; the availability of adequate formulary positions and pricing and adequate coverage and reimbursement by government programs and other third party payors, including the impact of future coverage decisions by payors; restrictions on permitted promotional activities based on any additional limitations on the labeling for the product that may be required by the FDA in the future and any such limitations that may be required by the European Commission, or the EC, or other regulatory authority on any approved labeling; and our ability to satisfy the FDA's post-marketing requirements.

We also submitted a new drug application, or NDA, in January 2020 for marketing approval of JZP-258, an oxybate product candidate that contains 92%, or approximately 1,000 to 1,500 milligrams per day, less sodium than Xyrem, for the treatment of cataplexy and EDS in narcolepsy patients seven years of age and older. Our future plans assume that, if approved, JZP-258 may be prescribed to patients as a safer and clinically superior alternative to Xyrem as well as being prescribed to patients who may otherwise be ineligible to take Xyrem based on its high sodium content. Our ability to realize the anticipated benefits from our investment in JZP-258 is subject to a number of risks and uncertainties, including delay or failure in obtaining approval of JZP-258; our receipt of approval for narrower indications than sought or burdens in the approved label; obtaining FDA approval of a risk evaluation and mitigation strategy, or REMS; obtaining and maintaining adequate coverage and reimbursement for JZP-258; the introduction of new products in the U.S. market that compete with JZP-258 in the treatment of cataplexy and/or EDS in narcolepsy, including generic or authorized generic versions of sodium oxybate or new sodium oxybate products; and acceptance of JZP-258 by payors, physicians and patients.

If we are unable to successfully commercialize Sunosi and/or JZP-258 (if approved), or if sales of Sunosi and JZP-258 do not reach the levels we expect, our anticipated revenue from our sleep therapeutic area will be negatively affected, which would have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The introduction of new products in the U.S. market that compete with, or otherwise disrupt the market for, our oxybate products and product candidates would adversely affect sales of our oxybate products and product candidates.

While Xyrem is currently the only product approved by the U.S. Food and Drug Administration, or FDA, and marketed in the U.S. for the treatment of both cataplexy and EDS in both adult and pediatric patients with narcolepsy, we and others have launched and may in the future launch products that are competitive with or disrupt the market for Xyrem.

For example, in the future, we expect Xyrem to face competition from authorized generic and generic versions of sodium oxybate. Nine companies have sent us notices that they had filed abbreviated new drug applications, or ANDAs, seeking approval to market a generic version of Xyrem, and we have filed and settled patent lawsuits with all nine companies. To date, the FDA has approved or tentatively approved four of these ANDAs, and we believe that it is likely that the FDA will approve or tentatively approve some or all of the others. In our patent litigation settlement with the first filer, West-Ward Pharmaceuticals Corp. (a wholly owned subsidiary of Hikma Pharmaceuticals PLC and now known as Hikma in the U.S.), or Hikma, we granted Hikma the right to sell an authorized generic product, or AG Product, with royalties back to us, in the U.S. beginning on January 1, 2023, or earlier under certain circumstances. Hikma has a right to elect to continue to sell the Hikma AG Product for a total of up to five years. We also granted Hikma a license to launch its own generic sodium oxybate product as early as six months after it has the right to sell the Hikma AG Product, but if it elects to launch its own generic product, Hikma will no longer have the right to sell the Hikma AG Product. In our settlements with Amneal Pharmaceuticals LLC, or Amneal, Lupin Inc., or Lupin, and Par Pharmaceutical, Inc., or Par, we granted each party the right to sell a limited volume of an AG Product in the U.S. beginning on July 1, 2023, or earlier under certain circumstances, and ending on December 31, 2025, with royalties back to us. AG Products will be distributed through the same REMS as Xyrem and, if approved, JZP 258. We also granted each of Amneal, Lupin and Par a license to launch its own generic sodium oxybate product under its ANDA on or after December 31, 2025, or earlier under certain circumstances, including the circumstance where Hikma elects to launch its own generic product. If Amneal, Lupin or Par elects to launch its own generic product under such circumstance, it will no longer have the right to sell an AG Product. In our settlements with each of the other five ANDA filers, we granted each a license to launch its own generic sodium oxybate product under its ANDA on or after December 31, 2025, or earlier under certain circumstances, including circumstances where Hikma launches its own generic sodium oxybate product. The actual timing of the launch of an AG Product or generic sodium oxybate product is uncertain because the launch dates of the AG Products and generic sodium oxybate products under our settlement agreements are subject to acceleration under certain circumstances.

Any ANDA holder launching an AG Product or another generic sodium oxybate product will independently establish the price of the AG Product and/or its own generic sodium oxybate product. Generic competition often results in decreases in the prices at which branded products can be sold. After any introduction of a generic product, whether or not it is an AG Product, a significant percentage of the prescriptions written for Xyrem will likely be filled with the generic product. Certain U.S. state laws allow for, and in some instances in the absence of specific instructions from the prescribing physician mandate, the dispensing of generic products rather than branded products when a generic version is available. This would result in reduction in sales of, and revenue from, Xyrem, although we would continue to receive royalties and other revenue based on sales of an AG Product in accordance with the terms of our settlement agreements.

It is possible that additional companies may file ANDAs seeking to market a generic version of Xyrem which could lead to additional patent litigation or challenges with respect to Xyrem. Such patent litigation or challenges could potentially trigger acceleration of the launch dates in our settlement agreements if, for example, our patents covering Xyrem were all invalidated. Alternatively, the launch dates in our settlement agreements could be accelerated if a new ANDA filer were to obtain FDA approval for its sodium oxybate product, and launch its generic product through a generic sodium oxybate REMS before the entry dates specified in our settlement agreements. It is also possible that we could enter into a settlement agreement with a future ANDA filer that would permit such filer to enter the market on or prior to the launch date(s) in our settlement agreements. If a company launches a generic or authorized generic sodium oxybate product in any of these scenarios, except in limited circumstances related to an “at risk” launch, the launch date for Hikma’s AG Product would be accelerated to a date on or prior to the date of such entry, which could lead to acceleration of the other settling ANDA filers’ AG Product and generic sodium oxybate product launch dates as described above.

Another circumstance that could trigger acceleration of Hikma’s launch date for an AG Product, which would also accelerate Amneal, Lupin and Par’s launch dates for their AG Products and ultimately could lead to acceleration of the other settling ANDA filers’ launch dates for their generic sodium oxybate products, is a substantial reduction in Xyrem net sales. Such a reduction could occur under various circumstances, including if we introduce, or a third party introduces, a product to treat EDS or cataplexy in narcolepsy that leads to a substantial decline in Xyrem net sales prior to January 1, 2023. Other companies may develop a sodium oxybate product for treatment of narcolepsy, using an alternative formulation or a different delivery technology, and seek approval in the U.S. using an NDA approval pathway under Section 505(b)(2) and referencing the safety and efficacy data for Xyrem. We are aware that Avadel Pharmaceuticals plc, or Avadel, is conducting a Phase 3 clinical trial of a once-nightly formulation of sodium oxybate which uses its proprietary technology for the treatment of EDS and cataplexy in patients with narcolepsy, and that Avadel has indicated that it intends to seek approval using the Section 505(b)(2) approval pathway referencing the safety and efficacy data for Xyrem. Xyrem may also face competition from new branded entrants to treat EDS in narcolepsy such as pitolisant. Other companies have announced that they have product candidates in various phases of development to treat the symptoms of narcolepsy, such as Axsome Therapeutics, Inc.’s reboxetine.

We expect that, if approved, JZP-258, will face competition similar to that described above for Xyrem, including from generic or authorized generic sodium oxybate product or new branded entrants in narcolepsy such as Avadel. Avadel has announced that it has obtained an orphan drug designation from the FDA for its once-nightly sodium oxybate formulation. To obtain orphan drug exclusivity upon

approval, Avadel will have to show clinical superiority to Xyrem and possibly to JZP-258, if approved. If the FDA approves Avadel's product and grants it orphan drug exclusivity before we obtain approval for JZP-258, there is a risk that JZP-258 will not be approvable for a narcolepsy indication for seven years unless it can establish clinical superiority to Avadel's product. We cannot predict the timing of Avadel's submission or how the FDA will evaluate any clinical superiority arguments that either company may make, but a delay in approval or inability to obtain approval for JZP-258 could materially and adversely affect our business, financial condition, results of operations and growth prospects.

Moreover, non-oxybate products intended for the treatment of EDS or cataplexy in narcolepsy, including new market entrants, even if not directly competitive with Xyrem or JZP-258 (if approved), could have the effect of changing treatment regimens and payor or formulary coverage of Xyrem or JZP-258 in favor of other products, and indirectly materially and adversely affect sales of Xyrem (and if approved, JZP-258). Examples of such new market entrants include our product, Sunosi, and pitolisant, a drug that was approved by the FDA in August 2019 for the treatment of EDS in adult patients with narcolepsy and became commercially available in the U.S. in the fourth quarter of 2019, and that has also been approved and marketed in Europe to treat adult patients with narcolepsy with or without cataplexy. In addition, prescribers often prescribe stimulants or wake-promoting agents for treatment of EDS, and anti-depressants for cataplexy, before or instead of prescribing Xyrem, and payors often require patients to try such medications before they will cover Xyrem. Examples of such products are described in "Business—Competition" in Part I, Item 1 of this Annual Report on Form 10-K.

We expect that the approval and launch of an AG Product or other generic version of Xyrem could have a material adverse effect on our sales of and revenues from Xyrem and on our business, financial condition, results of operations and growth prospects. We also expect that the approval and launch of any other sodium oxybate (including JZP-258 or Avadel's once-nightly sodium oxybate formulation) or alternative product that treats narcolepsy could have a material adverse effect on our sales of and revenues from Xyrem, which could have the additional impact of potentially triggering acceleration of market entry of AG Products or other generic sodium oxybate products under our ANDA litigation settlement agreements.

The distribution and sale of our oxybate products are subject to significant regulatory restrictions, including the requirements of a REMS, and these regulatory requirements subject us to risks and uncertainties, any of which could negatively impact sales of Xyrem and if approved, JZP-258.

The active pharmaceutical ingredient, or API, of Xyrem, sodium oxybate, is the sodium salt of gamma-hydroxybutyric acid, or GHB, a central nervous system depressant known to be associated with facilitated sexual assault as well as with respiratory depression and other serious side effects. As a result, the FDA requires that we maintain a REMS with elements to assure safe use, or ETASU, for Xyrem to help ensure that the benefits of the drug in the treatment of cataplexy and EDS in narcolepsy outweigh the serious risks of the drug. The REMS imposes extensive controls and restrictions on the sales and marketing of Xyrem that we are responsible for implementing. Any failure to demonstrate our substantial compliance with our REMS obligations, or a determination by the FDA that the Xyrem REMS is not meeting its goals, could result in enforcement action by the FDA, lead to changes in our Xyrem REMS obligations, negatively affect sales of Xyrem, result in additional costs and expenses for us and/or require us to invest a significant amount of resources, any of which could materially and adversely affect our business, financial condition, results of operations and growth prospects. Similarly, we expect that the FDA will require approval of a REMS for JZP-258, and a delay in obtaining such approval could delay our anticipated launch of JZP-258, which could adversely affect our business, financial condition, results of operations and growth prospects.

The FDA has stated that it will evaluate the Xyrem REMS on an ongoing basis and will require modifications as may be appropriate. We cannot predict whether the FDA will request, seek to require or ultimately require modifications to, or impose additional requirements on, the Xyrem REMS, including in connection with the submission of applications for new oxybate products including JZP-258, new oxybate indications, the introduction of authorized generics, or to accommodate generics, or whether the FDA will approve modifications to the Xyrem REMS that we consider warranted in connection with the submission of applications for new oxybate products including JZP-258. Any modifications approved, required or rejected by the FDA could change the safety profile of Xyrem, and have a significant negative impact in terms of product liability, public acceptance of Xyrem as a treatment for cataplexy and EDS in narcolepsy, and prescribers' willingness to prescribe, and patients' willingness to take, Xyrem, any of which could have a material adverse effect on our Xyrem business. Modifications approved, required or rejected by the FDA could also make it more difficult or expensive for us to distribute Xyrem, make distribution easier for sodium oxybate competitors, disrupt continuity of care for Xyrem patients and/or negatively affect sales of Xyrem.

We depend on outside vendors, including the central certified pharmacy, to implement the requirements of the Xyrem REMS. If the central pharmacy fails to meet the requirements of the Xyrem REMS applicable to the central pharmacy or otherwise does not fulfill its contractual obligations to us, moves to terminate our agreement, refuses or fails to adequately serve patients, or fails to promptly and adequately address operational challenges or challenges in implementing REMS modifications, the fulfillment of Xyrem prescriptions and our sales would be adversely affected. If we change to a new central pharmacy, new contracts might be required with government payors and other insurers who pay for Xyrem, and the terms of any new contracts could be less favorable to us than current agreements. In

addition, any new central pharmacy would need to be registered with the U.S. Drug Enforcement Administration, or DEA, and certified and would also need to implement the particular processes, procedures and activities necessary to distribute Xyrem under the Xyrem REMS. Transitioning to a new pharmacy could result in product shortages, which would negatively affect sales of Xyrem, result in additional costs and expenses for us and/or take a significant amount of time, any of which could materially and adversely affect our business, financial condition, results of operations and growth prospects.

In its approval of Hikma's ANDA, the FDA waived the requirement of a single shared REMS between the brand drug and generic versions, approving Hikma's ANDA with a generic sodium oxybate REMS separate from the Xyrem REMS, except for the requirement that the generic sodium oxybate REMS program pharmacies contact the Xyrem REMS by phone to verify and report certain information. The generic sodium oxybate REMS was approved with the condition that it be open to all future sponsors of ANDAs or NDAs for sodium oxybate products. A sodium oxybate distribution system that is less restrictive than the Xyrem REMS, such as the generic sodium oxybate REMS, which provides that generic sodium oxybate products and potentially new sodium oxybate products approved under a Section 505(b)(2) NDA approval pathway could be distributed through multiple pharmacies, could increase the risks associated with sodium oxybate distribution. Because patients, consumers and others may not differentiate generic sodium oxybate from Xyrem or differentiate between the different REMS programs, any negative outcomes, including risks to the public, caused by or otherwise related to a separate sodium oxybate REMS, could have a significant negative impact in terms of product liability, our reputation and good will, public acceptance of Xyrem as a treatment for cataplexy and EDS in narcolepsy, and prescribers' willingness to prescribe, and patients' willingness to take, Xyrem, any of which could have a material adverse effect on our Xyrem business.

We may face pressure to further modify the Xyrem REMS or to license or share intellectual property pertinent to the Xyrem REMS, including proprietary data required for the safe distribution of sodium oxybate, in connection with the FDA's approval of the generic sodium oxybate REMS or otherwise. Our settlement agreements with ANDA filers do not directly impact the FDA's waiver of the single shared system REMS requirement, any other ANDA or NDA filer's ability to develop and implement the generic sodium oxybate REMS for its sodium oxybate product, or our ability to take any action with respect to the safety of the generic sodium oxybate REMS. We cannot predict the outcome or impact on our business of any future action that we may take with respect to the FDA's waiver of the single shared system REMS requirement, its approval and tentative approval of generic versions of sodium oxybate or the consequences of distribution of sodium oxybate through the generic sodium oxybate REMS approved by the FDA or another separate REMS.

REMS programs have increasingly drawn public scrutiny from the U.S. Congress, the Federal Trade Commission, or FTC, and the FDA, with allegations that such programs are used as a means of improperly blocking or delaying competition. In December 2019, as part of the Further Consolidated Appropriations Act of 2020, the U.S. Congress passed legislation known as the Creating and Restoring Equal Access To Equivalent Samples Act, or CREATES. CREATES is intended to prevent companies from using REMS and other restricted distribution programs as a means to deny potential competitors access to product samples that are reasonably necessary to conduct testing in support of an application that references a listed drug or biologic, and provides such potential competitors a potential private right of action if the innovator fails to timely provide samples upon request. CREATES also grants the FDA additional authority regarding approval of generic products with REMS.

It is possible that the FTC, the FDA, other governmental authorities or other third parties could claim that, or launch an investigation into whether, we are using our REMS programs in an anticompetitive manner or have engaged in other anticompetitive practices. The Federal Food, Drug and Cosmetic Act further states that a REMS ETASU shall not be used by an NDA holder to block or delay generic drugs or drugs covered by an application under Section 505(b)(2) from entering the market. In its 2015 letter approving the Xyrem REMS, the FDA expressed concern that we were aware that the Xyrem REMS could have the effect of blocking or delaying generic competition. We cannot predict whether we would face a government investigation or a complaint by a third party premised on a claim that the Xyrem REMS is blocking competition, or the outcome or impact of any such claim.

Pharmaceutical companies, including their agents and employees, are required to monitor adverse events occurring during the use of their products and report them to the FDA. The patient counseling and monitoring requirements of the Xyrem REMS provide more extensive information about adverse events experienced by patients taking Xyrem, including deaths, than is generally available for other products that are not subject to similar REMS requirements. As required by the FDA and other regulatory agencies, the adverse event information that we collect for Xyrem is regularly reported to the FDA and could result in the FDA requiring changes to Xyrem labeling, including additional warnings or additional boxed warnings, or requiring us to take other actions that could have an adverse effect on patient and prescriber acceptance of Xyrem. As required by the FDA, Xyrem's current labeling includes a boxed warning regarding the risk of central nervous system depression and misuse and abuse.

Any failure to demonstrate our substantial compliance with the REMS or any other applicable regulatory requirements to the satisfaction of the FDA or another regulatory authority could result in such regulatory authorities taking actions in the future which could have a material adverse effect on Xyrem sales and therefore on our business, financial condition, results of operations and growth prospects.

While Xyrem remains our largest product, our success also depends on our ability to effectively commercialize products outside our sleep and neuroscience therapeutic area.

In addition to Xyrem and our other sleep and neuroscience products and product candidates, we are commercializing a portfolio of products, including our other lead marketed products, Defitelio, Erwinaze and Vyxeos. An inability to effectively commercialize Defitelio and Vyxeos and to maximize their potential where possible through successful research and development activities, and an inability to retain marketing rights to Erwinaze after 2020, could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Defitelio

Our ability to maintain and grow sales and to realize the anticipated benefits from our investment in Defitelio® (defibrotide sodium) is subject to a number of risks and uncertainties, including continued acceptance by hospital pharmacy and therapeutics committees in the U.S., the EU and other countries; the continued availability of favorable pricing and adequate coverage and reimbursement; the limited experience of, and need to educate, physicians in recognizing, diagnosing and treating hepatic veno-occlusive disease, or VOD, particularly in adults; the possibility that physicians recognizing VOD symptoms may not initiate or may delay initiation of treatment while waiting for those symptoms to improve, or may terminate treatment before the end of the recommended dosing schedule; and the limited size of the population of VOD patients who are indicated for treatment with Defitelio (particularly if changes in hematopoietic stem cell transplantation treatment protocols reduce the incidence of VOD diagnosis and demand for Defitelio). If sales of Defitelio do not reach the levels we expect, our anticipated revenue from the product will be negatively affected and our business, financial condition, results of operations and growth prospects could be materially adversely affected. In addition, because VOD is an ultra-rare disease, we have experienced inter-quarter variability in our Defitelio sales, which makes Defitelio sales difficult to predict from period to period. As a result, Defitelio sales results or trends in any period may not necessarily be indicative of future performance.

Erwinaze

Erwinaze® (asparaginase *Erwinia chrysanthemi*), which is approved to treat a limited population of patients with acute lymphoblastic leukemia, or ALL, who have developed hypersensitivity to *E. coli*-derived asparaginase, is licensed from, and manufactured by, a single source, Porton Biopharma Limited, or PBL, a company that is wholly owned by the UK Department of Health and Social Care. Our license and supply agreement with PBL, which includes an exclusive right to market, sell or distribute Erwinaze, an exclusive license to Erwinaze trademarks, and a non-exclusive license to PBL's manufacturing know-how, will expire on December 31, 2020. Unless we and PBL enter into a new agreement, we will lose our licensed rights to exclusively market Erwinaze effective December 31, 2020, other than our right to sell certain Erwinaze inventory for a post-termination sales period of 12 months and certain other post-termination rights, including but not limited to intellectual property and data ownership. In such event, we may not be able to replace the product sales we would lose from Erwinaze, and our business, financial condition, results of operations and growth prospects would be materially adversely affected. In addition, a continuing and significant challenge to maintaining sales of Erwinaze and a barrier to increasing sales is PBL's inability to consistently supply product that meets specifications in quantities that are adequate to meet market demand, as discussed elsewhere in these risk factors. Such supply instability will continue to adversely impact our ability to generate sales of and revenues from Erwinaze and our business, financial condition, results of operations and growth prospects could be materially adversely affected. Other challenges facing Erwinaze include the limited population of patients with ALL, and the incidence of hypersensitivity reactions to *E. coli*-derived asparaginase within that population; the development and/or approval of new asparaginase treatments or treatment protocols for ALL that may not include asparaginase-containing regimens and prescribers' use of alternate methods to address hypersensitivity reactions; difficulties with obtaining and maintaining favorable pricing and reimbursement arrangements; and potential competition from future biosimilar products.

Vyxeos

Our ability to realize the anticipated benefits from our investment in Vyxeos® (daunorubicin and cytarabine) liposome for injection by successfully and sustainably growing sales is subject to a number of risks and uncertainties, including our ability to differentiate Vyxeos from other liposomal chemotherapies and generically available chemotherapy combinations with which physicians and treatment centers are more familiar; acceptance by hospital pharmacy and therapeutics committees in the U.S., the EU and other countries; the increasing complexity of the acute myeloid leukemia, or AML, landscape requiring changes in patient identification and treatment selection, including diagnostic tests and monitoring that clinicians may find challenging to incorporate; the use of new and novel compounds in AML that are either used off-label or are only approved for use in combination with other agents and that have not been tested in combination with Vyxeos; the limited size of the population of high-risk AML patients who may potentially be indicated for treatment with Vyxeos; the availability of adequate coverage, pricing and reimbursement approvals, competition from new and existing products and potential competition from products in development; and delays or problems in the supply or manufacture of Vyxeos. If sales of Vyxeos do not reach the levels we expect, our anticipated revenue from the product will be negatively affected, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We face substantial competition from other companies, including companies with larger sales organizations and more experience working with large and diverse product portfolios.

Our products compete, and our product candidates may in the future compete, with currently existing therapies, including generic drugs, product candidates currently under development by us and others and/or future product candidates, including new chemical entities that may be safer or more effective or more convenient than our products. Any products that we develop may be commercialized in competitive markets, and our competitors, which include large global pharmaceutical companies and small research-based companies and institutions, may succeed in developing products that render our products obsolete or noncompetitive. Many of our competitors, particularly large pharmaceutical and life sciences companies, have substantially greater financial, operational and human resources than we do. Smaller or earlier stage companies may also prove to be significant competitors, particularly through focused development programs and collaborative arrangements with large, established companies. In addition, many of our competitors deploy more personnel to market and sell their products than we do, and we compete with other companies to recruit, hire, train and retain pharmaceutical sales and marketing personnel. If our sales force and sales support organization are not appropriately resourced and sized to adequately promote our products, the commercial potential of our current and any future products may be diminished. In any event, the commercial potential of our current products and any future products may be reduced or eliminated if our competitors develop or acquire and commercialize generic or branded products that are safer or more effective, are more convenient or are less expensive than our products. For a description of the competition that our lead marketed products and most advanced product candidates face or may face, see the discussion in "Business—Competition" in Part I, Item 1 of this Annual Report on Form 10-K and the risk factor under the heading "*The introduction of new products in the U.S. market that compete with, or otherwise disrupt the market for, our oxybate products and product candidates would adversely affect sales of our oxybate products and product candidates"* in this Part I, Item 1A.

Adequate coverage and reimbursement from third party payors may not be available for our products, which could diminish our sales or affect our ability to sell our products profitably.

In both U.S. and non-U.S. markets, our ability to successfully commercialize and achieve market acceptance of our products depends in significant part on adequate financial coverage and reimbursement from third party payors, including governmental payors (such as the Medicare and Medicaid programs in the U.S.), managed care organizations and private health insurers. Without third party payor reimbursement, patients may not be able to obtain or afford prescribed medications. In addition, reimbursement guidelines and incentives provided to prescribing physicians by third party payors may have a significant impact on the prescribing physicians' willingness and ability to prescribe our products. The demand for, and the profitability of, our products could be materially harmed if the Medicaid program, Medicare program, other federal healthcare program, or other third party commercial payors in the U.S. or elsewhere deny reimbursement for our products, limit the indications for which our products will be reimbursed, or provide reimbursement only on unfavorable terms.

As part of the overall trend toward cost containment, third party payors often require prior authorization for, and require reauthorization for continuation of, prescription products or impose step edits, which require prior use of another medication, usually a generic or preferred brand, prior to approving coverage for a new or more expensive product. Such restrictive conditions for reimbursement and an increase in reimbursement-related activities can extend the time required to fill prescriptions and may discourage patients from seeking treatment. We cannot predict actions that third party payors may take, or whether they will limit the access and level of reimbursement for our products or refuse to provide any approvals or coverage. From time to time, third party payors have refused to provide reimbursement for our products, and others may do so in the future.

Third party payors increasingly examine the cost-effectiveness of pharmaceutical products, in addition to their safety and efficacy, when making coverage and reimbursement decisions. We may need to conduct expensive pharmacoeconomic and/or clinical studies in order to demonstrate the cost-effectiveness of our products. If our competitors offer their products at prices that provide purportedly lower treatment costs than our products, or otherwise suggest that their products are safer, more effective or more cost-effective than our products, this may result in a greater level of access for their products relative to our products, which would reduce our sales and harm our results of operations. In some cases, for example, third party payors try to encourage the use of less expensive generic products through their prescription benefits coverage and reimbursement and co-pay policies. Because some of our products compete in a market with both branded and generic products, obtaining and maintaining access and reimbursement coverage for our products may be more challenging than for products that are new chemical entities for which no therapeutic alternatives exist.

Third party pharmacy benefit managers, or PBMs, and payors can limit coverage to specific products on an approved list, or formulary, which might not include all of the approved products for a particular indication, and to exclude drugs from their formularies in favor of competitor drugs or alternative treatments, or place drugs on formulary tiers with higher patient co-pay obligations, and/or to mandate stricter utilization criteria. Formulary exclusion effectively encourages patients and providers to seek alternative treatments, make a complex and time-intensive request for medical exemptions, or pay 100% of the cost of a drug. In addition, in many instances, certain PBMs and third party payors may exert negotiating leverage by requiring incremental rebates, discounts or other concessions from manufacturers in order to maintain formulary positions, which could result in higher gross to net deductions for affected products. In this

regard, we have started to enter into agreements with PBMs and payor accounts regarding formulary coverage for Xyrem and Sunosi, but we cannot guarantee that we will be able to agree to coverage terms with other PBMs and other third party payors.

Payors could decide to exclude Sunosi from formulary coverage lists, impose step edits that require patients to try alternative, including generic, treatments before authorizing payment for Sunosi, limit the types of diagnoses for which coverage will be provided or impose a moratorium on coverage for products while the payor makes a coverage decision. An inability to obtain or maintain adequate formulary positions could increase patient cost-sharing for Sunosi and cause some patients to determine not to use Sunosi. Any delays or unforeseen difficulties in obtaining access or reimbursement approvals could limit patient access, depress therapy adherence rates, and adversely impact our ability to successfully launch Sunosi. If we are unsuccessful in obtaining broad coverage for Sunosi, our anticipated revenue from and growth prospects for Sunosi could be negatively affected. We anticipate similar payor coverage risks with respect to JZP-258, if approved.

In many countries outside the U.S., procedures to obtain price approvals, coverage and reimbursement can take considerable time after the receipt of marketing approval. Many European countries periodically review their reimbursement of medicinal products, which could have an adverse impact on reimbursement status. In addition, we expect that legislators, policymakers and healthcare insurance funds in the EU member states will continue to propose and implement cost-containing measures, such as lower maximum prices, lower or lack of reimbursement coverage and incentives to use cheaper, usually generic, products as an alternative to branded products, to keep healthcare costs down. Moreover, in order to obtain reimbursement for our products in some European countries, including some EU member states, we may be required to compile additional data comparing the cost-effectiveness of our products to other available therapies. If we are unable to maintain favorable pricing and reimbursement approvals in EU member states that represent significant markets, our anticipated revenue from and growth prospects for our products in the EU could be negatively affected. For example, the EC granted marketing authorization for Vyxeos in August 2018 and for Sunosi in January 2020, and, as part of our rolling launches of Vyxeos and Sunosi in Europe, we are making pricing and reimbursement submissions in European countries. If we experience setbacks or unforeseen difficulties in obtaining favorable pricing and reimbursement approvals, planned launches in the affected EU member states would be delayed, which could negatively impact anticipated revenue from and growth prospects for Vyxeos and/or Sunosi.

The pricing of pharmaceutical products has come under increasing scrutiny as part of a global trend toward healthcare cost containment and resulting changes in healthcare law and policy may impact our business in ways that we cannot currently predict, which could have a material adverse effect on our business and financial condition.

Political, economic and regulatory influences are subjecting the healthcare industry in the U.S. to fundamental changes, particularly given the current atmosphere of mounting criticism of prescription drug costs in the U.S. We expect there will continue to be legislative and regulatory proposals to change the healthcare system in ways that could impact our ability to sell our products profitably. For example, we anticipate that the U.S. Congress, state legislatures, and regulators may adopt or accelerate adoption of new healthcare policies and reforms intended to curb healthcare costs, such as federal and state controls on government-funded reimbursement for drugs (including Medicare, Medicaid) and commercial health plans, new or increased requirements to pay prescription drug rebates and penalties to government health care programs, and additional pharmaceutical cost transparency bills that aim to require drug companies to justify their prices through required disclosures. Additionally, proposals made part of proposed legislation and executive rule-making seek to utilize an "international pricing index" as a benchmark to determine the costs and potentially limit the reimbursement of drugs under Medicare Part B to more closely align with international drug prices. If the U.S. were to move to such a pricing system that were to apply to any of our products, our revenues from U.S. sales of such products could decrease.

Legislative and regulatory proposals that have recently been considered include the potential authorization of prescription drug importation from other countries, legislative proposals to limit the terms of patent litigation settlements with generic sponsors, and proposals to define certain conduct around patenting and new product development as unfair competition. All such considerations may adversely affect our business and industry in ways that we cannot accurately predict.

There is also ongoing activity related to the Patient Protection and Affordable Care Act, as amended by the Healthcare and Education Reconciliation Act of 2010, together, the Healthcare Reform Act. The Healthcare Reform Act has substantially changed the way healthcare is financed by both governmental and private insurers. These changes have impacted previously existing government healthcare programs and have resulted in the development of new programs, including Medicare payment-for-performance initiatives. Some of the provisions of the Healthcare Reform Act have yet to be fully implemented, and certain provisions have been subject to judicial and Congressional challenges, as well as efforts by the current presidential administration to repeal or replace certain aspects of the Healthcare Reform Act and to alter the implementation of the Healthcare Reform Act and related laws. We expect that the Healthcare Reform Act and its implementation, efforts to repeal or replace, or invalidate, the Healthcare Reform Act or portions thereof and other healthcare reform measures that may be adopted in the future could have a material adverse effect on our industry generally and on our ability to maintain or increase sales of our products.

If healthcare policies or reforms intended to curb healthcare costs are adopted or if we experience negative publicity with respect to pricing of our products or the pricing of pharmaceutical drugs generally, the prices that we charge for our products, including Xyrem, may be affected, our commercial opportunity may be limited and/or our revenues from sales of our products may be negatively impacted. We have periodically increased the price of Xyrem, most recently in January 2020, and there is no guarantee that we will be able to make similar price adjustments in the future or that price adjustments we have taken or may take in the future will not negatively affect Xyrem sales volumes and revenues from Xyrem. We also have made and may in the future make similar price increases on our other products. There is no guarantee that such price increases will not negatively affect our reputation and our ability to secure and maintain reimbursement coverage for our products, which could limit the prices that we charge for our products, including Xyrem, limit the commercial opportunities for our products and/or negatively impact revenues from sales of our products.

If we become the subject of any future government investigation or U.S. Congressional hearing with respect to drug pricing or other business practices, we could incur significant expense and could be distracted from operation of our business and execution of our strategy. Any such investigation or hearing could also result in reduced market acceptance and demand for our products, could harm our reputation and our ability to market our products in the future, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We expect that legislators, policymakers and healthcare insurance funds in Europe will continue to propose and implement cost-containing measures to keep healthcare costs down. These measures could include limitations on the prices we will be able to charge for our products or the level of reimbursement available for these products from governmental authorities or third party payors. Further, an increasing number of European and other foreign countries use prices for medicinal products established in other countries as "reference prices" to help determine the price of the product in their own territory. Consequently, a downward trend in prices of medicinal products in some countries could contribute to similar downward trends elsewhere.

In addition to access, coverage and reimbursement, the commercial success of our products depends upon their market acceptance by physicians, patients, third party payors and the medical community.

If physicians do not prescribe our products, we cannot generate the revenues we anticipate from product sales. Market acceptance of each of our products by physicians, patients, third party payors and the medical community depends on:

- the clinical indications for which a product is approved and any restrictions placed upon the product in connection with its approval, such as a REMS, patient registry requirements or labeling restrictions;
- the prevalence of the disease or condition for which the product is approved and its diagnosis;
- the severity of side effects and other risks in relation to the benefits of our products;
- acceptance by physicians and patients of each product as a safe and effective treatment;
- availability of sufficient product inventory to meet demand, particularly with respect to Erwinaze;
- physicians' decisions relating to treatment practices based on availability of product, particularly with respect to Erwinaze;
- perceived advantages over alternative treatments;
- relative convenience and ease of administration;
- with respect to Xyrem, physician and patient assessment of the burdens associated with obtaining or maintaining the certifications required under the Xyrem REMS;
- the cost of treatment in relation to alternative treatments, including generic products; and
- the availability of financial or other assistance for patients who are uninsured or underinsured.

Because of our dependence upon market acceptance of our products, any adverse publicity associated with harm to patients or other adverse events resulting from the use or misuse of any of our products or any similar products distributed by other companies, including generic versions of our products, could materially and adversely affect our business, financial condition, results of operations and growth prospects. For example, from time to time, there is negative publicity about illicit GHB and its effects, including with respect to illegal use, overdoses, serious injury and death. Because sodium oxybate, the API in Xyrem, is a derivative of GHB, Xyrem sometimes also receives negative mention in publicity relating to GHB. JZP-258 includes the same API as Xyrem, but uses a different mixture of salts. Patients, physicians and regulators may therefore view Xyrem or JZP 258, if approved, as the same as or similar to illicit GHB. In addition, there are regulators and some law enforcement agencies that oppose the prescription and use of Xyrem, and potentially other oxybate products generally because of their connection to GHB. Xyrem's label includes information about adverse events from GHB.

Delays or problems in the supply of our products for sale or for use in clinical trials, loss of our single source suppliers or failure to comply with manufacturing regulations could materially and adversely affect our business, financial condition, results of operations and growth prospects.

The manufacture of pharmaceutical products requires significant expertise and capital investment, including the development of process controls required to consistently produce the API and the finished product in sufficient quantities while meeting detailed product specifications on a repeated basis. We and our suppliers may encounter difficulties in production, including difficulties with production costs and yields, process controls, quality control and quality assurance, including testing of stability, impurities and impurity levels and other product specifications by validated test methods, and compliance with strictly enforced U.S., state and non-U.S. regulations. In addition, we and our suppliers are subject to the FDA's current Good Manufacturing Practices, or cGMP, requirements, DEA regulations and equivalent rules and regulations prescribed by non-U.S. regulatory authorities. If we or any of our suppliers encounter manufacturing, quality or compliance difficulties with respect to any of our products, we may be unable to obtain or maintain regulatory approval or meet commercial demand for such products, which could adversely affect our business, financial condition, results of operations and growth prospects. In addition, we could be subject to enforcement action by regulatory authorities for our failure to comply with cGMP with respect to the products we manufacture in our facilities as well as for our failure to adequately oversee compliance with cGMP by any of our third party suppliers operating under contract. Moreover, failure to comply with applicable legal and regulatory requirements subjects us and our suppliers to possible regulatory action, including restrictions on supply or shutdown, which may adversely affect our or a supplier's ability to supply the ingredients or finished products we need.

We have a manufacturing and development facility in Ireland where we manufacture Xyrem and development-stage oxybate products, including JZP-258, and a manufacturing plant in Italy where we produce the defibrotide drug substance. We currently do not have our own commercial manufacturing or packaging capability for our other products, product candidates or their APIs. As a result, our ability to develop and supply products in a timely and competitive manner depends primarily on third party suppliers being able to meet our ongoing commercial and clinical trial needs for API, other raw materials, packaging materials and finished products.

In part due to the limited market size for our products and product candidates, we have a single source of supply for most of our marketed products, product candidates and their APIs. Single sourcing puts us at risk of interruption in supply in the event of manufacturing, quality or compliance difficulties. If one of our suppliers fails or refuses to supply us for any reason, it would take a significant amount of time and expense to implement and execute the necessary technology transfer to, and to qualify, a new supplier. The FDA and similar international or national regulatory bodies must approve manufacturers of the active and inactive pharmaceutical ingredients and certain packaging materials used in our products. If there are delays in qualifying new suppliers or facilities or a new supplier is unable to meet FDA's or similar international regulatory body's requirements for approval, there could be a shortage of the affected products for the marketplace or for use in clinical studies, or both, which could negatively impact our anticipated revenues and could potentially cause us to breach contractual obligations with customers or to violate local laws requiring us to deliver the product to those in need.

Erwinaze is licensed from, and manufactured for us by, a single source, PBL. A continuing and significant challenge to maintaining sales of Erwinaze and a barrier to increasing sales is PBL's inability to consistently supply product that meets specifications in quantities that are adequate to meet market demand. All Erwinaze that PBL has been able to supply is currently completely absorbed by demand for the product, and erratic supply patterns have prevented us from meeting patient demand in some markets or from being able to expand to new markets or indications. As a consequence, there is no product inventory that can be used to absorb supply disruptions resulting from quality, manufacturing, regulatory or other issues. PBL has experienced and continues to experience product quality and manufacturing issues that have resulted, and continue to result, in disruptions in our ability to supply markets from time to time and have caused, and may in the future cause, us to implement batch-specific, modified product use instructions. We experienced limited product availability of Erwinaze and supply disruptions globally in 2019 and may experience continued supply disruptions in 2020. In addition, the FDA has issued a warning letter and FDA Forms 483 to PBL citing, among other things, significant violations of cGMP for finished pharmaceuticals and significant deviations from cGMP for APIs. We cannot predict whether the required remediation activities by PBL in connection with its prior warning letter and FDA Forms 483 will further strain PBL's manufacturing capacity or otherwise further adversely affect Erwinaze supply.

As capacity constraints and supply disruptions continue, whether as a result of continued quality or manufacturing challenges at PBL, regulatory issues or an inability to enforce our contractual rights, we will be unable to build product inventory, our ability to supply the market will continue to be compromised and physicians' decisions to use Erwinaze will continue to be negatively impacted. In addition, any inability to comply with regulatory requirements of the FDA, the UK Medicines and Healthcare Products Regulatory Agency, or MHRA, or other competent authorities in the EU member states in which Erwinaze is subject to marketing authorizations, including any failure by PBL to correct the violations and deviations referenced above to the satisfaction of the FDA, or failure to meet regulatory specifications for the product, could further adversely affect Erwinaze supply, particularly in light of the historical limitations on the supply of Erwinaze, and could result in enforcement actions by the FDA, the MHRA or other EU member states' competent authorities (including the issuance of the local

equivalents of FDA Form 483s or warning letters), the approval of the FDA or other competent authorities being suspended, varied, or revoked, product release being delayed or suspended, including potentially the FDA refusing admission of Erwinaze in the U.S., or product being seized or recalled. Any of these actions could have a material adverse effect on our sales of, and revenues from, Erwinaze and further limit our future maintenance and potential growth of the market for this product.

Vyxeos is manufactured by Baxter Oncology GmbH, or Baxter, which is a sole source supplier from a single site location. Baxter has experienced batch failures due to mechanical, component and other issues in the production of Vyxeos, and batches have been produced that have otherwise not been in compliance with applicable specifications. We are continuing to work with Baxter to address manufacturing complexities related to Vyxeos. Moreover, the proprietary technology that supports the manufacture of Vyxeos is not easily transferable. Consequently, engaging an alternate manufacturer may be difficult, costly and time-consuming. If we fail to obtain a sufficient supply of Vyxeos in accordance with applicable specifications on a timely basis, our sales of and revenues from Vyxeos, our future maintenance and potential growth of the market for this product, our ability to conduct ongoing and future clinical trials of Vyxeos, and our business, financial condition, results of operations and growth prospects could be materially adversely affected. In addition, while the APIs in Vyxeos, daunorubicin and cytarabine, are available from a number of suppliers, certain suppliers have received warning letters from the FDA. As a result, we have qualified other suppliers for each API, and we provided the qualification data to the FDA. If the FDA restricts importation of API from either supplier, and we are unable to qualify API from additional suppliers in a timely manner, or at all, our ability to successfully commercialize Vyxeos and generate sales of this product at the level we expect and to conduct ongoing and future clinical trials of Vyxeos could be materially and adversely affected.

In addition, in order to conduct our ongoing and any future clinical trials of, complete marketing authorization submissions for, and potentially launch our other product candidates, we also need to have sufficient quantities of product manufactured. Moreover, to obtain approval from the FDA or a similar international or national regulatory body of any product candidate, we or our suppliers for that product must obtain approval by the applicable regulatory body to manufacture and supply product, in some cases based on qualification data provided to the applicable body as part of our regulatory submission. Any delay in generating, or failure to generate, data required in connection with submission of the chemistry, manufacturing and controls portions of any regulatory submission could negatively impact our ability to meet our anticipated submission dates, and therefore our anticipated timing for obtaining FDA or similar international or national regulatory body approval, or our ability to obtain regulatory approval at all. In addition, any failure of us or a supplier to obtain approval by the applicable regulatory body to manufacture and supply product or any delay in receiving, or failure to receive, adequate supplies of a product on a timely basis or in accordance with applicable specifications could negatively impact our ability to successfully launch and commercialize products and generate sales of products at the levels we expect.

Risks Related to Growth of Our Product Portfolio and Research and Development

Our future success depends on our ability to successfully develop and obtain and maintain regulatory approval in the U.S. and Europe for our late-stage product candidates and, if approved, to successfully launch and commercialize those product candidates.

The testing, manufacturing and marketing of our products require regulatory approvals, including approval from the FDA and similar bodies in Europe and other countries. Obtaining marketing approval is a lengthy, expensive and uncertain process and approval is never assured. Our inability to obtain and maintain regulatory approval for our product candidates in the U.S. and Europe and to successfully commercialize new products that are approved would have a material adverse effect on our business, financial condition, results of operations and growth prospects.

In January 2020, we submitted to the FDA our NDA for JZP-258. Delay or failure in obtaining approval of JZP-258 could have a negative impact on our ability to recoup our research and development costs and to successfully commercialize JZP-258, which could materially and adversely affect our business, financial condition, results of operations and growth prospects. In December 2019, Pharma Mar, S.A., the company from whom we obtained exclusive U.S. development and commercialization rights to lurbinectedin, submitted an NDA to the FDA in December 2019 for accelerated approval of lurbinectedin for relapsed small cell lung cancer, and in February 2020, the FDA accepted the NDA for filing with priority review. Delay or failure in obtaining approval of lurbinectedin could have a negative impact on our ability to receive a return on our investment in that product candidate and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We are pursuing activities related to the development of improved asparaginase products for patients with ALL or other hematological malignancies. Several of our external research and development collaborations are focused on these efforts, including our agreement with Pfenex, Inc., or Pfenex. Among the product candidates in collaboration with Pfenex is JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the potential treatment of ALL and lymphoblastic lymphoma who have hypersensitivity to *E. coli*-derived asparaginase. We also have clinical development efforts focused on expanding the potential of Defitelio, Vyxeos and Sunosi, as well as clinical development efforts focused on JZP-385 for the treatment of essential tremor. Because combination regimens and the continual

generation of new data have become particularly important in AML, if we are unable to initiate multiple combination studies, safely combine Vyxeos with novel agents, or if efficacy results do not meet clinicians' expectations, our growth prospects could be materially adversely affected. If we are not successful in the clinical development of our product candidates, if we are unable to obtain regulatory approval for our product candidates in a timely manner, or at all, or if sales of an approved product do not reach the levels we expect, our anticipated revenue from our product candidates would be negatively affected, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We may not be able to successfully identify and acquire or in-license additional products or product candidates to grow our business, and, even if we are able to do so, we may otherwise fail to realize the anticipated benefits of these transactions.

In addition to continued investment in our research and development pipeline, we intend to grow our business by acquiring or in-licensing, and developing, including with collaboration partners, additional products and product candidates that we believe are highly differentiated and have significant commercial potential. However, we may be unable to identify or consummate suitable acquisition or in-licensing opportunities, and this inability could impair our ability to grow our business. Other companies, many of which may have substantially greater financial, sales and marketing resources, compete with us for these opportunities. Even if appropriate opportunities are available, we may not be able to successfully identify them, or we may not have the financial resources necessary to pursue them.

Even if we are able to successfully identify and acquire, in-license or develop additional products or product candidates, we may not be able to successfully manage the risks associated with integrating any products or product candidates into our portfolio or the risks arising from anticipated and unanticipated problems in connection with an acquisition or in-licensing. Further, while we seek to mitigate risks and liabilities of potential acquisitions and in-licensing transactions through, among other things, due diligence, there may be risks and liabilities that such due diligence efforts fail to discover, that are not disclosed to us, or that we inadequately assess. Any failure in identifying and managing these risks, liabilities and uncertainties effectively, could have a material adverse effect on our business, results of operations and financial condition. In addition, product and product candidate acquisitions, particularly when the acquisition takes the form of a merger or other business consolidation, have required, and any similar future transactions will also require, significant efforts and expenditures, including with respect to transition and integration activities. We may encounter unexpected difficulties, or incur substantial costs, in connection with potential acquisitions and similar transactions, which include:

- the need to incur substantial debt or engage in dilutive issuances of equity securities to pay for acquisitions;
- the potential disruption of our historical core business;
- the strain on, and need to continue to expand, our existing operational, technical, financial and administrative infrastructure;
- the difficulties in integrating acquired products and product candidates into our portfolio;
- the difficulties in assimilating employees and corporate cultures;
- the failure to retain key managers and other personnel;
- the need to write down assets or recognize impairment charges;
- the diversion of our management's attention to integration of operations and corporate and administrative infrastructures; and
- any unanticipated liabilities for activities of or related to the acquired business or its operations, products or product candidates.

As a result of these or other factors, products or product candidates we acquire, or obtain licenses to, may not produce the revenues, earnings or business synergies that we anticipated, acquired or in-licensed product candidates may not result in regulatory approvals, and acquired or licensed products may not perform as expected. Failure to manage effectively our growth through acquisitions or in-licensing transactions could adversely affect our growth prospects, business, results of operations and financial condition.

Conducting clinical trials is costly and time-consuming, and the outcomes are uncertain. A failure to prove that our product candidates are safe and effective in clinical trials, or to generate data in clinical trials to support expansion of the therapeutic uses for our existing products, could materially and adversely affect our business, financial condition, results of operations and growth prospects.

As a condition to regulatory approval, each product candidate must undergo extensive and expensive preclinical studies and clinical trials to demonstrate to a statistically significant degree that the product candidate is safe and effective. The results at any stage of the development process may lack the desired safety, efficacy or pharmacokinetic characteristics. If the FDA determines that the safety or efficacy data submitted for the NDAs for JZP-258 or lurbinectedin, or to be submitted in the planned biologics license application, or BLA, for JZP-458, do not warrant marketing approval, we may be required to conduct additional clinical trials, which could be costly and time-consuming. Even if we believe we have successfully completed testing, the FDA or any equivalent non-U.S. regulatory agency may

determine our data is not sufficiently compelling to warrant marketing approval for the indications sought, if at all, and may require us to engage in additional clinical trials or provide further analysis which may be costly and time-consuming. Any adverse events or other data generated during the course of clinical trials of our product candidates and/or clinical trials related to additional indications for our commercialized products could result in action by the FDA or a non-U.S. regulatory agency, which may restrict our ability to sell, or adversely affect sales of, currently marketed products, or such events or other data could otherwise have a material adverse effect on a related commercial product, including with respect to its safety profile. Any failure or delay in completing such clinical trials could materially and adversely affect the maintenance and growth of the markets for the related marketed products, which could adversely affect our business, financial condition, results of operations and overall growth prospects.

In addition to issues relating to the results generated in clinical trials, clinical trials can be delayed or halted for a variety of reasons, including:

- difficulty identifying, recruiting or enrolling eligible patients, often based on the number of clinical trials, particularly in hematology and oncology, with enrollment criteria targeting the same patient population;
- difficulty identifying a clinical development pathway, including viable indications and appropriate clinical trial protocol design, particularly where there is no applicable regulatory precedent;
- delays or failures in obtaining regulatory authorization to commence a trial because of safety concerns of regulators relating to our product candidates or similar product candidates of our competitors or failure to follow regulatory guidelines;
- delays or failures in obtaining clinical materials and manufacturing sufficient quantities of the product candidate for use in trials;
- delays or failures in reaching agreement on acceptable terms with prospective study sites;
- delays or failures in obtaining approval of our clinical trial protocol from an institutional review board, known as an ethics committee in Europe, to conduct a clinical trial at a prospective study site;
- failure of our clinical trials and clinical investigators, including contract research organizations or other third parties assisting us with clinical trials, to satisfactorily perform their contractual duties, meet expected deadlines and comply with the FDA and other regulatory agencies' requirements, including good clinical practices;
- unforeseen safety issues;
- inability to monitor patients adequately during or after treatment;
- difficulty monitoring multiple study sites; or
- insufficient funds to complete the trials.

The regulatory approval process is expensive, time-consuming and uncertain and may prevent us or our partners from obtaining and maintaining approvals for the commercialization of some or all of our product candidates.

We are not permitted to market a pharmaceutical product in the U.S. or in the EU member states until we receive approval from the FDA or a marketing authorization from the EC or the competent authorities of the EU member states, as applicable. If the FDA, the EC or the competent authorities of the EU member states determine that our quality, safety or efficacy data do not warrant marketing approval for a product candidate such as JZP-258, we could be required to conduct additional clinical trials as a condition to receiving approval, which could be costly and time-consuming and could delay or preclude the approval of our application. Any delay or failure in obtaining approval of a product candidate, our receipt of approval for narrower indications than sought, or burdens in an approved label such as a boxed warning, could have a negative impact on our ability to recoup our research and development costs and to successfully commercialize that product, any of which could materially and adversely affect our business, financial condition, results of operations and growth prospects.

In May 2018, we purchased a rare pediatric disease priority review voucher for $110.0 million, which we redeemed in connection with the submission of our NDA for JZP-258 in January 2020. However, the redemption of our rare pediatric disease priority review voucher may not result in faster review or approval for JZP-258 compared to products considered for approval under conventional FDA procedures and, in any event, does not assure ultimate approval of JZP-258 by FDA. For example, the FDA could determine that our application is not sufficient to support approval with the label we have requested, and require amendments or additional data, which could delay or preclude the approval of our NDA.

Even if we receive approval of a product, regulatory authorities may impose significant labeling restrictions or requirements, including limitations on the dosing of the product, requirements around the naming or strength of a product, restrictions on indicated uses for which we may market the product, the imposition of a boxed warning or other warnings and precautions, and/or the requirement for a REMS to ensure that the benefits of the drug outweigh the risks. The FDA requires a REMS and a boxed warning for Xyrem, and similar restrictions

could be imposed on other products in the future. For example, we expect that the FDA will require a REMS for approval of JZP-258. Regulatory authorities may also impose post-marketing obligations as part of their approval, which may lead to additional costs and burdens associated with commercialization of the drug, and may pose a risk to maintaining approval of the drug. We are subject to certain post-marketing requirements and commitments in connection with the approval of certain of our products, including Defitelio, Erwinaze, Vyxeos and Sunosi. These post-marketing requirements and commitments include satisfactorily conducting multiple post-marketing clinical trials and safety studies. In the event that we are unable to comply with our post-marketing obligations imposed as part of the marketing approvals in the U.S. or EU, our approval may be varied, suspended or revoked, product supply may be delayed and our sales of and revenues from our products could be materially adversely affected.

Risks Related to Our Intellectual Property

It is difficult and costly to protect our proprietary rights, and we may not be able to ensure their protection.

Our commercial success depends in part on obtaining, maintaining and defending intellectual property protection for our products and product candidates, including protection of their use and methods of manufacturing and distribution. Our ability to protect our products and product candidates from unauthorized making, using, selling, offering to sell or importation by third parties depends on the extent to which we have rights under valid and enforceable patents or have adequately protected trade secrets that cover these activities.

The degree of protection to be afforded by our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- our patent applications, or those of our licensors or partners, may not result in issued patents;
- others may independently develop similar or therapeutically equivalent products without infringing our patents, or those of our licensors, such as products that are not covered by the claims of our patents, or for which we do not have adequate exclusive rights under our license agreements;
- our issued patents, or those of our licensors or partners, may be held invalid or unenforceable as a result of legal challenges by third parties or may be vulnerable to legal challenges as a result of changes in applicable law;
- we or our licensors or partners might not have been the first to invent or file, as appropriate, subject matters covered by our issued patents or pending patent applications or those of our licensors or partners;
- competitors may manufacture products in countries where we have not applied for patent protection or that have a different scope of patent protection or that do not respect our patents; or
- others may be issued patents that prevent the sale of our products or require licensing and the payment of significant fees or royalties.

Patent enforcement generally must be sought on a country-by-country basis, and issues of patent validity and infringement may be judged differently in different countries. For example, in the EU, approval of a generic pharmaceutical product can occur independently of whether the reference brand product is covered by patents, and enforcement of such patents generally must await approval and an indication that the generic product is being offered for sale.

Changes in either the patent laws or in interpretations of patent laws in the U.S. and other countries may diminish the value of our intellectual property portfolio. Even if we are able to obtain patents covering our products and product candidates, any patent may be challenged, and potentially invalidated or held unenforceable, including through patent litigation or through patent office procedures that permit challenges to patent validity. Patents can also be circumvented, potentially including by FDA approval of an ANDA or Section 505(b)(2) application that avoids infringement of our intellectual property.

We have settled patent litigation with nine companies seeking to introduce generic versions of Xyrem in the U.S. by granting those companies licenses to launch their generic products (and in certain cases, an authorized generic version of Xyrem) in advance of the expiration of the last of our patents. Notwithstanding our Xyrem patents and settlement agreements, additional third parties may also attempt to introduce generic versions of Xyrem or other sodium oxybate products for treatment of cataplexy and/or EDS in narcolepsy that design around our patents or assert that our patents are invalid or otherwise unenforceable. Such third parties could launch a generic or 505(b)(2) product referencing Xyrem before the dates provided in our patents or settlement agreements. For example, we have several method of use patents listed in the FDA's publication "Approved Drug Products with Therapeutic Equivalence Evaluations," or the Orange Book, that expire in 2033 that cover treatment methods included in the Xyrem label related to a drug-drug interaction, or DDI, with divalproex sodium. Although the FDA has stated, in granting a Citizen Petition we submitted in 2016, that it would not approve any sodium oxybate ANDA referencing Xyrem that does not include the portions of the currently approved Xyrem label related to the DDI patents, we cannot predict whether a future ANDA filer, or a company that files a Section 505(b)(2) application for a drug referencing Xyrem, may

pursue regulatory strategies to avoid infringing our DDI patents notwithstanding the FDA's response to the Citizen Petition, or whether any such strategy would be successful. Likewise, we cannot predict whether we will be able to maintain the validity of these patents or will otherwise obtain a judicial determination that a generic or other sodium oxybate product, its package insert or the generic sodium oxybate REMS or another separate REMS will infringe any of our patents or, if we prevail in proving infringement, whether a court will grant an injunction that prevents a future ANDA filer or other company introducing a different sodium oxybate product from marketing its product, or instead require that party to pay damages in the form of lost profits or a reasonable royalty.

Since Xyrem's regulatory exclusivity has expired in the EU, we are aware that generic or hybrid generic applications have been approved by various EU regulatory authorities, and additional generic or hybrid generic applications may be submitted and approved. We cannot predict whether our licensee in the EU will be able to enforce our existing European patents against generic or hybrid generic filers in the EU.

We also currently rely on trade secret protection for several of our products, including Erwinaze and Defitelio. Trade secret protection does not protect information or inventions if another party develops that information or invention independently, and establishing that a competitor developed a product through trade secret misappropriation rather than through legitimate means may be difficult to prove. Trade secret protection also requires that information be secret and subject to reasonable efforts to maintain secrecy, and this requirement may come into conflict with requirements to provide information to employees, consultants, business partners, and regulatory bodies. We seek to protect our trade secrets and other unpatented proprietary information in part through confidentiality and invention agreements with our employees, consultants, advisors and partners. Nevertheless, our employees, consultants, advisors and partners may unintentionally or willfully disclose our proprietary information to competitors, and we may not have adequate remedies for such disclosures. Moreover, if a dispute arises with our employees, consultants, advisors or partners over the ownership of rights to inventions, including jointly developed intellectual property, we could lose patent protection or the confidentiality of our proprietary information, and possibly also lose the ability to pursue the development of certain new products or product candidates.

In some instances, we also rely on regulatory exclusivity to protect our commercial position. For example, Erwinaze was granted orphan drug exclusivity by the FDA for the treatment of ALL in the U.S. for a seven-year period from its FDA approval, which had precluded approval of another product with the same principal molecular structure for the same indication until November 2018. As a biologic product approved under a BLA, Erwinaze is also subject to the U.S. Biologics Price Competition and Innovation Act, or BPCIA, and accordingly should be protected by exclusivity that prevents approval of a biosimilar in the U.S. through late 2023 under the BPCIA. However, interpretation of regulatory exclusivity under the BPCIA may evolve over time based on FDA issuance of guidance documents, proposed regulations or decisions made by the FDA in the course of considering specific applications. In addition, the BPCIA exclusivity period does not prevent another company from independently developing a product that is highly similar to Erwinaze, generating all the data necessary for a full BLA and seeking approval. As a result, it is possible that a potential competing drug product might obtain FDA approval before the expected BPCIA exclusivity period has expired, which would adversely affect our sales of Erwinaze if we are able to maintain our marketing rights to that product. In the EU, the regulatory data protection that provides an exclusivity period for Erwinase has lapsed. Any new marketing authorizations for Erwinase in other EU member states will not receive any regulatory data protection. If a biosimilar product to Erwinaze is approved as interchangeable to Erwinaze in the U.S. or in other countries where Erwinaze is sold, a significant percentage of the prescriptions that could be filled by Erwinaze, if commercially available, may be filled with the biosimilar version, resulting in a loss in sales of Erwinaze, and there may be a decrease in the price at which Erwinaze can be sold. Competition from a biosimilar product to Erwinaze could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We have incurred and may in the future incur substantial costs as a result of litigation or other proceedings relating to patents, other intellectual property rights and related matters, and we may be unable to protect our rights to, or commercialize, our products.

Our ability, and that of our partners, to commercialize any approved products will depend, in part, on our ability to obtain patents, enforce those patents and operate without infringing the proprietary rights of third parties. If we choose to go to court to stop a third party from infringing our patents, our licensed patents or our partners' patents, that third party has the right to ask the court or an administrative agency to rule that these patents are invalid and/or should not be enforced. These lawsuits and administrative proceedings are expensive and consume time and other resources, and we may not be successful in these proceedings or in stopping infringement. In addition, the inter partes review, or IPR, process under the Leahy-Smith America Invents Act permits any person, whether they are accused of infringing the patent at issue or not, to challenge the validity of certain patents through a proceeding before the Patent Trial and Appeal Board, or PTAB, of the U.S. Patent and Trademark Office.

There is a risk that a court or the PTAB could decide that our patents or certain claims in our patents are not valid or infringed, and that we do not have the right to stop a third party from using the inventions covered by those claims, as happened with six of our patents covering the Xyrem REMS, which were invalidated through the IPR process and delisted from the Orange Book. In addition, even if we

prevail in establishing that another product infringes a valid claim of one of our patents, a court may determine that we can be compensated for the infringement in damages, and refuse to issue an injunction. As a result, we may not be entitled to stop another party from infringing our patents for their full term.

Litigation involving patent matters is frequently settled between the parties, rather than continuing to a court ruling, and we have settled patent litigation with all nine Xyrem ANDA filers. The FTC has publicly stated that, in its view, certain types of agreements between branded and generic pharmaceutical companies related to the settlement of patent litigation or the manufacture, marketing and sale of generic versions of branded drugs violate the antitrust laws and has commenced investigations and brought actions against some companies that have entered into such agreements. In particular, the FTC has expressed its intention to take aggressive action to challenge settlements that include an alleged transfer of value from the brand company to the generic company (so-called "pay for delay" patent litigation settlements). The U.S. Congress and state legislatures have also identified pharmaceutical patent settlements as potential impediments to generic competition and have introduced, and in states like California passed, legislation to regulate them. Third party payors have also challenged such settlements on the grounds that they increase drug prices. Because there is currently no precise legal standard with respect to the lawfulness of such settlements, there could be extensive litigation over whether any settlement that we have entered into or might enter into in the future constitutes a reasonable and lawful patent settlement. Parties to such settlement agreements in the U.S. are required by law to file the agreements with the FTC and the U.S. Department of Justice, or DOJ, for review. Accordingly, we have submitted our ANDA litigation settlement agreements to the FTC and the DOJ for review. We may receive formal or informal requests from the FTC regarding our ANDA litigation settlements, and there is a risk that the FTC may commence a formal investigation or action against us, or a third party may initiate civil litigation regarding such settlements, which could divert the attention of management and cause us to incur significant costs, regardless of the outcome. Any claim or finding that we or our business partners have failed to comply with applicable laws and regulations could be costly to us and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

A third party may claim that we or our manufacturing or commercialization partners are using inventions covered by the third party's patent rights, or that we or such partners are infringing, misappropriating or otherwise violating other intellectual property rights, and may go to court to stop us from engaging in our normal operations and activities, including making or selling our products. Such lawsuits are costly and could affect our results of operations and divert the attention of management and development personnel. There is a risk that a court could decide that we or our partners are infringing, misappropriating or otherwise violating third party patent or other intellectual property rights, which could be very costly to us and have a material adverse effect on our business. If we are sued for patent infringement, we would need to demonstrate that our products or methods do not infringe the patent claims of the relevant patent and/or that the patent claims are invalid or unenforceable, which we may not be able to do.

Other Risks Related to Our Business and Industry

We have substantially expanded our international footprint and operations, and we may expand further in the future, which subjects us to a variety of risks and complexities which, if not effectively managed, could negatively affect our business.

We are headquartered in Dublin, Ireland and have multiple offices in the U.S., Canada, the UK, Italy and other countries in Europe. We may further expand our international operations into other countries in the future, either organically or by acquisition. Conducting our business in multiple countries subjects us to a variety of risks and complexities that may materially and adversely affect our business, results of operations, financial condition and growth prospects, including:

- the diverse regulatory, financial and legal requirements in the countries where we are located or do business, and any changes to those requirements;
- challenges inherent in efficiently managing employees in diverse geographies, including the need to adapt systems, policies, benefits and compliance programs to differing labor and employment law and other regulations, as well as maintaining positive interactions with our unionized employees;
- costs of, and liabilities for, our international operations, products or product candidates; and
- public health risks, such as the recent spread in China of coronavirus in early 2020 and potential related effects on supply chain, travel and employee health and availability.

In addition, there can be no guarantee that we will effectively manage the increasing, global complexity of our business without experiencing operating inefficiencies or control deficiencies. Our failure to do so could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The UK's withdrawal from the EU, commonly referred to as Brexit, could increase our cost of doing business, reduce our gross margins or otherwise negatively impact our business and our financial results.

Brexit will continue to create significant uncertainty concerning the future relationship between the UK and the EU, particularly if the recent UK withdrawal from the EU in January 2020 is followed by a failure to agree to a future trading relationship between the EU and the UK. Since a significant portion of the regulatory framework in the UK is derived from EU laws, Brexit could materially impact the regulatory regime with respect to the development, manufacture, importation, approval and commercialization of our product candidates in the UK or the EU. For example, there is a risk that the scope of a marketing authorization for a medicinal product granted by the EC or by the competent authorities of EU member states will not encompass the UK. In these circumstances, a separate authorization granted by the UK competent authorities will be required to place medicinal products on the UK market. In addition, our ability to rely on UK manufacturing sites for products intended for the EU market will depend on the terms of the trade agreements concluded between the EU and the UK in the coming months and, potentially, on the ability to obtain relevant exemptions under EU law to supply the EU market with products manufactured at UK-certified sites. There is also the risk that if batch release and quality control testing sites for our products are located only in the UK, manufacturers will need to use sites in other EU member states to manufacture products for supply to the EU market. All of these changes, if they occur, could increase our costs and otherwise adversely affect our business. In addition, currency exchange rates for the British Pound and the euro with respect to each other and to the U.S. dollar have already been, and may be continue to be, negatively affected by Brexit, which could cause volatility in our quarterly financial results.

We have an office in Oxford, England, which is focused on commercialization of our products outside of the U.S. We do not know to what extent, or when, the UK's recent withdrawal from the EU will impact our business, particularly our ability to conduct international business from a base of operations in the UK. The UK could lose the benefits of global trade agreements negotiated by the EU on behalf of its members, possibly resulting in increased trade barriers, which could make doing business in Europe more difficult and/or costly. Moreover, in the U.S., tariffs on certain U.S. imports have recently been imposed, and the EU and other countries have responded with retaliatory tariffs on certain U.S. exports. We cannot predict what effects these and potential additional tariffs will have on our business, including in the context of escalating global trade and political tensions. However, these tariffs and other trade restrictions, whether resulting from the UK's withdrawal from the EU or otherwise, could increase our cost of doing business, reduce our gross margins or otherwise negatively impact our business and our financial results.

If we fail to attract, retain and motivate key personnel or to retain the members of our executive management team, our operations and our future growth may be adversely affected.

Our success and our ability to grow depend in part on our continued ability to attract, retain and motivate highly qualified personnel, including our executive management team. We do not carry "key person" insurance. The loss of services and institutional knowledge of one or more additional members of our executive management team or other key personnel could delay or prevent the successful completion of some of our vital activities and may negatively impact our operations and future growth. In addition, changes in our organization as a result of executive management transition may have a disruptive impact on our ability to implement our strategy. Until we integrate new personnel, and unless they are able to succeed in their positions, we may be unable to successfully manage and grow our business. In any event, if we are unable to attract, retain and motivate quality individuals, or if there are delays, or if we do not successfully manage personnel and executive management transitions, our business, financial condition, results of operations and growth prospects could be adversely affected.

Significant disruptions of information technology systems or data security breaches could adversely affect our business.

In the ordinary course of our business, we collect, store, process and transmit large amounts of confidential information, including intellectual property, proprietary business information and personal information. We have also outsourced some of our operations (including parts of our information technology infrastructure) to a number of third party vendors who may have, or could gain, access to our confidential information. In addition, many of those third parties, in turn, subcontract or outsource some of their responsibilities to third parties.

Our information technology systems, and those of our vendors, are large and complex and store large amounts of confidential information. The size and complexity of these systems make them potentially vulnerable to service interruptions or to security breaches from inadvertent or intentional actions by our employees, third party vendors and/or business partners, or from cyber-attacks by malicious third parties. Attacks of this nature are increasing in frequency, persistence, sophistication and intensity, and are being conducted by sophisticated and organized groups and individuals with a wide range of motives (including, but not limited to, industrial espionage) and expertise, including organized criminal groups, "hacktivists," nation states and others. In addition to the extraction of important information, such attacks could include the deployment of harmful malware, ransomware, denial-of-service attacks, social engineering and other means to affect service reliability and threaten the confidentiality, integrity and availability of our information. Although the aggregate impact on our

operations and financial condition has not been material to date, we and our vendors have been the target of events of this nature and expect them to continue.

Significant disruptions of our, our third party vendors' and/or business partners' information technology systems or security breaches could adversely affect our business operations and/or result in the loss, misappropriation, and/or unauthorized access, use or disclosure of, or the prevention of access to, confidential information (including trade secrets or other intellectual property, proprietary business information and personal information), and could result in financial, legal, business and reputational harm to us. Any such event that leads to unauthorized access, use or disclosure of personal information, including personal information regarding our patients or employees, could harm our reputation, compel us to comply with federal and/or state breach notification laws and foreign law equivalents, subject us to mandatory corrective action, require us to verify the correctness of database contents and otherwise subject us to liability under laws and regulations that protect the privacy and security of personal information, which could disrupt our business, result in increased costs or loss of revenue, and/or result in significant legal and financial exposure. In addition, security breaches and other inappropriate access can be difficult to detect, and any delay in identifying them may further harm us. Moreover, the prevalent use of mobile devices to access confidential information increases the risk of security breaches. While we have implemented security measures to protect our information technology systems and infrastructure, there can be no assurance that such measures will prevent service interruptions or security breaches that could adversely affect our business. In addition, failure to maintain effective internal accounting controls related to security breaches and cybersecurity in general could impact our ability to produce timely and accurate financial statements and subject us to regulatory scrutiny.

We are subject to significant ongoing regulatory obligations and oversight, which may result in significant additional expense and limit our ability to commercialize our products.

FDA and Equivalent Non-U.S. Regulatory Authorities

Our activities are subject to extensive regulation encompassing the entire life cycle of our products, from research and development activities to marketing approval (including specific post-marketing obligations), manufacturing, labeling, packaging, adverse event and safety reporting, storage, advertising, promotion, sale, pricing and reimbursement, recordkeeping, distribution, importing and exporting. The failure by us or any of our third party partners, including our corporate development and collaboration partners, clinical trial sites, suppliers, distributors and our central pharmacy for Xyrem, to comply with applicable requirements could subject us to administrative or judicial sanctions or other negative consequences, such as delays in approval or refusal to approve a product candidate, restrictions on our products, our suppliers, our other partners or us, the withdrawal, suspension or variation of product approval or manufacturing authorizations, untitled letters, warning letters, fines and other monetary penalties, unanticipated expenditures, product recall, withdrawal or seizure, total or partial suspension of production or distribution, interruption of manufacturing or clinical trials, operating restrictions, injunctions, suspension of licenses, civil penalties and/or criminal prosecution, any of which could result in a significant drop in our revenues from the affected products and harm to our reputation and could have a significant impact on our sales, business and financial condition.

We monitor adverse events resulting from the use of our products, as do the regulatory authorities, and we file periodic reports with the authorities concerning adverse events. The authorities review these events and reports, and if they determine that any events and/or reports indicate a trend or signal, they can require a change in a product label, restrict sales and marketing and/or require or conduct other actions, potentially including variation, withdrawal or suspension of the marketing authorization, any of which could result in reduced market acceptance and demand for our products, could harm our reputation and our ability to market our products in the future, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects. The FDA and the competent authorities of the EU member states on behalf of the European Medicines Agency, or EMA, also periodically inspect our records related to safety reporting. The EMA's Pharmacovigilance Risk Assessment Committee may propose to the Committee for Medicinal Products for Human Use that the marketing authorization holder be required to take specific steps or advise that the existing marketing authorization be varied, suspended or revoked. Failure to adequately and promptly correct the observation(s) can result in further regulatory enforcement action, which could include the variation, suspension or withdrawal of marketing authorization or imposition of financial penalties or other enforcement measures.

Erwinaze, defibrotide and Vyxeos are available on a named patient basis or through a compassionate use process in many countries where they are not commercially available. If any such country's regulatory authorities determine that we are promoting such products without proper authorization, we could be found to be in violation of pharmaceutical advertising laws or the regulations permitting sales under named patient programs. In that case, we may be subject to financial or other penalties. Any failure to maintain revenues from sales of Erwinaze, defibrotide and/or Vyxeos on a named patient basis and/or to generate revenues from commercial sales of these products exceeding historical sales on a named patient basis could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The FDA, the competent authorities of the EU member states and other governmental authorities require advertising and promotional materials to be truthful and not misleading, and products to be marketed only for their approved indications and in accordance with the provisions of the approved label. Regulatory authorities actively investigate allegations of off-label promotion in order to enforce regulations prohibiting these types of activities. A determination that we have promoted an approved product for off-label uses could subject us to significant liability, including civil and administrative financial penalties and other remedies as well as criminal financial penalties, other sanctions and imprisonment. Even if we are not determined to have engaged in off-label promotion, an allegation that we have engaged in such activities could have a significant impact on our sales, business and financial condition. The U.S. government has also required companies to enter into complex corporate integrity agreements and/or non-prosecution agreements that impose significant reporting and other burdens on the affected companies. Failure to maintain a comprehensive and effective compliance program, and to integrate the operations of acquired businesses into a combined comprehensive and effective compliance program on a timely basis, could subject us to a range of regulatory actions and/or civil or criminal penalties that could affect our ability to commercialize our products and could harm or prevent sales of the affected products, or could substantially increase the costs and expenses of commercializing and marketing our products.

Other Regulatory Authorities

We are also subject to regulation by other regional, national, state and local agencies, including the DEA, the DOJ, the FTC, the United States Department of Commerce, the Office of Inspector General of the U.S. Department of Health and Human Services, or OIG, and other regulatory bodies, as well as similar governmental authorities in those non-U.S. countries in which we commercialize our products.

We are subject to numerous fraud and abuse laws and regulations globally and our sales, marketing, patient support and medical activities may be subject to scrutiny under these laws and regulations. These laws are described in "Business—Government Regulation" in Part I, Item 1 of this Annual Report on Form 10-K. While we maintain a comprehensive compliance program to try to ensure that our practices and the activities of our third-party contractors and employees fall within the scope of available statutory exceptions and regulatory safe harbors, regulators and enforcement agencies may disagree with our assessment or find fault with the conduct of our employees or contractors. In addition, existing regulations are subject to regulatory revision or changes in interpretation by the DOJ or OIG.

Many companies have faced government investigations or lawsuits by whistleblowers who bring a *qui tam* action under the False Claims Act on behalf of themselves and the government for a variety of alleged improper marketing activities, including providing free product to customers expecting that the customers would bill federal programs for the product, providing consulting fees, grants, free travel and other benefits to physicians to induce them to prescribe the company's products, and inflating prices reported to private price publication services, which are used to set drug reimbursement rates under government healthcare programs. In addition, the government and private whistleblowers have pursued False Claims Act cases against pharmaceutical companies for causing false claims to be submitted as a result of the marketing of their products for unapproved uses. If we become the subject of a government False Claims Act or other investigation or whistleblower suit, we could incur substantial legal costs (including settlement costs) and business disruption responding to such investigation or suit, regardless of the outcome.

Public reporting under the Physician Payment Sunshine Act, or Sunshine, provisions and other similar state laws, the requirements of which are discussed in "Business—Government Regulation" in Part I, Item 1 of this Annual Report on Form 10-K, has resulted in increased scrutiny of the financial relationships between industry, teaching hospitals, physicians and other healthcare providers. Such scrutiny may negatively impact our ability to engage with physicians on matters of importance to us. In addition, government agencies and private entities may inquire about our marketing practices or pursue other enforcement activities based on the disclosures in those public reports. If the data reflected in our reports are found to be in violation of any of the Sunshine provisions or any other U.S. federal, state or local laws or regulations that may apply, or if we otherwise fail to comply with the Sunshine provisions or similar requirements of state or local regulators, we may be subject to significant civil, and administrative penalties, damages or fines.

We have various programs to help patients access our products, including patient assistance programs, which include co-pay coupons for certain of our products, assistance to help patients determine their insurance coverage for our products, and a free product program. Co-pay coupon programs for commercially insured patients, including our program for Xyrem, have received negative publicity related to allegations regarding their use to promote branded pharmaceutical products over other less costly alternatives. In the past, payors brought class action lawsuits challenging the legality of manufacturer co-pay programs under a variety of federal and state laws and insurers have taken actions through their network pharmacies and PBMs to restrict manufacturer co-pay programs. In September 2014, the OIG issued a Special Advisory Bulletin warning manufacturers that they may be subject to sanctions under the federal Anti-Kickback Statute and other laws if they do not take appropriate steps to exclude Medicare Part D beneficiaries from using co-pay coupons. It is possible that changes in insurer policies regarding co-pay coupons and/or the introduction and enactment of new legislation or regulatory action could restrict or otherwise negatively affect these patient support programs, which could result in fewer patients using affected products, including Xyrem, and therefore could have a material adverse effect on our sales, business and financial condition.

We have established programs to consider grant applications submitted by independent charitable organizations, including organizations that provide co-pay support to patients who suffer from the diseases treated by our drugs. The OIG has issued guidance for how pharmaceutical manufacturers can lawfully make donations to charitable organizations who provide co-pay assistance to Medicare patients, provided that such organizations, among other things, are *bona fide* charities, are entirely independent of and not controlled by the manufacturer, provide aid to applicants on a first-come basis according to consistent financial criteria, and do not link aid to use of a donor's product. Although we have structured our programs to follow available guidance, if we or our vendors or donation recipients are deemed to fail to comply with relevant laws, regulations or evolving government guidance in the operation of these programs, such facts could be used as the basis for an enforcement action against us by the federal government or other enforcement agencies or private litigants.

In 2016 and 2017, we received subpoenas from the U.S. Attorney's Office for the District of Massachusetts requesting documents related to our support of charitable organizations that provide financial assistance to Medicare patients. In April 2019, we finalized our civil settlement agreement with the DOJ and OIG, and entered into a corporate integrity agreement requiring us to maintain our ongoing corporate compliance program and obligating us to implement or continue, as applicable, a set of defined corporate integrity activities for a period of five years from the effective date of the corporate integrity agreement. In the event of a breach of the corporate integrity agreement, we could become liable for payment of certain stipulated penalties or could be excluded from participation in federal health care programs, which would have a material adverse effect on our sales, business and financial condition.

We may also become subject to similar investigations by other state or federal governmental agencies or offices of our patient assistance programs or other business practices, which could result in damages, fines, penalties or other criminal, civil or administrative sanctions or enforcement actions, as well as negative publicity, reduction in demand for, or patient access to, our products and/or reduce coverage of our products, including by federal and state health care programs. If any or all of these events occur, our business, financial condition, results of operations and stock price could be materially and adversely affected.

Our business activities outside of the U.S. are subject to the U.S. Foreign Corrupt Practices Act, or FCPA, and similar anti-bribery or anti-corruption laws, regulations or rules of other countries in which we operate, including the UK Bribery Act of 2010, or the UK Bribery Act. In certain countries, the health care providers who prescribe pharmaceuticals are employed by their government and the purchasers of pharmaceuticals are government entities; therefore, our dealings with these prescribers and purchasers may be subject to regulation under the FCPA and the UK Bribery Act. Recently the U.S. Securities and Exchange Commission, or SEC, and the DOJ have increased their FCPA enforcement activities with respect to pharmaceutical companies. Violation of these laws by us or our suppliers and other third party agents for which we may be liable may result in civil or criminal sanctions, which could include monetary fines, criminal penalties, and disgorgement of past profits, which could have a material adverse impact on our business and financial condition.

Outside the U.S., interactions between pharmaceutical companies and physicians are also governed by strict laws, such as national anti-bribery laws of European countries, regulations, industry self-regulation codes of conduct and physicians' codes of professional conduct. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

Xyrem and Sunosi are controlled substances under the Controlled Substances Act. Our suppliers, distributors, clinical sites and prescribers, as well as retail pharmacies for Sunosi and the central pharmacy for Xyrem, are subject to DEA and state regulations relating to manufacturing, storage, distribution and physician prescription procedures, including limitations on prescription refills, and are required to maintain DEA registration and state licenses, when handling these drugs and their APIs. The DEA periodically inspects facilities for compliance with its rules and regulations. Failure to comply with current and future regulations of the DEA, relevant state authorities or any comparable international requirements could lead to a variety of sanctions, including revocation or denial of renewal of DEA registrations, fines, injunctions, or civil or criminal penalties, could result in, among other things, additional operating costs to us or delays in shipments outside or into the U.S. and could have an adverse effect on our business and financial condition.

We are also subject to data protection and privacy laws and regulations governing the processing of personal data. If we or our third party partners fail to comply with applicable data protection and privacy laws and regulations, we could be subject to government enforcement actions and significant penalties against us, criminal and civil liability for us and our officers and directors, private litigation and/or adverse publicity. In addition, our business could be adversely impacted if our ability to transfer personal data outside of the European Economic Area or Switzerland is restricted, which could adversely impact our operating results. In addition, although we are not directly subject to privacy and security requirements under the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, or HIPAA, other than with respect to providing certain employee benefits, we potentially could be subject to criminal penalties if we, our affiliates or our agents knowingly obtain or disclose individually identifiable health information maintained by a HIPAA-covered entity in a manner that is not authorized or permitted by HIPAA.

If we fail to comply with our reporting and payment obligations under the Medicaid Drug Rebate program or other governmental pricing programs, we could be subject to additional reimbursement requirements, penalties, sanctions and fines, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

We participate in the Medicaid Drug Rebate program, the 340B program, the U.S. Department of Veterans Affairs, Federal Supply Schedule, or FSS, pricing program, the Tricare Retail Pharmacy program, and have obligations to report the average sales price for certain of our drugs to the Medicare program. All of these programs are described in more detail under the heading "Business—Pharmaceutical Pricing, Reimbursement by Government and Private Payors and Patient Access" in Part I, Item 1 of this Annual Report on Form 10-K.

Pricing and rebate calculations vary across products and programs, are complex, and are often subject to interpretation by us, governmental or regulatory agencies and the courts, which can change and evolve over time. In the case of our Medicaid pricing data, if we become aware that our reporting for a prior quarter was incorrect, or has changed as a result of recalculation of the pricing data, we are obligated to resubmit the corrected data for up to three years after those data originally were due. Such restatements and recalculations increase our costs for complying with the laws and regulations governing the Medicaid Drug Rebate program and could result in an overage or underage in our rebate liability for past quarters. Price recalculations also may affect the ceiling price at which we are required to offer our products under the 340B program.

Civil monetary penalties can be applied if we are found to have knowingly submitted any false price or product information to the government, if we are found to have made a misrepresentation in the reporting of our average sales price, if we fail to submit the required price data on a timely basis, or if we are found to have charged 340B covered entities more than the statutorily mandated ceiling price. Centers for Medicare and Medicaid Services, or CMS, could also decide to terminate our Medicaid drug rebate agreement, in which case federal payments may not be available under Medicaid or Medicare Part B for our covered outpatient drugs.

Our failure to comply with our reporting and payment obligations under the Medicaid Drug Rebate program and other governmental programs could negatively impact our financial results. CMS issued a final regulation, which became effective on April 1, 2016, to implement the changes to the Medicaid Drug Rebate program under the Healthcare Reform Act. The issuance of the final regulation, as well as any other regulations and coverage expansion by various governmental agencies relating to the Medicaid Drug Rebate program, has increased and will continue to increase our costs and the complexity of compliance, has been and will continue to be time-consuming to implement, and could have a material adverse effect on our results of operations, particularly if CMS challenges the approach we take in our implementation of the final regulation.

The Health Resources and Services Administration, or HRSA, issued a final regulation regarding the calculation of the 340B ceiling price and the imposition of civil monetary penalties on manufacturers that knowingly and intentionally overcharge covered entities, which became effective on January 1, 2019. Implementation of this regulation could affect our obligations and potential liability under the 340B program in ways we cannot anticipate. We are also required to report the 340B ceiling prices for our covered outpatient drugs to HRSA, which then publishes them to 340B covered entities. Any charge by HRSA that we have violated the requirements of the program or the regulation could negatively impact our financial results. Further, any additional future changes to the definition of average manufacturer price and the Medicaid rebate amount under the Healthcare Reform Act or otherwise could affect our 340B ceiling price calculations and negatively impact our results of operations.

We have obligations to report the average sales price for certain of our drugs to the Medicare program. Statutory or regulatory changes or CMS guidance could affect the average sales price calculations for our products and the resulting Medicare payment rate, and could negatively impact our results of operations.

Pursuant to applicable law, knowing provision of false information in connection with price reporting under the U.S. Department of Veterans Affairs, FSS or Tricare Retail Pharmacy, or Tricare, programs can subject a manufacturer to civil monetary penalties. These program obligations also contain extensive disclosure and certification requirements. If we overcharge the government in connection with our arrangements with FSS or Tricare, we are required to refund the difference to the government. Failure to make necessary disclosures and/or to identify contract overcharges can result in allegations against us under the False Claims Act and other laws and regulations. Unexpected refunds to the government, and responding to a government investigation or enforcement action, would be expensive and time-consuming, and could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

Our business and operations could be negatively affected if we become subject to shareholder activism, which could cause us to incur significant expense, hinder execution of our business strategy and impact our stock price.

Shareholder activism, which takes many forms and arises in a variety of situations, has been increasingly prevalent. If we become the subject of certain forms of shareholder activism, such as proxy contests, the attention of our management and our board of directors may be diverted from execution of our strategy. Such shareholder activism could give rise to perceived uncertainties as to our future strategy,

adversely affect our relationships with business partners and make it more difficult to attract and retain qualified personnel. Also, we may incur substantial costs, including significant legal fees and other expenses, related to activist shareholder matters. Our stock price could be subject to significant fluctuation or otherwise be adversely affected by the events, risks and uncertainties of any shareholder activism.

Product liability and product recalls could harm our business.

The development, manufacture, testing, marketing and sale of pharmaceutical products are associated with significant risks of product liability claims or recalls. Side effects or adverse events known or reported to be associated with, or manufacturing defects in, the products sold by us could exacerbate a patient's condition, or could result in serious injury or impairment or even death. This could result in product liability claims against us and/or recalls of one or more of our products. In many countries, including in EU member states, national laws provide for strict (no-fault) liability which applies even where damages are caused both by a defect in a product and by the act or omission of a third party.

Product recalls may be issued at our discretion or at the discretion of our suppliers, government agencies and other entities that have regulatory authority for pharmaceutical sales. Any recall of our products could materially adversely affect our business by rendering us unable to sell that product for some time and by adversely affecting our reputation. A recall could also result in product liability claims by individuals and third party payors. In addition, product liability claims could result in an investigation of the safety or efficacy of our products, our manufacturing processes and facilities, or our marketing programs conducted by the FDA, the EMA or the competent authorities of the EU member states. Such investigations could also potentially lead to a recall of our products or more serious enforcement actions, limitations on the therapeutic indications for which they may be used, or suspension, variation, or withdrawal of approval. Any such regulatory action by the FDA, the EC or the competent authorities of the EU member states could lead to product liability lawsuits as well.

Product liability insurance coverage is expensive, can be difficult to obtain and may not be available in the future on acceptable terms, or at all. Our product liability insurance may not cover all of the future liabilities we might incur in connection with the development, manufacture or sale of our products. A successful claim or claims brought against us in excess of available insurance coverage could subject us to significant liabilities and could have a material adverse effect on our business, financial condition, results of operations and growth prospects. Such claims could also harm our reputation and the reputation of our products, adversely affecting our ability to market our products successfully.

We use hazardous materials in our manufacturing facilities, and any claims relating to the improper handling, storage, release or disposal of these materials could be time-consuming and expensive.

Our operations are subject to complex and increasingly stringent environmental, health and safety laws and regulations in the countries where we operate and, in particular, in Italy and Ireland where we have manufacturing facilities. If an accident or contamination involving pollutants or hazardous substances occurs, an injured party could seek to hold us liable for any damages that result and any liability could exceed the limits or fall outside the coverage of our insurance. We may not be able to maintain insurance with sufficient coverage on acceptable terms, or at all. Costs, damages and/or fines may result from the presence, investigation and remediation of such contamination at properties currently or formerly owned, leased or operated by us or at off-site locations, including where we have arranged for the disposal of hazardous substances or waste. In addition, we may be subject to third party claims, including for natural resource damages, personal injury and property damage, in connection with such contamination.

Risks Related to Our Financial Condition and Results

We have incurred substantial debt, which could impair our flexibility and access to capital and adversely affect our financial position, and our business would be adversely affected if we are unable to service our debt obligations.

As of December 31, 2019, we had total indebtedness of approximately $1.8 billion. Our substantial indebtedness may:

- limit our ability to borrow additional funds for working capital, capital expenditures, acquisitions or other general business purposes;
- limit our ability to use our cash flow or obtain additional financing for working capital, capital expenditures, acquisitions, investments or other general business purposes;
- require us to use a substantial portion of our cash flow from operations to make debt service payments;
- limit our flexibility to plan for, or react to, changes in our business and industry, or our ability to take specified actions to take advantage of certain business opportunities that may be presented to us;
- result in dilution to our existing shareholders in the event exchanges of our exchangeable senior notes are settled in our ordinary shares;

- place us at a competitive disadvantage compared to our less leveraged competitors; and
- increase our vulnerability to the impact of adverse economic and industry conditions.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to reduce or delay investments and capital expenditures, seek additional capital or restructure or refinance our debt. These alternative measures may not be successful and may not permit us to meet our debt service obligations. In the absence of such cash flows and resources, we could face substantial liquidity problems and might be required to dispose of material assets or operations to meet our debt service and other obligations. In addition, if we are unable to repay amounts under our secured credit agreement that we entered into in June 2015 and subsequently amended, which we refer to as the amended credit agreement, the lenders under the amended credit agreement could proceed against the collateral granted to them to secure that debt, which would seriously harm our business.

Covenants in our amended credit agreement restrict our business and operations in many ways and if we do not effectively manage our covenants, our financial conditions and results of operations could be adversely affected.

The amended credit agreement contains various covenants that, among other things, limit our ability and/or our restricted subsidiaries' ability to:

- incur or assume liens or additional debt or provide guarantees in respect of obligations of other persons;
- pay dividends or distributions or redeem or repurchase capital stock;
- prepay, redeem or repurchase certain debt;
- make loans, investments, acquisitions (including acquisitions of exclusive licenses) and capital expenditures;
- enter into agreements that restrict distributions from our subsidiaries;
- sell assets and capital stock of our subsidiaries; and
- consolidate or merge with or into, or sell substantially all of our assets to, another person.

The amended credit agreement also includes certain financial covenants that require us to maintain a maximum secured leverage ratio and a minimum interest coverage ratio. Our failure to comply with any of the covenants could result in a default under the amended credit agreement, which could permit the lenders to declare all or part of any outstanding borrowings to be immediately due and payable, or to refuse to permit additional borrowings under the revolving credit facility. Moreover, our failure to repurchase our exchangeable senior notes at a time when the repurchase is required by the indentures governing our exchangeable senior notes or to pay any cash payable on future exchanges of our exchangeable senior notes as required by those indentures would constitute a default under those indentures. A default under those indentures could also lead to a default under other debt agreements or obligations, including the amended credit agreement. Likewise, a default under the amended credit agreement could also lead to a default under other debt agreements or obligations, including the indentures governing our exchangeable senior notes.

To continue to grow our business, we will need to commit substantial resources, which could result in future losses or otherwise limit our opportunities or affect our ability to operate and grow our business.

The scope of our business and operations has grown substantially since 2012, including through a series of business combinations and acquisitions. To continue to grow our business over the longer term, we plan to commit substantial resources to product acquisition and in-licensing, product development, clinical trials of product candidates and expansion of our commercial, development, manufacturing and other operations. Acquisition opportunities that we pursue could materially affect our liquidity and capital resources and may require us to incur additional indebtedness, seek equity capital or both. In the event of adverse capital and credit market conditions, we may not be able to borrow or raise additional capital on attractive terms, or at all, which could prevent us from expanding our business and otherwise could have a material adverse effect on our business and growth prospects. In addition, if we use a substantial amount of our funds to acquire or in-license products or product candidates, we may not have sufficient additional funds to conduct all of our operations in the manner we would otherwise choose.

We have significant intangible assets and goodwill. Consequently, the future impairment of our intangible assets and goodwill may significantly impact our profitability.

Our intangible assets and goodwill are significant and are subject to an impairment analysis whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable. Additionally, goodwill and indefinite-lived assets are subject to an impairment test at least annually. Events giving rise to impairment are an inherent risk in the pharmaceutical industry and cannot be predicted. Our results of operations and financial position in future periods could be negatively impacted should future impairments of intangible assets or goodwill occur.

Our financial results have been and may continue to be adversely affected by foreign currency exchange rate fluctuations.

Because our financial results are reported in U.S. dollars, we are exposed to foreign currency exchange risk as the functional currency financial statements of non-U.S. subsidiaries are translated to U.S. dollars for reporting purposes. To the extent that revenue and expense transactions are not denominated in the functional currency, we are also subject to the risk of transaction losses. For example, because our Defitelio, Erwinase and Vyxeos product sales outside of the U.S. are primarily denominated in the euro, our sales of those products have been and may continue to be adversely affected by fluctuations in foreign currency exchange rates. Given the volatility of exchange rates, as well as our expanding operations, there is no guarantee that we will be able to effectively manage currency transaction and/or translation risks, which could adversely affect our operating results. Although we utilize foreign exchange forward contracts to manage currency risk primarily related to certain intercompany balances denominated in non-functional currencies, our efforts to manage currency risk may not be successful.

Changes in our effective tax rates could adversely affect our business and financial condition, results of operations and growth prospects.

We are incorporated in Ireland and maintain subsidiaries in North America and a number of other foreign jurisdictions. As a result, our effective tax rate is derived from a combination of applicable tax rates in the various jurisdictions where we operate. Our effective tax rate may fluctuate depending on a number of factors, including, but not limited to, the distribution of our profits or losses between the jurisdictions where we operate and changes to or differences in interpretation of tax laws. We are subject to reviews and audits by the U.S. Internal Revenue Services, or IRS, and other taxing authorities from time to time, and the IRS or other taxing authority may challenge our structure, transfer pricing arrangements and tax positions through an audit or lawsuit. Responding to or defending against challenges from taxing authorities could be expensive and consume time and other resources. If we are unsuccessful, we may be required to pay taxes for prior periods, interest, fines or penalties, and may be obligated to pay increased taxes in the future, any of which could require us to reduce our operating expenses, decrease efforts in support of our products or seek to raise additional funds. Any of these actions could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

The IRS may not agree with the conclusion that we should be treated as a foreign corporation for U.S. federal tax purposes.

Although we are incorporated in Ireland, the IRS may assert that we should be treated as a U.S. corporation (and, therefore, a U.S. tax resident) for U.S. federal tax purposes pursuant to Section 7874 of the U.S. Internal Revenue Code, or the Code. For U.S. federal tax purposes, a corporation generally is considered a tax resident in the jurisdiction of its organization or incorporation. Because we are an Irish incorporated entity, we would be classified as a foreign corporation (and, therefore, a non-U.S. tax resident) under these rules. Section 7874 of the Code provides an exception under which a foreign incorporated entity may, in certain circumstances, be treated as a U.S. corporation for U.S. federal tax purposes. Because we indirectly acquired all of Jazz Pharmaceuticals, Inc.'s assets through the acquisition of the shares of Jazz Pharmaceuticals, Inc. common stock in the Azur Merger, the IRS could assert that we should be treated as a U.S. corporation for U.S. federal tax purposes under Section 7874. The IRS continues to scrutinize transactions that are potentially subject to Section 7874, and has issued several sets of final and temporary regulations under Section 7874 since 2012. We do not expect these regulations to affect the U.S. tax consequences of the Azur Merger. Nevertheless, new statutory and/or regulatory provisions under Section 7874 of the Code or otherwise could be enacted that adversely affect our status as a foreign corporation for U.S. federal tax purposes, and any such provisions could have prospective or retroactive application to us, our shareholders, Jazz Pharmaceuticals, Inc. and/or the Azur Merger.

Our U.S. affiliates' ability to use their net operating losses to offset potential taxable income and related income taxes that would otherwise be due is limited under Section 7874 of the Code and could be subject to further limitations if we do not generate taxable income in a timely manner or if the "ownership change" provisions of Sections 382 and 383 of the Code result in further annual limitations.

Following certain acquisitions of a U.S. corporation by a foreign corporation, Section 7874 of the Code can limit the ability of the acquired U.S. corporation and its U.S. affiliates to utilize U.S. tax attributes such as net operating losses, or NOLs, to offset U.S. taxable income resulting from certain transactions. Our U.S. affiliates have a significant amount of NOLs. As a result of Section 7874 of the Code, after the Azur Merger, our U.S. affiliates have not been able and will continue to be unable, for a period of time, to utilize their U.S. tax attributes to offset their U.S. taxable income, if any, resulting from certain taxable transactions. While we expect to be able to fully utilize our U.S. affiliates' U.S. NOLs prior to their expiration, as a result of this limitation, it may take our U.S. affiliates longer to use their NOLs.

Our ability to use these NOLs to offset potential future taxable income and related income taxes that would otherwise be due is also dependent upon our generation of future taxable income before the expiration dates of the NOLs, and we cannot predict with certainty when, or whether, our U.S. affiliates will generate sufficient taxable income to use all of the NOLs. In addition, the use of NOLs to offset potential future taxable income and related income taxes that would otherwise be due is subject to annual limitations under the "ownership

change" provisions of Sections 382 and 383 of the Code and similar state provisions, which may result in the expiration of additional NOLs before future utilization.

Changes to tax laws relating to multinational corporations could adversely affect us.

The U.S. Congress, the EU, the Organization for Economic Co-operation and Development, or OECD, and other government agencies in jurisdictions where we and our affiliates do business have had an extended focus on issues related to the taxation of multinational corporations. One example is the OECD's initiative in the area of "base erosion and profit shifting," where payments are made between affiliates from a jurisdiction with high tax rates to a jurisdiction with lower tax rates. Some countries are beginning to implement legislation and other guidance to align their international tax rules with the OECD's recommendation. As a result of the focus on the taxation of multinational corporations, the tax laws in Ireland, the U.S. and other countries in which we and our affiliates do business could change on a prospective or retroactive basis, and any such changes could adversely affect us.

On December 22, 2017, the U.S. Tax Cuts and Jobs Act, or U.S. Tax Act, was signed into law. The U.S. Tax Act made broad and complex changes to the U.S. tax code. The U.S. Department of Treasury has issued limited regulations and other interpretive guidance under the U.S. Tax Act, and is expected to issue additional guidance, the impact of which is uncertain but could change the financial impacts that were previously recorded or are expected to be recorded in future periods. Furthermore, the impact of this tax reform on certain holders of our ordinary shares could be adverse. Among other things, changes to the rules for determining a foreign corporation's status as a controlled foreign corporation could have an adverse effect on U.S. persons who are treated as owning (directly or indirectly) at least 10% of the value or voting power of our ordinary shares. Investors should consult their own advisers regarding the potential application of these rules to their investments.

A substantial portion of our indebtedness bears interest at variable interest rates based on USD LIBOR and certain of our financial contracts are also indexed to USD LIBOR. Changes in the method of determining LIBOR, or the replacement of LIBOR with an alternative reference rate, may adversely affect interest rates on our current or future indebtedness and may otherwise adversely affect our financial condition and results of operations.

In July 2017, the Financial Conduct Authority, the authority that regulates the London Inter-bank Offered Rate, or LIBOR, announced that it intended to stop compelling banks to submit rates for the calculation of LIBOR after 2021. We have certain financial contracts, including the amended credit agreement and our interest rate swaps, that are indexed to USD LIBOR. Changes in the method of determining LIBOR, or the replacement of LIBOR with an alternative reference rate, may adversely affect interest rates on our current or future indebtedness. Any transition process may involve, among other things, increased volatility or illiquidity in markets for instruments that rely on LIBOR, reductions in the value of certain instruments or the effectiveness of related transactions such as hedges, increased borrowing costs, uncertainty under applicable documentation, or difficult and costly consent processes. The transition away from LIBOR may result in increased expenses, may impair our ability to refinance our indebtedness or hedge our exposure to floating rate instruments, or may result in difficulties, complications or delays in connection with future financing efforts, any of which could adversely affect our financial condition and results of operations.

Risks Related to Our Ordinary Shares

The market price of our ordinary shares has been volatile and may continue to be volatile in the future, and the value of your investment could decline significantly.

The market price for our ordinary shares has fluctuated significantly from time to time and is likely to continue to be volatile and subject to significant price and volume fluctuations in response to market, industry and other factors, including the risk factors described above. The stock market in general, including the market for life sciences companies, has experienced extreme price and trading volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. These broad market and industry factors have harmed, and in the future may seriously harm, the market price of our ordinary shares, regardless of our operating performance.

Our share price may be dependent upon the valuations and recommendations of the analysts who cover our business. If our results do not meet these analysts' forecasts, the expectations of our investors or the financial guidance we provide to investors in any period, the market price of our ordinary shares could decline. Our ability to meet analysts' forecasts, investors' expectations and our financial guidance is substantially dependent on our ability to maintain or increase sales of our marketed products.

In addition, the market price of our ordinary shares may decline if the effects of our strategic transactions on our financial or operating results are not consistent with the expectations of financial analysts or investors. The market price of our ordinary shares could also be affected by possible sales of our ordinary shares by holders of our exchangeable senior notes who may view our exchangeable senior

notes as a more attractive means of equity participation in our company and by hedging or arbitrage trading activity involving our ordinary shares by the holders of our exchangeable senior notes.

We are subject to Irish law, which differs from the laws in effect in the U.S. and may afford less protection to holders of our securities.

It may not be possible to enforce court judgments obtained in the U.S. against us in Ireland based on the civil liability provisions of the U.S. federal or state securities laws. In addition, there is some uncertainty as to whether the courts of Ireland would recognize or enforce judgments of U.S. courts obtained against us or our directors or officers based on the civil liability provisions of the U.S. federal or state securities laws or hear actions against us or those persons based on those laws. We have been advised that the U.S. currently does not have a treaty with Ireland providing for the reciprocal recognition and enforcement of judgments in civil and commercial matters. Therefore, a final judgment for the payment of money rendered by any U.S. federal or state court based on civil liability, whether or not based solely on U.S. federal or state securities laws, would not automatically be enforceable in Ireland.

As an Irish company, we are governed by the Irish Companies Act 2014, which differs in some material respects from laws generally applicable to U.S. corporations and shareholders, including, among others, differences relating to interested director and officer transactions, mergers, amalgamations and acquisitions, takeovers and shareholder lawsuits. The duties of directors and officers of an Irish company are generally owed to the company only. Shareholders of Irish companies generally do not have a personal right of action against directors or officers of the company and may exercise such rights of action on behalf of the company only in limited circumstances. Accordingly, holders of our securities may have more difficulty protecting their interests than would holders of securities of a corporation incorporated in a U.S. jurisdiction.

Our articles of association, Irish law and the indentures governing our exchangeable senior notes contain provisions that could delay or prevent a takeover of us by a third party.

Our articles of association could delay, defer or prevent a third party from acquiring us, despite the possible benefit to our shareholders, or otherwise adversely affect the price of our ordinary shares. In addition to our articles of association, several mandatory provisions of Irish law could prevent or delay an acquisition of us. We are also subject to various provisions of Irish law relating to mandatory bids, voluntary bids, requirements to make a cash offer and minimum price requirements, as well as substantial acquisition rules and rules requiring the disclosure of interests in our shares in certain circumstances. Furthermore, the indentures governing our exchangeable senior notes require us to repurchase our exchangeable senior notes for cash if we undergo certain fundamental changes and, in certain circumstances, to increase the exchange rate for a holder of our exchangeable senior notes. A takeover of us may trigger the requirement that we purchase our exchangeable senior notes and/or increase the exchange rate, which could make it more costly for a potential acquiror to engage in a business combination transaction with us.

These provisions, whether alone or together, may discourage potential takeover attempts, discourage bids for our ordinary shares at a premium over the market price or adversely affect the market price of, and the voting and other rights of the holders of, our ordinary shares. These provisions, whether alone or together, could also discourage proxy contests and make it more difficult for our shareholders to elect directors other than the candidates nominated by our board.

Future sales and issuances of our ordinary shares, securities convertible into our ordinary shares or rights to purchase ordinary shares or convertible securities could result in additional dilution of the percentage ownership of our shareholders and could cause our share price to decline.

We expect to continue to opportunistically seek access to additional capital to license or acquire additional products, product candidates or companies to expand our operations or for general corporate purposes. To the extent we raise additional capital by issuing equity securities or securities convertible into or exchangeable for ordinary shares, our shareholders may experience substantial dilution. We may sell ordinary shares, and we may sell convertible or exchangeable securities or other equity securities in one or more transactions at prices and in a manner we determine from time to time. If we sell such ordinary shares, convertible or exchangeable securities or other equity securities in subsequent transactions, existing shareholders may be materially diluted.

We have never declared or paid dividends on our capital stock and we do not anticipate paying dividends in the foreseeable future.

We do not currently plan to pay cash dividends in the foreseeable future. Any future determination as to the payment of dividends will, subject to Irish legal requirements, be at the sole discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, compliance with the terms of the amended credit agreement and other factors our board of directors

deems relevant. Accordingly, holders of our ordinary shares must rely on increases in the trading price of their shares for returns on their investment in the foreseeable future. In addition, in the event that we pay a dividend on our ordinary shares, in certain circumstances, as an Irish tax resident company, some shareholders may be subject to withholding tax, which could adversely affect the price of our ordinary shares.

Item 1B. Unresolved Staff Comments

There are no material unresolved written comments that were received from the SEC staff 180 days or more before the end of our 2019 fiscal year relating to our periodic or current reports under the Securities Exchange Act of 1934, as amended.

Item 2. Properties

Our corporate headquarters are located in Dublin, Ireland, and our U.S. operations are located in Palo Alto, California, Philadelphia, Pennsylvania and Ewing, New Jersey.

We lease approximately 45,000 square feet of office space in Dublin, Ireland. This lease expires in December 2036, with an option to terminate in December 2024 with no less than one year's prior written notice and the payment of a termination fee, and a further option to terminate in December 2031 with no less than one year's prior written notice. We own approximately 58,000 square foot of manufacturing and development facility in Athlone, Ireland, which is primarily used for the manufacture of Xyrem and development-stage products.

In Palo Alto, California, we occupy a total of approximately 198,000 square feet of office space, 99,000 square feet of which is under a lease that expires in October 2029 and has an option to terminate in October 2027 with no less than one year's prior written notice and the payment of a termination fee. The remaining 99,000 square feet is under a lease that expires in July 2031 and an option to terminate in October 2027 with no less than one year's prior written notice and the payment of a termination fee. We have an option to extend the terms of both leases twice for a period of five years each.

We occupy approximately 60,000 square feet of office space in Philadelphia, Pennsylvania under a lease that expires in April 2029. We occupy approximately 26,000 square feet of office space in Oxford, United Kingdom under a lease that expires in April 2028. We own a manufacturing facility in Villa Guardia (Como), Italy, which is primarily used for the manufacture of Defitelio. The manufacturing facility is approximately 45,000 square feet. We also lease approximately 34,000 square feet of office and laboratory space in Villa Guardia (Como), Italy under a lease that expires in December 2023. In addition, we have offices in Canada, France and elsewhere in Europe.

We believe that our existing properties are in good condition and suitable for the conduct of our business. As we continue to expand our operations, we may need to lease additional or alternative facilities.

Item 3. Legal Proceedings

From time to time we are involved in legal proceedings arising in the ordinary course of business. We believe there is no litigation pending that could have, individually or in the aggregate, a material adverse effect on our results of operations or financial condition.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our ordinary shares trade on The Nasdaq Global Select Market under the trading symbol "JAZZ."

Holders of Ordinary Shares

As of February 18, 2020, there were three holders of record of our ordinary shares. Because almost all of our ordinary shares are held by brokers, nominees and other institutions on behalf of shareholders, we are unable to estimate the total number of shareholders represented by these record holders.

Dividends

In 2019 and 2018, we did not declare or pay cash dividends on our common equity and we do not currently plan to pay cash dividends in the foreseeable future. Any future determination as to the payment of dividends will, subject to Irish legal requirements, be at the sole discretion of our board of directors and will depend on our financial condition, results of operations, capital requirements, compliance with the terms of any current credit agreement and other factors our board of directors deems relevant.

Unregistered Sales of Equity Securities

Except as previously reported in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K filed with the Securities and Exchange Commission, or SEC, during the year ended December 31, 2019, there were no unregistered sales of equity securities by us during the year ended December 31, 2019.

Irish Law Matters

As we are an Irish incorporated company, the following matters of Irish law are relevant to the holders of our ordinary shares.

Irish Restrictions on Import and Export of Capital

Except as indicated below, there are no restrictions on non-residents of Ireland dealing in Irish domestic securities, which includes ordinary shares of Irish companies. Dividends and redemption proceeds also continue to be freely transferable to non-resident holders of such securities. The Financial Transfers Act, 1992 gives power to the Minister for Finance of Ireland to restrict financial transfers between Ireland and other countries and persons. Financial transfers are broadly defined and include all transfers that would be movements of capital or payments within the meaning of the treaties governing the member states of the European Union. The acquisition or disposal of interests in shares issued by an Irish incorporated company and associated payments falls within this definition. In addition, dividends or payments on redemption or purchase of shares and payments on a liquidation of an Irish incorporated company would fall within this definition. At present the Financial Transfers Act, 1992 prohibits financial transfers involving the late Slobodan Milosevic and associated persons, Belarus, certain persons indicted by the International Criminal Tribunal for the former Yugoslavia, the late Osama bin Laden, Al-Qaida, the Taliban of Afghanistan, Democratic Republic of Congo, Democratic People's Republic of Korea (North Korea), Iran, Iraq, Côte d'Ivoire, Lebanon, Liberia, Zimbabwe, Sudan, Somalia, Republic of Guinea, Republic of Guinea-Bissau, Afghanistan, Egypt, Eritrea, Libya, Syria, Tunisia, certain known terrorists and terrorist groups, countries that harbor certain terrorist groups and Ukraine without the prior permission of the Central Bank of Ireland.

Any transfer of, or payment in respect of, a share or interest in a share involving the government of any country that is currently the subject of United Nations sanctions, any person or body controlled by any of the foregoing, or by any person acting on behalf of the foregoing, may be subject to restrictions pursuant to such sanctions as implemented into Irish law.

Irish Taxes Applicable to U.S. Holders

Irish Tax on Dividends. While we have no current plans to pay dividends, dividends on our ordinary shares would generally be subject to Irish Dividend Withholding Tax at the standard rate (currently 25%), unless an exemption applies.

Irish Tax on Capital Gains. A shareholder who is neither resident nor ordinarily resident in Ireland and does not hold our ordinary shares in connection with a trade or business carried on by such shareholder in Ireland through a branch or agency should not be subject to Irish tax on capital gains on a disposal of our ordinary shares.

Capital Acquisitions Tax. Irish capital acquisitions tax, or CAT, is comprised principally of gift tax and inheritance tax. CAT could apply to a gift or inheritance of our ordinary shares irrespective of the place of residence, ordinary residence or domicile of the parties. This is because our ordinary shares are regarded as property situated in Ireland as our share register must be held in Ireland. The person who receives the gift or inheritance has primary liability for CAT.

CAT is levied at a rate of 33% above certain tax-free thresholds. The appropriate tax-free threshold is dependent upon (i) the relationship between the donor and the donee and (ii) the aggregation of the values of previous gifts and inheritances received by the donee from persons within the same category of relationship for CAT purposes. Gifts and inheritances passing between spouses are exempt from CAT. Our shareholders should consult their own tax advisers as to any tax consequences of holding our ordinary shares, including whether CAT is creditable or deductible in computing any domestic tax liabilities.

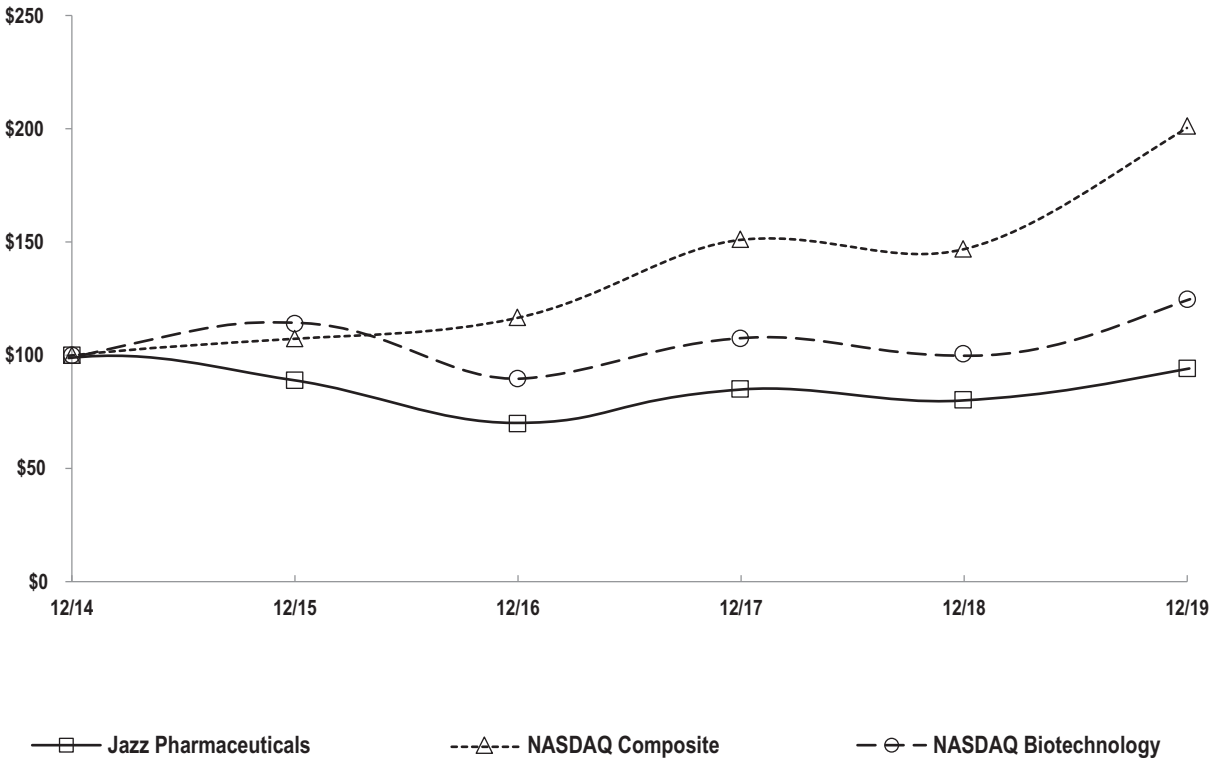
Stamp Duty. Irish stamp duty (if any) may become payable in respect of ordinary share transfers. However, a transfer of our ordinary shares from a seller who holds shares through Depository Trust Company, or DTC, to a buyer who holds the acquired shares through DTC will not be subject to Irish stamp duty. A transfer of our ordinary shares (i) by a seller who holds ordinary shares outside of DTC to any buyer or (ii) by a seller who holds the ordinary shares through DTC to a buyer who holds the acquired ordinary shares outside of DTC, may be subject to Irish stamp duty (currently at the rate of 1% of the price paid or the market value of the ordinary shares acquired, if greater). The person accountable for payment of stamp duty is the buyer or, in the case of a transfer by way of a gift or for less than market value, all parties to the transfer.

A shareholder who holds ordinary shares outside of DTC may transfer those ordinary shares into DTC without giving rise to Irish stamp duty provided that the shareholder would be the beneficial owner of the related book-entry interest in those ordinary shares recorded in the systems of DTC (and in exactly the same proportions) as a result of the transfer and at the time of the transfer into DTC there is no sale of those book-entry interests to a third party being contemplated by the shareholder. Similarly, a shareholder who holds ordinary shares through DTC may transfer those ordinary shares out of DTC without giving rise to Irish stamp duty provided that the shareholder would be the beneficial owner of the ordinary shares (and in exactly the same proportions) as a result of the transfer, and at the time of the transfer out of DTC there is no sale of those ordinary shares to a third party being contemplated by the shareholder. In order for the share registrar to be satisfied as to the application of this Irish stamp duty treatment where relevant, the shareholder must confirm to us that the shareholder would be the beneficial owner of the related book-entry interest in those ordinary shares recorded in the systems of DTC (and in exactly the same proportions) (or vice-versa) as a result of the transfer and there is no agreement being contemplated for the sale of the related book-entry interest or the ordinary shares or an interest in the ordinary shares, as the case may be, by the shareholder to a third party.

Performance Measurement Comparison (1)

The following graph shows the total shareholder return on the last day of each year of an investment of $100 in cash as if made on December 31, 2014 in (i) our ordinary shares; (ii) the Nasdaq Composite Index; and (iii) the Nasdaq Biotechnology Index through December 31, 2019. The shareholder return shown in the graph below is not necessarily indicative of future performance, and we do not make or endorse any predictions as to future shareholder returns.

COMPARISON OF FIVE YEAR CUMULATIVE TOTAL RETURN (2)



(1) This section is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference into any of our filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, or Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

(2) Information used in the graph was obtained from Research Data Group, Inc.

Issuer Purchases of Equity Securities

The following table summarizes purchases of our ordinary shares made by or on behalf of us or any of our "affiliated purchasers" as defined in Rule 10b-18(a)(3) under the Exchange Act during each fiscal month during the three-month period ended December 31, 2019:

	Total Number of Shares Purchased (1)	Average Price Paid per Share (2)	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (3)	Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs (4)
October 1—October 31, 2019	57,300	$122.96	57,300	$681,006,700
November 1—November 30, 2019	555,852	$136.45	555,852	$605,174,166
December 1—December 31, 2019	183,345	$149.49	183,345	$577,732,249
Total	796,497	$138.53	796,497	

(1) This column does not include ordinary shares that we withheld in order to satisfy minimum tax withholding requirements in connection with the vesting of restricted stock units.

(2) Average price paid per share includes brokerage commissions.

(3) The ordinary shares reported in this column above were purchased pursuant to our publicly announced share repurchase program. In November 2016, we announced that our board of directors authorized the use of up to $300 million to repurchase our ordinary shares. In November and December 2018, our board of directors increased the existing share repurchase program authorization by $320.0 million and $400.0 million, respectively. In October 2019, our board of directors authorized the additional repurchase of shares having an aggregate purchase price of up to $500.0 million, exclusive of any brokerage commissions. This authorization has no expiration date.

(4) The dollar amount shown represents, as of the end of each fiscal month, the approximate dollar value of ordinary shares that may yet be purchased under our publicly announced share repurchase program, exclusive of any brokerage commissions. The timing and amount of repurchases will depend on a variety of factors, including the price of our ordinary shares, alternative investment opportunities, restrictions under our credit agreement, corporate and regulatory requirements and market conditions, and may be modified, suspended or otherwise discontinued at any time without prior notice.

Item 6. Selected Financial Data

The following selected consolidated financial data should be read together with our consolidated financial statements and accompanying notes and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this Annual Report on Form 10-K. The selected consolidated financial data in this section is not intended to replace our consolidated financial statements and the accompanying notes. Our historical results are not necessarily indicative of our future results.

We derived the consolidated statements of income data for the years ended December 31, 2019, 2018 and 2017 and the selected consolidated balance sheet data as of December 31, 2019 and 2018 from the audited consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K. The consolidated statements of income data for the years ended December 31, 2016 and 2015, and the selected consolidated balance sheet data as of December 31, 2017, 2016 and 2015 are derived from audited consolidated financial statements not included in this Annual Report on Form 10-K.

	Year Ended December 31,				
	2019	2018	2017	2016(1)	2015
	(In thousands, except per share amounts)				
Consolidated Statements of Income Data:					
Revenues:					
Product sales, net	$2,135,601	$1,869,473	$1,601,399	$1,477,261	$1,316,819
Royalties and contract revenues	26,160	21,449	17,294	10,712	7,984
Total revenues	2,161,761	1,890,922	1,618,693	1,487,973	1,324,803
Operating expenses:					
Cost of product sales (excluding amortization of acquired developed technologies)	127,930	121,544	110,188	105,386	102,526
Selling, general and administrative	736,942	683,530	544,156	502,892	449,119
Research and development	299,726	226,616	198,442	162,297	135,253
Intangible asset amortization	354,814	201,498	152,065	101,994	98,162
Impairment charges	—	42,896	—	—	31,523
Acquired in-process research and development	109,975	—	85,000	23,750	—
Total operating expenses	1,629,387	1,276,084	1,089,851	896,319	816,583
Income from operations	532,374	614,838	528,842	591,654	508,220
Interest expense, net	(72,261)	(77,075)	(77,756)	(61,942)	(56,917)
Foreign exchange gain (loss)	(5,811)	(6,875)	(9,969)	3,372	1,445
Loss on extinguishment and modification of debt	—	(1,425)	—	(638)	(16,815)
Income before income tax provision (benefit) and equity in loss of investees	454,302	529,463	441,117	532,446	435,933
Income tax provision (benefit)	(73,154)	80,162	(47,740)	135,236	106,399
Equity in loss of investees	4,089	2,203	1,009	379	—
Net income	523,367	447,098	487,848	396,831	329,534
Net loss attributable to noncontrolling interests	—	—	—	—	(1)
Net income attributable to Jazz Pharmaceuticals plc	$ 523,367	$ 447,098	$ 487,848	$ 396,831	$ 329,535
Net income attributable to Jazz Pharmaceuticals plc per ordinary share:					
Basic	$ 9.22	$ 7.45	$ 8.13	$ 6.56	$ 5.38
Diluted	$ 9.09	$ 7.30	$ 7.96	$ 6.41	$ 5.23
Weighted-average ordinary shares used in per share calculations—basic	56,749	59,976	60,018	60,500	61,232
Weighted-average ordinary shares used in per share calculations—diluted	57,550	61,221	61,317	61,870	63,036

	As of December 31,				
	2019	2018	2017	2016(1)	2015
	(In thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents and investments	$1,077,344	$ 824,622	$ 601,035	$ 425,963	$ 988,785
Working capital	1,265,778	888,518	674,330	490,663	1,031,025
Total assets	5,538,897	5,203,491	5,123,672	4,800,227	3,332,612
Long-term debt, current and non-current (1)	1,607,257	1,596,412	1,581,038	2,029,625	1,188,444
Retained earnings	1,067,815	841,050	917,956	528,907	302,686
Total Jazz Pharmaceuticals plc shareholders' equity	3,110,981	2,757,422	2,713,097	1,877,339	1,598,646

(1) On July 12, 2016, we completed the acquisition of Celator Pharmaceuticals, Inc., or Celator, which acquisition we refer to in this report as the Celator Acquisition, for an aggregate cash consideration of $1.5 billion and the results of operations of the acquired Celator business, along with the estimated fair values of the assets acquired and liabilities assumed, have been included in our consolidated financial statements since the closing of the Celator Acquisition.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion of our financial condition and results of operations should be read in conjunction with the consolidated financial statements and notes to consolidated financial statements included elsewhere in this Annual Report on Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties. When reviewing the discussion below, you should keep in mind the substantial risks and uncertainties that impact our business. In particular, we encourage you to review the risks and uncertainties described in "Risk Factors" in Part I, Item 1A in this Annual Report on Form 10-K. These risks and uncertainties could cause actual results to differ materially from those projected in forward-looking statements contained in this report or implied by past results and trends.

Overview

Jazz Pharmaceuticals plc is a global biopharmaceutical company dedicated to developing life-changing medicines for people with serious diseases – often with limited or no options. We have a diverse portfolio of marketed medicines and novel product candidates, from early- to late-stage development, in key therapeutic areas. Our focus is in neuroscience, including sleep medicine and movement disorders, and in oncology, including hematologic and solid tumors. We actively explore new options for patients including novel compounds, small molecule advancements, biologics and innovative delivery technologies.

Our lead marketed products are:

- **Xyrem® (sodium oxybate) oral solution**, the only product approved by the U.S. Food and Drug Administration, or FDA, and marketed in the U.S. for the treatment of both cataplexy and excessive daytime sleepiness, or EDS, in both adult and pediatric patients with narcolepsy;
- **Sunosi® (solriamfetol)**, a product approved by the FDA and marketed in the U.S. to improve wakefulness in adult patients with EDS associated with narcolepsy or obstructive sleep apnea, or OSA, and also recently approved in Europe in January 2020 by the European Commission, or EC;
- **Defitelio® (defibrotide sodium)**, a product approved in the U.S. for the treatment of adult and pediatric patients with hepatic veno-occlusive disease, or VOD, also known as sinusoidal obstruction syndrome, with renal or pulmonary dysfunction following hematopoietic stem cell transplantation, or HSCT, and in Europe (where it is marketed as Defitelio® (defibrotide)) for the treatment of severe VOD in adults and children undergoing HSCT therapy;
- **Erwinaze® (asparaginase *Erwinia chrysanthemi*)**, a treatment approved in the U.S. and in certain markets in Europe (where it is marketed as Erwinase®) for patients with acute lymphoblastic leukemia, or ALL, who have developed hypersensitivity to *E. coli*-derived asparaginase; and
- **Vyxeos® (daunorubicin and cytarabine) liposome for injection**, a product approved in the U.S. and in Europe (where it is marketed as Vyxeos® liposomal 44 mg/100 mg powder for concentrate for solution for infusion) for the treatment of adults with newly-diagnosed therapy-related acute myeloid leukemia, or t-AML, or AML with myelodysplasia-related changes.

Over the last five years, we achieved multiple significant regulatory approvals, including most recently the European approval of Sunosi, and executed on five product launches. Over the next two years, we look forward to three additional potential regulatory approvals and related product launches (lurbinectedin, JZP-258 and JZP-458), as well as the commencement of the rolling launch of Sunosi in Europe by mid-2020. In February 2020, the FDA accepted for filing with priority review the new drug application, or NDA, for lurbinectedin for the treatment of relapsed small cell lung cancer, or SCLC, a product candidate for which we recently acquired exclusive U.S. development and commercialization rights. In January 2020, we submitted an NDA to the FDA seeking marketing approval for JZP-258, an oxybate product candidate that contains 92%, or approximately 1,000 to 1,500 milligrams per day, less sodium than Xyrem, for the treatment of cataplexy and EDS in narcolepsy patients seven years of age and older. We also have in development JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the treatment of pediatric and adult patients with ALL or lymphoblastic lymphoma, or LBL, who are hypersensitive to *E. coli*-derived asparaginase products, and expect to submit a biologics license application to the FDA for JZP-458 as early as the fourth quarter of 2020.

Our strategy to create shareholder value is focused on:

- Strong financial execution through growth in sales of our current lead marketed products;
- Building a diversified product portfolio and development pipeline through a combination of our internal research and development efforts and obtaining rights to clinically meaningful and differentiated on- or near-market products and early- to late-stage product candidates through acquisitions, collaborations, licensing arrangements, partnerships and venture investments; and

- Maximizing the value of our products and product candidates by continuing to implement our comprehensive global development plans, including through generating additional clinical data and seeking regulatory approval for new indications and new geographies.

Our total net product sales increased by 14% in 2019 compared to 2018, primarily due to an increase in Xyrem net product sales. We expect total net product sales to increase in 2020 over 2019, primarily due to expected growth in sales of Xyrem and Sunosi.

In 2019, consistent with our strategy, we continued to expand and advance our research and development pipeline in our sleep/neuroscience and hematology/oncology therapeutic areas, both by conducting activities internally and by leveraging partnerships with third parties.

While we are focused on opportunities within our sleep/neuroscience and hematology/oncology therapeutic areas, such as our recent expansion into movement disorders and solid tumors, we are also exploring and investing in adjacent therapeutic areas that could further diversify our portfolio. Our development activities encompass all stages of development and currently include clinical testing of new product candidates and activities related to clinical improvements of, or additional indications or new clinical data for, our existing marketed products. We have also expanded into preclinical exploration of novel therapies, including precision medicines in hematology and oncology. A summary of our ongoing development activities is provided under "Business—Research and Development" in Part I, Item 1 of this Annual Report on Form 10-K. In 2020 and beyond, we expect that our research and development expenses will continue to increase from previous levels, particularly as we prepare for anticipated regulatory submissions and data read-outs from clinical trials, initiate and undertake additional clinical trials and related development work and potentially acquire rights to additional product candidates.

2019 Highlights and Recent Developments

Regulatory Approvals and Launches

- In March 2019, we launched Xyrem for the treatment of cataplexy and EDS in pediatric patients with narcolepsy, after completing the implementation of the related approved risk evaluation and mitigation strategy, or REMS, modification. In May 2019, the FDA confirmed that as the first sponsor to obtain marketing approval for use of Xyrem to treat cataplexy and EDS in pediatric narcolepsy patients aged seven years and older, we are entitled to seven years of orphan drug exclusivity for the pediatric indication.
- In March 2019, the FDA approved our NDA for Sunosi as a treatment to improve wakefulness in adult patients with EDS associated with narcolepsy or OSA, and recommended that solriamfetol be scheduled by the U.S. Drug Enforcement Administration, or DEA. In June 2019, the DEA designated solriamfetol as a Schedule IV controlled substance, and, in July 2019, we launched Sunosi in the U.S.
- In June 2019, our partner, Nippon Shinyaku Co., Ltd, announced that Japan's Ministry of Health, Labour and Welfare approved the marketing authorization of Defitelio® injection 200mg (defibrotide sodium) for the treatment of sinusoidal obstruction syndrome/hepatic VOD.
- In November 2019, the European Medicines Agency recommended the marketing authorization application for Sunosi in Europe, and in January 2020, the EC approved Sunosi to improve wakefulness in adult patients with EDS associated with narcolepsy or OSA.

Regulatory Submissions

- In March 2019, we announced positive top-line results from our Phase 3 study evaluating the efficacy and safety of JZP-258 for the treatment of cataplexy and EDS in adult patients with narcolepsy and presented additional results from this study publicly at an international medical conference in September 2019. We submitted an NDA for this product in January 2020 and redeemed our priority review voucher, or PRV, in connection with this submission.
- In December 2019, we entered into an exclusive license agreement with Pharma Mar, S.A., or PharmaMar, pursuant to which we obtained exclusive U.S. development and commercialization rights to lurbinectedin, a product candidate under clinical investigation for the treatment of patients with relapsed SCLC. Lurbinectedin was granted orphan drug designation for SCLC by the FDA in August 2018. In December 2019, PharmaMar submitted an NDA to the FDA for accelerated approval of lurbinectedin for relapsed SCLC based on data from a Phase 2 trial, and in February 2020, the FDA accepted the NDA for filing with priority review with a Prescription Drug User Fee Act, or PDUFA, date of August 16, 2020.

Research & Development

- In July 2019, we announced that we are pursuing development activities for Sunosi for the potential treatment of EDS in patients with major depressive disorder. We expect to initiate a Phase 3 study in mid-2020.
- In October 2019, the FDA granted Fast Track designation to JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the potential treatment of ALL and LBL and in December 2019, we announced enrollment of the first patient in this study.
- In October 2019, we announced enrollment of the first patient in an exploratory Phase 2 clinical trial evaluating the ability of defibrotide to prevent neurotoxicity in patients with relapsed or refractory diffuse large B-cell lymphoma receiving chimeric antigen receptor T-cell therapy.
- In October 2019, we completed enrollment in a Phase 2 study for defibrotide in the prevention of acute graft-vs-host disease.
- In December 2019, we activated sites for a Phase 1b master trial of Vyxeos in combination with various targeted agents in first-line, fit AML.

Other Significant Developments

- In January 2019, we entered into a strategic collaboration agreement with Codiak BioSciences, Inc. focused on the research, development and commercialization of exosome therapeutics to treat cancer.
- In February 2019, we received a contract termination notice from Porton Biopharma Limited, or PBL, the sole manufacturer of Erwinaze. As a result of our receipt of the contract termination notice, our license and supply agreement with PBL, which includes an exclusive right to market, sell or distribute Erwinaze, an exclusive license to Erwinaze trademarks, and a non-exclusive license to PBL's manufacturing know-how, will expire on December 31, 2020. Unless we and PBL enter into a new agreement, we will lose our licensed rights to exclusively market Erwinaze effective December 31, 2020, other than our right to sell certain Erwinaze inventory for a post-termination sales period of 12 months and certain other post-termination rights, including but not limited to intellectual property and data ownership.
- In April 2019, we finalized a settlement agreement with the U.S. Department of Justice, or DOJ, and the Office of Inspector General of the Department of Health and Human Services, or OIG, and we entered into a corporate integrity agreement requiring us to maintain our ongoing corporate compliance program and obligating us to implement or continue, as applicable, a set of defined corporate integrity activities for a period of five years from the effective date of the corporate integrity agreement.
- In June 2019, we received notice from ImmunoGen, Inc., or ImmunoGen, that, as a result of portfolio prioritization and restructuring initiatives, ImmunoGen will be discontinuing development of its IMGN779 antibody-drug conjugate, or ADC, product candidate, for which we possess opt-in rights, as well as the programs from which a third opt-in candidate was to be selected. IMGN632, a CD123-targeted ADC product candidate for which we possess opt-in rights, remains under development by ImmunoGen.
- In July 2019, we acquired from Redx Pharma plc, or Redx, a pan-RAF inhibitor program for the potential treatment of RAF and RAS mutant tumors. Under the terms of our agreement with Redx, we paid Redx $3.5 million at closing and Redx is eligible to receive up to $203 million in development, regulatory and commercial milestone payments from us, as well as incremental tiered royalties in mid-single digit percentage based on any future net sales.
- In August 2019, we announced the acquisition of Cavion, Inc., a clinical-stage biotechnology company, or Cavion, for an upfront payment of $52.5 million with the potential for additional payments of up to $260.0 million upon the achievement of certain clinical, regulatory and commercial milestones, for a total potential consideration of $312.5 million. As a result of the acquisition, we added CX-8998, now named JZP-385, a modulator of T-type calcium channels, for the potential treatment of essential tremor, to our clinical pipeline.
- Beginning in the third quarter of 2019, we have been entering into agreements with commercial payor organizations, including pharmacy benefit managers, or PBMs, to ensure patient access for our products, Sunosi and Xyrem, and to support the long-term success of our sleep and neuroscience therapeutic area. These agreements include terms related to the payment of rebates and/or administrative fees on these products. We expect to enter into additional agreements in 2020 to continue to ensure patient access to and coverage for our products.
- In October 2019, our board of directors authorized the additional repurchase of our ordinary shares having an aggregate purchase price of up to $500.0 million, exclusive of any brokerage commissions, under our share repurchase program. During 2019, we repurchased an aggregate of $301.5 million of our ordinary shares under our share repurchase program at an average price of $133.97 per share.

Challenges, Risks and Trends Related to Our Business

Our business is substantially dependent on Xyrem. Our future plans assume that sales of Xyrem will increase, but there is no guarantee that we can maintain sales of Xyrem at or near current levels, or that Xyrem sales will continue to grow. We have periodically increased the price of Xyrem, most recently in January 2020, and there is no guarantee that we will be able to make similar price adjustments in the future or that price adjustments we have taken or may take in the future will not negatively affect Xyrem sales volumes and revenues from Xyrem. In the future, we expect Xyrem to face competition from generic and authorized generic versions of sodium oxybate pursuant to the settlement agreements we have entered into with multiple abbreviated new drug application filers. Generic competition can decrease the prices at which Xyrem is sold and the number of prescriptions written for Xyrem. Xyrem may also face competition from other branded sodium oxybate products and other new and existing branded market entrants.

As for other products and product candidates in our sleep and neuroscience therapeutic area, we obtained approval of Sunosi in the U.S. and EU, and in January 2020, we submitted an NDA for marketing approval of JZP-258. Our future plans assume that, if approved, JZP-258 may be prescribed to patients as a safer and clinically superior alternative to Xyrem as well as being prescribed to patients who may otherwise be ineligible to take Xyrem based on its high sodium content. We are aware that Avadel Pharmaceuticals plc, or Avadel, is conducting a Phase 3 clinical trial of a once-nightly formulation of sodium oxybate which uses its proprietary technology for the treatment of EDS and cataplexy in patients with narcolepsy, and that Avadel has indicated that it intends to seek approval using the Section 505(b)(2) approval pathway referencing the safety and efficacy data for Xyrem. If the FDA approves Avadel's product and grants it orphan drug exclusivity before we obtain approval for JZP-258, there is a risk that JZP-258 will not be approvable for a narcolepsy indication for seven years unless it can establish clinical superiority to Avadel's product. We cannot predict the timing of Avadel's submission or how the FDA will evaluate any clinical superiority arguments that either company may make, but a delay in approval or inability to obtain approval for JZP-258 could materially and adversely affect our business, financial condition, results of operations and growth prospects. For example, the FDA could determine that our application is not sufficient to support approval with the label we have requested, and require amendments or additional data, which could delay or preclude the approval of our NDA. If we are unable to successfully commercialize Sunosi and/or JZP-258 (if approved), or if sales of Sunosi and JZP-258 do not reach the levels we expect, our anticipated revenue from our sleep therapeutic area will be negatively affected, which would have a material adverse effect on our business, financial condition, results of operations and growth prospects.

In addition to our sleep and neuroscience products and product candidates, we are commercializing a portfolio of hematology/oncology products, including Defitelio, Erwinaze and Vyxeos. An inability to effectively commercialize Defitelio and Vyxeos and to maximize their potential where possible through successful research and development activities could have a material adverse effect on our business, financial condition, results of operations and growth prospects. Our license and supply agreement with PBL, which includes an exclusive right to market, sell or distribute Erwinaze, an exclusive license to Erwinaze trademarks, and a non-exclusive license to PBL's manufacturing know-how, will expire on December 31, 2020. If we are unable to enter into a new agreement with PBL for our marketing rights to Erwinaze and are unable to replace the product sales we would lose from Erwinaze, our business, financial condition, results of operations and growth prospects would be materially adversely affected.

A key aspect of our growth strategy is our continued investment in our evolving and expanding research and development activities. In neuroscience, we are developing JZP-385 for the treatment of essential tremor and expect to initiate a Phase 2b study of JZP-385 in the fourth quarter of 2020. In our hematology/oncology, we are developing JZP-458, a recombinant *Erwinia* asparaginase, and we expect to submit a BLA to the FDA for JZP-458 as early as the fourth quarter of 2020. If we are not successful in the clinical development of these or other product candidates, if we are unable to obtain regulatory approval for our product candidates in a timely manner, or at all, or if sales of an approved product do not reach the levels we expect, our anticipated revenue from our product candidates would be negatively affected, which could have a material adverse effect on our business, financial condition, results of operations and growth prospects.

In addition to continued investment in our research and development pipeline, we intend to grow our business by acquiring or in-licensing, and developing, including with collaboration partners, additional products and product candidates that we believe are highly differentiated and have significant commercial potential. For example, we entered into an exclusive license agreement for U.S. commercialization rights to lurbinectedin with PharmaMar, who had submitted an NDA to the FDA in December 2019 for accelerated approval of lurbinectedin, and the NDA was accepted for filing with priority review in February 2020 with a PDUFA date of August 16, 2020. Failure to identify and acquire, in-license or develop additional products or product candidates, successfully manage the risks associated with integrating any products or product candidates into our portfolio or the risks arising from anticipated and unanticipated problems in connection with an acquisition or in-licensing, could have a material adverse effect on our business, results of operations and financial condition.

We are increasingly experiencing pressure from third party payors to agree to discounts, rebates or restrictive pricing terms for Xyrem. We also need to obtain adequate formulary positions and reimbursement coverage for newly-launched products such as Sunosi

and future products, if approved, such as JZP-258, JZP-458 and lurbinectedin. Entering into agreements with payors or PBMs to ensure patient access has and will likely continue to result in higher gross to net deductions for future periods for these products. We cannot guarantee we will be able to agree to commercially reasonable terms with PBMs and other third party payors, or that we will be able to ensure patient access to our existing and future products. In addition to increasing pricing pressure from, and restrictions on reimbursement imposed by payors, healthcare cost containment has received global attention, and drug pricing by pharmaceutical companies is currently, and is expected to continue to be, subject to close scrutiny by both federal and state governments. If healthcare policies or reforms intended to curb healthcare costs are adopted or if we experience negative publicity with respect to pricing of our products or the pricing of pharmaceutical drugs generally, the prices that we charge for our products may be affected, our commercial opportunity may be limited and/or our revenues from sales of our products may be negatively impacted.

Finally, business practices by pharmaceutical companies, including product formulation improvements, patent settlements, REMS programs, have increasingly drawn public scrutiny from legislators and regulatory agencies, with allegations that such programs are used as a means of improperly blocking or delaying competition. If we become the subject of any future government investigation with respect to our business practices, including as they relate to the Xyrem REMS, the launch of JZP-258, our patent settlements or otherwise, we could incur significant expense and could be distracted from operation of our business and execution of our strategy. Any of these risks and uncertainties could have a material adverse effect on our business, financial condition, results of operations and growth prospects. All of these risks are discussed in greater detail, along with other risks, in "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K.

Results of Operations

The following table presents revenues and expenses for the years ended December 31, 2019, 2018 and 2017 (in thousands except percentages):

	2019	Change	2018	Change	2017
Product sales, net	$2,135,601	14%	$1,869,473	17%	$1,601,399
Royalties and contract revenues	26,160	22%	21,449	24%	17,294
Cost of product sales (excluding amortization of acquired developed technologies)	127,930	5%	121,544	10%	110,188
Selling, general and administrative	736,942	8%	683,530	26%	544,156
Research and development	299,726	32%	226,616	14%	198,442
Intangible asset amortization	354,814	76%	201,498	33%	152,065
Impairment charges	—	N/A(1)	42,896	N/A(1)	—
Acquired in-process research and development	109,975	N/A(1)	—	N/A(1)	85,000
Interest expense, net	72,261	(6)%	77,075	(1)%	77,756
Foreign exchange loss	5,811	(15)%	6,875	(31)%	9,969
Loss on extinguishment and modification of debt	—	N/A(1)	1,425	N/A(1)	—
Income tax provision (benefit)	(73,154)	N/A(1)	80,162	N/A(1)	(47,740)
Equity in loss of investees	4,089	86%	2,203	118%	1,009

(1) Comparison to prior period is not meaningful.

Revenues

The following table presents product sales, royalties and contract revenues, and total revenues for the years ended December 31, 2019, 2018 and 2017 (in thousands except percentages):

	2019	Change	2018	Change	2017
Xyrem	$1,642,525	17%	$1,404,866	18%	$1,186,699
Erwinaze/Erwinase	177,465	2%	174,739	(11)%	197,340
Defitelio/defibrotide	172,938	16%	149,448	12%	133,650
Vyxeos	121,407	20%	100,835	N/A(1)	33,790
Sunosi	3,714	N/A(1)	—	N/A(1)	—
Other	17,552	(56)%	39,585	(21)%	49,920
Product sales, net	2,135,601	14%	1,869,473	17%	1,601,399
Royalties and contract revenues	26,160	22%	21,449	24%	17,294
Total revenues	$2,161,761	14%	$1,890,922	17%	$1,618,693

(1) Comparison to prior period is not meaningful.

Product Sales, Net

Xyrem product sales increased by 17% in 2019 compared to 2018 primarily due to a higher average net selling price and, to a lesser extent, an increase in sales volume. Price increases were instituted in January and July 2019, January 2018 and in January and July 2017. Xyrem product sales volume increased by 6% in 2019 compared to 2018 primarily driven by an increase in the average number of patients on Xyrem. Xyrem product sales increased by 18% in 2018 compared to 2017 primarily due to an increase in sales volume and, to a lesser extent, a higher average net selling price. Xyrem product sales volume increased by 9% in 2018 compared to 2017 primarily driven by an increase in the average number of patients on Xyrem. Erwinaze/Erwinase product sales increased in 2019 compared to 2018 primarily due to higher sales volume as a result of availability of supply from the manufacturer. Erwinaze/Erwinase product sales decreased in 2018 compared to 2017 primarily due to lower sales volume as a result of limited supply from the manufacturer. Ongoing supply challenges continue to negatively impact our ability to supply the market. We experienced limited product availability of Erwinaze and supply disruptions globally in 2019 and may experience continued supply disruptions in 2020. Defitelio/defibrotide product sales increased in 2019 compared to 2018, primarily due to higher sales volumes, partially offset by the negative impact of foreign exchange rates. Defitelio/defibrotide product sales increased in 2018 compared to 2017, primarily due to higher sales volumes and, to a lesser extent, the positive impact of foreign exchange rates. Vyxeos product sales increased in 2019 compared to 2018 primarily due to volumes following the commercial launch in Europe in September 2018. Vyxeos product sales were $33.8 million in 2017 following its launch in the U.S. in August 2017. Other product sales decreased in 2019 and in 2018 compared to the immediately preceding years, primarily due to the sale of our rights to Prialt to TerSera Therapeutics LLC, or TerSera, in September 2018. We expect total product sales will increase in 2020 over 2019, primarily due to expected growth in sales of Xyrem and Sunosi.

Royalties and Contract Revenues

Royalties and contract revenues increased in 2019 and in 2018 compared to the immediately preceding years, primarily due to higher contract revenues from out-licensing agreements. We expect royalties and contract revenues to decrease in 2020 compared to 2019 primarily due to lower milestone revenues from out-licensing arrangements.

Cost of Product Sales

Cost of product sales increased in 2019 and in 2018 compared to the immediately preceding years, primarily due to changes in product mix and increases in net product sales. Gross margin as a percentage of net product sales was 94.0%, 93.5% and 93.1% in 2019, 2018 and 2017, respectively. The increase in the gross margin percentage in 2019 and in 2018 compared to the immediately preceding years was primarily due to changes in product mix. We expect that our gross margin as a percentage of net product sales will not change materially in 2020 compared to 2019.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased in 2019 compared to 2018 primarily due to higher expenses related to the launch of Sunosi in the U.S., an increase in compensation-related expenses driven by higher headcount, and an increase in other expenses related to the expansion and support of our business, partially offset by the recognition of a loss contingency including related interest of $58.2 million recorded in 2018 resulting from a settlement agreement with the U.S. Department of Justice and the Office of Inspector General. For a further description of this matter, see the risk factors under the heading “Other Risks Related to Our Business and Industry” in Part I, Item 1A of this Annual Report on Form 10-K. Selling, general and administrative expenses increased in 2018 compared to 2017 primarily due to the recognition of a loss contingency and related interest recorded in 2018, increased expenses related to the commercial launch of Sunosi in the U.S. and the rolling launch of Vyxeos in Europe, and an increase in compensation-related expenses driven by higher headcount compared to 2017. We expect selling, general and administrative expenses in 2020 to increase compared to 2019, primarily due to an increase in compensation-related expenses driven by higher headcount and other expenses related to the expansion and support of our business including an increase in expenses related to the continuation of the commercial launch of Sunosi in the U.S., the commercial launch of Sunosi in Europe and the planned commercial launch of both lurbinectedin and JZP-258 in the U.S.

Research and Development Expenses

Research and development expenses consist primarily of costs related to clinical studies and outside services, personnel expenses, milestone expenses and other research and development costs. Clinical study and outside services costs relate primarily to services performed by clinical research organizations, materials and supplies, and other third party fees. Personnel expenses relate primarily to salaries, benefits and share-based compensation. Other research and development expenses primarily include overhead allocations consisting of various support and facilities-related costs. We do not track fully-burdened research and development expenses on a project-by-project basis. We manage our research and development expenses by identifying the research and development activities that we anticipate will be performed during a given period and then prioritizing efforts based on our assessment of which development activities are

important to our business and have a reasonable probability of success, and by dynamically allocating resources accordingly. We also continually review our development pipeline projects and the status of their development and, as necessary, reallocate resources among our development pipeline projects that we believe will best support the future growth of our business.

The following table provides a breakout of our research and development expenses by major categories of expense (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Clinical studies and outside services	$133,042	$117,903	$ 93,317
Personnel expenses	100,090	71,158	63,941
Milestone expense	26,000	11,000	19,500
Other	40,594	26,555	21,684
Total	$299,726	$226,616	$198,442

Research and development expenses increased by $73.1 million in 2019 compared to 2018. Clinical studies and outside services costs increased in 2019 compared to 2018 primarily due to an increase in expenses related to our ongoing preclinical and clinical development programs and support of partner programs. Personnel expenses increased by $28.9 million in 2019 compared to 2018, primarily due to increased headcount in support of our development programs. Milestone expense of $26.0 million in 2019 related to milestone payments made under our license and option agreement with Pfenex. Research and development expenses increased by $28.2 million in 2018 compared to 2017. Clinical studies and outside services costs increased in 2018 compared to 2017 primarily due to an increase in expenses related to our ongoing preclinical and clinical development programs and support of partner programs, partially offset by lower clinical trial costs following the completion of three Phase 3 clinical trials for Sunosi. Personnel expenses increased by $7.2 million in 2018 compared to 2017, primarily due to increased headcount in support of our development programs. Milestone expense of $11.0 million in 2018 related to milestone payments following FDA acceptance of our NDA for Sunosi in March 2018.

For 2020 and beyond, we expect that our research and development expenses will continue to increase from previous levels, particularly as we prepare for anticipated regulatory submissions and data read-outs from clinical trials, initiate and undertake additional clinical trials and related development work and potentially acquire rights to additional product candidates. A discussion of the risks and uncertainties with respect to our research and development activities, including completing the development of and regulatory submissions for our product candidates, and the consequences to our business, financial position and growth prospects can be found in “Risk Factors” in Part I, Item 1A of this Annual Report on Form 10-K.

Intangible Asset Amortization

Intangible asset amortization increased in 2019 compared to 2018 primarily due to the amortization of the cost of the PRV of $111.1 million in full following the notification to the FDA of our intention to redeem it in the NDA submission for JZP-258 and the reduction in the estimated remaining useful life of the Erwinaze intangible asset resulting from the contract termination notice we received from PBL in February 2019. Intangible asset amortization increased in 2018 compared to 2017 primarily due to the commencement of amortization of the Vyxeos intangible asset upon FDA approval in August 2017. Intangible asset amortization is expected to decrease in 2020 compared to 2019 as a result of the amortization in full of our PRV intangible asset in the fourth quarter of 2019.

Impairment Charges

In June 2018, we entered into an asset purchase agreement, or APA, with TerSera, pursuant to which TerSera agreed to purchase substantially all of the assets held by us related to Prialt. In connection with the entry into the APA, which was subsequently amended, we reclassified the Prialt assets to be transferred to TerSera as assets held for sale and recorded these assets at fair value, less estimated sales costs, resulting in the recognition of an impairment charge of $42.9 million in 2018. The transaction closed in September 2018.

Acquired In-Process Research and Development

In 2019, acquired in-process research and development, or IPR&D expense primarily related to an upfront payment of $56.0 million to Codiak in connection with our strategic collaboration agreement and the value attributed to JZP-385 in the acquisition of Cavion.

In 2017, IPR&D expense was primarily related to an upfront payment of $75.0 million in connection with our collaboration and option agreement with ImmunoGen.

Interest Expense, Net

Interest expense, net decreased by $4.8 million in 2019 compared to 2018, primarily due to higher interest income. Interest expense, net decreased by $0.7 million in 2018 compared to 2017, primarily due to higher interest income, partially offset by the interest expense on our 1.50% exchangeable senior notes due 2024, or the 2024 Notes, which were issued in August 2017. We expect interest expense, net will not change materially in 2020 compared to 2019.

Foreign Exchange Loss

The foreign exchange loss is primarily related to the translation of euro-denominated net monetary liabilities, primarily intercompany balances, held by subsidiaries with a U.S. dollar functional currency and related foreign exchange forward contracts not designated as hedging instruments.

Loss on Extinguishment and Modification of Debt

In 2018, we recorded a loss of $1.4 million in connection with the second amendment of our 2015 credit agreement, related to unamortized debt issuance costs and original issue discount associated with extinguished debt and new third party fees associated with modified debt.

Income Tax Provision (Benefit)

Our income tax benefit was $73.2 million and $47.7 million in 2019 and 2017, respectively, and our income tax provision was $80.2 million in 2018. The income tax benefit for 2019 includes a discrete tax benefit of $112.3 million resulting from an intra-entity intellectual property asset transfer. The income tax benefit, which represents a deferred future benefit, was recorded as a deferred tax asset. The income tax benefit in 2017 included a benefit of $148.8 million relating to the enactment of the U.S. Tax Cuts and Jobs Act, or the U.S. Tax Act. The effective tax rates for 2019, 2018 and 2017 were (16.1)%, 15.1% and (10.8)%, respectively. The effective tax rate for 2019 was lower than the Irish statutory rate of 12.5% primarily due to the impact of the intra-entity intellectual property asset transfer. The effective tax rate for 2018 was higher than the Irish statutory rate of 12.5%, primarily due to income taxable at a rate higher than the Irish statutory rate and unrecognized tax benefits, partially offset by the release of reserves related to unrecognized tax benefits upon the expiration of a statute of limitation, originating tax credits and the release of a valuation allowance held primarily against certain foreign net operating losses or NOLs. The effective tax rate for 2017 was lower than the Irish statutory rate of 12.5%, primarily due to the impact of the enactment of the U.S. Tax Act. The decrease in the effective tax rate for 2019 compared to 2018 was primarily due to the impact of the intra-entity intellectual property asset transfer. Excluding this effect, the decrease in the effective tax rate for 2019 compared to 2018 was primarily due to the benefit from the application of the Italian patent box incentive regime. The increase in the effective tax rate for 2018 compared to 2017 was primarily due to the impact of the enactment of the U.S. Tax Act. Excluding this effect, the effective rate in 2018 would have decreased compared to 2017 primarily due to a decrease in the U.S. corporate income tax rate.

Equity in Loss of Investees

Equity in loss of investees relates to our share in the net loss of companies in which we have made investments accounted for under the equity method of accounting.

Liquidity and Capital Resources

As of December 31, 2019, we had cash, cash equivalents and investments of $1.1 billion, borrowing availability under our revolving credit facility of $1.6 billion and a long-term debt principal balance of $1.8 billion. Our long-term debt included $617.7 million aggregate principal amount term loan, $575.0 million principal amount of our 1.875% exchangeable senior notes due 2021 and $575.0 million principal amount of our 1.50% exchangeable senior notes due 2024. During 2019, 2018 and 2017, we generated cash flows from operations of $776.4 million, $798.9 million and $693.1 million, respectively, and we expect to continue to generate positive cash flow from operations.

We believe that our existing cash, cash equivalents and investments balances, cash we expect to generate from operations and funds available under our revolving credit facility will be sufficient to fund our operations and to meet our existing obligations for the foreseeable future. The adequacy of our cash resources depends on many assumptions, including primarily our assumptions with respect to product sales and expenses, as well as the other factors set forth in "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K under the headings "Risks Related to our Lead Products and Product Candidates" and *"To continue to grow our business, we will need to commit substantial resources, which could result in future losses or otherwise limit our opportunities or affect our ability to operate our*

business." Our assumptions may prove to be wrong or other factors may adversely affect our business, and as a result we could exhaust or significantly decrease our available cash resources, and we may not be able to generate sufficient cash to service our debt obligations which could, among other things, force us to raise additional funds and/or force us to reduce our expenses, either of which could have a material adverse effect on our business.

To continue to grow our business over the longer term, we plan to commit substantial resources to product acquisition and in-licensing, product development, clinical trials of product candidates and expansion of our commercial, development, manufacturing and other operations. In this regard, we have evaluated and expect to continue to evaluate a wide array of strategic transactions as part of our strategy to acquire or in-license and develop additional products and product candidates. Acquisition opportunities that we pursue could materially affect our liquidity and capital resources and may require us to incur additional indebtedness, seek equity capital or both. In addition, we may pursue new operations or continue the expansion of our existing operations. Accordingly, we expect to continue to opportunistically seek access to additional capital to license or acquire additional products, product candidates or companies to expand our operations or for general corporate purposes. Raising additional capital could be accomplished through one or more public or private debt or equity financings, collaborations or partnering arrangements. Any equity financing would be dilutive to our shareholders, and the consent of the lenders under the amended credit agreement could be required for certain financings.

In November 2016, our board of directors authorized a share repurchase program pursuant to which we were authorized to repurchase a number of ordinary shares having an aggregate purchase price of up to $300 million, exclusive of any brokerage commissions. In November and December 2018, our board of directors increased the existing share repurchase program authorization by $320.0 million and $400.0 million, respectively. In October 2019, our board of directors authorized the additional repurchase of shares having an aggregate purchase price of up to $500.0 million, exclusive of any brokerage commissions. Under this program, which has no expiration date, we may repurchase ordinary shares from time to time on the open market. The timing and amount of repurchases will depend on a variety of factors, including the price of our ordinary shares, alternative investment opportunities, restrictions under the amended credit agreement, corporate and regulatory requirements and market conditions. The repurchase program may be modified, suspended or discontinued at any time without prior notice. In 2019, we spent a total of $301.5 million to purchase 2.3 million of our ordinary shares under the share repurchase program at an average total purchase price, including brokerage commissions, of $133.97 per share. In 2018, we spent a total of $523.7 million to repurchase 3.5 million of our ordinary shares at an average total purchase price, including brokerage commissions, of $148.33 per share. All ordinary shares repurchased were canceled. As of December 31, 2019, the remaining amount authorized under the share repurchase program was $577.7 million.

The following table shows a summary of our cash flows for the periods indicated (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Net cash provided by operating activities	$ 776,401	$ 798,904	$ 693,087
Net cash used in investing activities	(155,300)	(394,487)	(268,950)
Net cash used in financing activities	(293,745)	(479,130)	(409,111)
Effect of exchange rates on cash and cash equivalents	366	(1,700)	5,046
Net increase (decrease) in cash and cash equivalents	$ 327,722	$ (76,413)	$ 20,072

Net cash provided by operating activities of $776.4 million in 2019 related to net income of $523.4 million, adjusted for acquired IPR&D expense of $110.0 million and non-cash items of $293.1 million primarily related to intangible asset amortization, share-based compensation expense, amortization of debt discount and deferred financing costs and deferred income taxes, partially offset by a net cash outflow of $150.1 million related to changes in operating assets and liabilities. Net cash provided by operating activities of $798.9 million in 2018 related to net income of $447.1 million, adjusted for non-cash items of $328.5 million primarily related to intangible asset amortization, share-based compensation expense, impairment charges, amortization of debt discount and deferred financing costs and deferred income taxes and a net cash inflow of $23.3 million related to changes in operating assets and liabilities. Net cash provided by operating activities of $693.1 million in 2017 related to net income of $487.8 million, adjusted for acquired IPR&D expense totaling $85.0 million and non-cash items of $93.5 million primarily related to intangible asset amortization, share-based compensation expense, amortization of debt discount and deferred financing costs and deferred income taxes and a net cash inflow of $26.8 million related to changes in operating assets and liabilities.

Net cash used in investing activities in 2019 related to milestone payments of $80.5 million triggered by FDA approval of Sunosi in March 2019 and subsequent U.S. Drug Enforcement Agency scheduling in June 2019, upfront payments for acquired IPR&D of $61.7 million primarily related to our strategic collaboration agreement with Codiak, consideration, net of cash acquired, of $55.1 million related to our acquisition of Cavion and purchases of property, plant and equipment of $40.1 million, partially offset by the net proceeds on maturity

of investments of $67.9 million and net proceeds from the sale of assets of $14.2 million related to the sale of our rights to Prialt to TerSera in September 2018. Net cash used in investing activities in 2018 primarily related to the net acquisition of investments of $310.9 million, acquisition of intangible assets of $111.1 million, related to the purchase of a PRV, and purchases of property, plant and equipment of $20.4 million, partially offset by net proceeds of $47.9 million from the sale of our rights to Prialt to TerSera. Net cash used in investing activities in 2017 primarily related to the net acquisition of investments of $155.0 million, upfront payments for acquired IPR&D of $85.0 million primarily related to our collaboration and option agreement with ImmunoGen and purchases of property, plant and equipment of $29.0 million.

Net cash used in financing activities in 2019 primarily related to repurchase of ordinary shares under our share repurchase program of $301.5 million, repayment of our term loan principal of $33.4 million and payment of employee withholding taxes of $16.7 million related to share-based awards, partially offset by proceeds from employee equity incentive and purchase plans of $57.8 million. Net cash used in financing activities in 2018 primarily related to repurchase of ordinary shares under our share repurchase program of $523.7 million, repayment of our term loan principal of $25.7 million, payment of employee withholding taxes of $17.9 million related to share-based awards and payment of debt modification costs of $6.4 million, partially offset by proceeds from employee equity incentive and purchase plans of $93.3 million. Net cash used in financing activities in 2017 primarily related to repayment of borrowings under our revolving credit facility of $850.0 million, repurchase of ordinary shares under our share repurchase program of $98.8 million, repayment of our term loan principal of $36.1 million and payment of employee withholding taxes of $18.6 million related to share-based awards, partially offset by net proceeds from issuance of debt of $559.4 million, proceeds from employee equity incentive and purchase plans of $31.8 million and proceeds from a tenant improvement allowance on a build-to-suit lease of $3.2 million.

Credit Agreement

On June 18, 2015, Jazz Pharmaceuticals plc, as guarantor, and certain of our wholly owned subsidiaries, as borrowers, entered into the 2015 credit agreement that provided for a $750.0 million principal amount term loan, which was drawn in full at closing, and a $750.0 million revolving credit facility, of which $160.0 million was drawn at closing and subsequently repaid. We used the proceeds from initial borrowings under the 2015 credit agreement to repay in full the $893.1 million principal amount of term loans outstanding under a previous credit agreement, and to pay related fees and expenses. The previous credit agreement was terminated upon repayment of the term loans outstanding thereunder.

On July 12, 2016, Jazz Pharmaceuticals plc, as guarantor, and certain of our wholly owned subsidiaries, as borrowers, entered into Amendment No. 1 to our 2015 credit agreement to provide for a revolving credit facility of $1.25 billion and a $750.0 million term loan facility. We used the proceeds of $1.0 billion of loans under the revolving credit facility, together with cash on hand, to fund the Celator Acquisition.

On June 7, 2018, we entered into the second amendment to the 2015 credit agreement to provide for a revolving credit facility of $1.6 billion, which replaced the existing revolving credit facility of $1.25 billion, and a new $667.7 million term loan facility, which replaced the $750.0 million term loan facility, of which $617.7 million principal amount was outstanding as of December 31, 2019. We refer to the 2015 credit agreement as amended by the first and second amendments as the amended credit agreement in this report. We expect to use the proceeds from future loans under the revolving credit facility, if any, for permitted capital expenditures and acquisitions, to provide for ongoing working capital requirements and for other general corporate purposes.

Under the amended credit agreement, the term loan matures on June 7, 2023 and the revolving credit facility terminates, and any loans outstanding thereunder become due and payable, on June 7, 2023.

Borrowings under the amended credit agreement bear interest, at our option, at a rate equal to either (a) the LIBOR rate, plus an applicable margin ranging from 1.375% to 1.750% per annum, based upon our secured leverage ratio, or (b) the prime lending rate, plus an applicable margin ranging from 0.375% to 0.750% per annum, based upon our secured leverage ratio. The revolving credit facility has a commitment fee payable on the undrawn amount ranging from 0.25% to 0.35% per annum based upon our secured leverage ratio.

As of December 31, 2019, the interest rate on the term loan was 3.17% and the effective interest rate was 3.66%. As of December 31, 2019, we had undrawn amounts under our revolving credit facility totaling $1.6 billion.

Jazz Pharmaceuticals plc and certain of our wholly owned subsidiaries are borrowers under the amended credit agreement. The borrowers' obligations under the amended credit agreement and any hedging or cash management obligations entered into with a lender are guaranteed on a senior secured basis by Jazz Pharmaceuticals plc and certain of our subsidiaries (including the issuer of the 2021 Notes and the 2024 Notes, together referred to as the Exchangeable Senior Notes as described below) and are secured by substantially all of Jazz Pharmaceuticals plc's, the borrowers' and the guarantor subsidiaries' assets.

We may make voluntary prepayments of principal at any time without payment of a premium. We are required to make mandatory prepayments of the term loan (without payment of a premium) with (1) net cash proceeds from certain non-ordinary course asset sales (subject to other exceptions), (2) net cash proceeds from issuances of debt (other than certain permitted debt), and (3) casualty proceeds and condemnation awards (subject to other exceptions).

Principal repayments of the term loan, which are due quarterly, are equal to 5.0% per annum of the principal amount outstanding on June 7, 2018 of $667.7 million, with any remaining balance payable on the maturity date.

The amended credit agreement contains financial covenants that require Jazz Pharmaceuticals plc and our restricted subsidiaries to not (a) exceed a maximum secured net leverage ratio or (b) fall below a cash interest coverage ratio. As of December 31, 2019, we were in compliance with these financial covenants.

Exchangeable Senior Notes

2024 Notes. In the third quarter of 2017, our wholly owned subsidiary Jazz Investments I Limited, completed a private placement of $575.0 million principal amount of 2024 Notes. We used the net proceeds from this offering to repay $500.0 million in outstanding loans under the revolving credit facility under the amended credit agreement and to pay related fees and expenses. We used the remainder of the net proceeds for general corporate purposes. The 2024 Notes are senior unsecured obligations of Jazz Investments I Limited and are fully and unconditionally guaranteed on a senior unsecured basis by Jazz Pharmaceuticals plc and will rank pari passu in right of payment with the existing 2021 Notes. Interest on the 2024 Notes is payable semi-annually in cash in arrears on February 15 and August 15 of each year, beginning on February 15, 2018, at a rate of 1.50% per year. In certain circumstances, we may be required to pay additional amounts as a result of any applicable tax withholding or deductions required in respect of payments on the 2024 Notes. The 2024 Notes mature on August 15, 2024, unless earlier exchanged, repurchased or redeemed.

The holders of the 2024 Notes have the ability to require us to repurchase all or a portion of their 2024 Notes for cash in the event we undergo certain fundamental changes, such as specified change of control transactions, our liquidation or dissolution or the delisting of our ordinary shares from The Nasdaq Global Select Market. Prior to August 15, 2024, we may redeem the 2024 Notes, in whole but not in part, subject to compliance with certain conditions, if we have, or on the next interest payment date would, become obligated to pay to the holder of any 2024 Notes additional amounts as a result of certain tax-related events. We also may redeem the 2024 Notes on or after August 20, 2021, in whole or in part, if the last reported sale price per ordinary share has been at least 130% of the exchange price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide the notice of redemption.

The 2024 Notes are exchangeable at an initial exchange rate of 4.5659 ordinary shares per $1,000 principal amount of 2024 Notes, which is equivalent to an initial exchange price of approximately $219.02 per ordinary share. Upon exchange, the 2024 Notes may be settled in cash, ordinary shares or a combination of cash and ordinary shares, at our election. Our intent and policy is to settle the principal amount of the 2024 Notes in cash upon exchange. The exchange rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain make-whole fundamental changes occurring prior to the maturity date of the 2024 Notes or upon our issuance of a notice of redemption, we will in certain circumstances increase the exchange rate for holders of the 2024 Notes who elect to exchange their 2024 Notes in connection with that make-whole fundamental change or during the related redemption period. Prior to May 15, 2024, the 2024 Notes will be exchangeable only upon satisfaction of certain conditions and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date.

2021 Notes. In August 2014, Jazz Investments I Limited completed a private placement of $575.0 million principal amount of the 2021 Notes. The 2021 Notes are senior unsecured obligations of Jazz Investments I Limited and are fully and unconditionally guaranteed on a senior unsecured basis by Jazz Pharmaceuticals plc. Interest on the 2021 Notes is payable semi-annually in cash in arrears on February 15 and August 15 of each year, beginning on February 15, 2015, at a rate of 1.875% per year. In certain circumstances, we may be required to pay additional amounts as a result of any applicable tax withholding or deductions required in respect of payments on the 2021 Notes. The 2021 Notes mature on August 15, 2021, unless earlier exchanged, repurchased or redeemed.

The holders of the 2021 Notes have the ability to require us to repurchase all or a portion of their 2021 Notes for cash in the event we undergo certain fundamental changes, such as specified change of control transactions, our liquidation or dissolution or the delisting of our ordinary shares from The Nasdaq Global Select Market. Prior to August 15, 2021, we may redeem the 2021 Notes, in whole but not in part, subject to compliance with certain conditions, if we have, or on the next interest payment date would, become obligated to pay to the holder of any 2021 Note additional amounts as a result of certain tax-related events. We also may redeem the 2021 Notes on or after August 20, 2018, in whole or in part, if the last reported sale price per ordinary share has been at least 130% of the exchange price then in effect for at

least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide the notice of redemption.

The 2021 Notes are exchangeable at an initial exchange rate of 5.0057 ordinary shares per $1,000 principal amount of 2021 Notes, which is equivalent to an initial exchange price of approximately $199.77 per ordinary share. Upon exchange, the 2021 Notes may be settled in cash, ordinary shares or a combination of cash and ordinary shares, at our election. Our intent and policy is to settle the principal amount of the 2021 Notes in cash upon exchange. The exchange rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain make-whole fundamental changes occurring prior to the maturity date of the 2021 Notes or upon our issuance of a notice of redemption, we will in certain circumstances increase the exchange rate for holders of the 2021 Notes who elect to exchange their 2021 Notes in connection with that make-whole fundamental change or during the related redemption period. Prior to February 15, 2021, the 2021 Notes will be exchangeable only upon satisfaction of certain conditions and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date.

Contractual Obligations

The table below presents a summary of our contractual obligations as of December 31, 2019 (in thousands):

	Payments Due by Period				
Contractual Obligations (1)	Total	Less than 1 Year	1-3 Years	3-5 Years	More than 5 years
Term loan—principal	$ 617,654	$ 33,387	$ 66,773	$ 517,494	$ —
Term loan—interest (2)	65,920	20,641	37,759	7,520	—
Exchangeable Senior Notes—principal	1,150,000	—	575,000	575,000	—
Exchangeable Senior Notes—interest (3)	64,688	19,406	28,031	17,251	—
Revolving credit facility—commitment fee (4)	13,922	4,067	8,111	1,744	—
Commitment to equity method investees	15,075	7,000	8,075	—	—
Purchase and other obligations (5)	98,034	74,488	17,551	5,908	87
Operating lease obligations (6)	213,578	21,315	42,243	45,365	104,655
Total	$2,238,871	$180,304	$783,543	$1,170,282	$104,742

(1) This table does not include potential future milestone payments or royalty obligations to third parties under asset purchase, product development, license and other agreements as the timing and likelihood of such milestone payments are not known, and, in the case of royalty obligations, as the amount of such obligations are not estimable. In December 2019, we entered into an exclusive license agreement with PharmaMar, for development and U.S. commercialization of lurbinectedin, a product candidate under clinical investigation for the treatment of patients with relapsed SCLC. The agreement became effective in January 2020 and we made an upfront payment of $200.0 million. PharmaMar is also eligible to receive milestone payments totaling up to $800.0 million based on regulatory and commercial milestones. PharmaMar is also eligible to receive incremental tiered royalties on future net sales of lurbinectedin ranging from the high teens up to 30 percent. In January 2019, we entered into a strategic collaboration agreement with Codiak for an exclusive, worldwide, royalty-bearing license to develop, manufacture and commercialize potential therapeutic candidates directed at five targets to be developed using Codiak's engEx™ precision engineering platform for exosome therapeutics. Codiak is eligible to receive up to $20 million in preclinical development milestone payments. Codiak is also eligible to receive milestone payments totaling up to $200 million per target based on investigational NDA acceptance, clinical and regulatory milestones, including approvals in the U.S., the EU and Japan, and certain sales milestones. Codiak is also eligible to receive tiered royalties on net sales of each approved product. In August 2019, we announced the acquisition of Cavion, for an upfront payment of $52.5 million with the potential for additional payments of up to $260.0 million upon the achievement of certain clinical, regulatory and commercial milestones, for a total potential consideration of $312.5 million. In July 2019, we acquired a pan-RAF inhibitor program for the potential treatment of RAF and RAS mutant tumors from Redx. Redx is eligible to receive up to $203 million in development, regulatory and commercial milestone payments from us, as well as incremental tiered royalties in mid-single digit percentage based on any future net sales. In 2014, we acquired worldwide development, manufacturing and commercial rights to Sunosi from Aerial (other than in certain jurisdictions in Asia where SK Biopharmaceuticals Co., Ltd, or SK, retains rights). In January 2020, we received approval of Sunosi by the EC, triggering regulatory milestones of $10.0 million and $3.0 million to Aerial and SK, respectively. Aerial and SK are currently eligible to receive milestone payments up to an aggregate of $165 million based on sales milestones and tiered royalties from high single digits to mid-teens based on potential future sales of Sunosi. In July 2016, we entered into an agreement with Pfenex, which was subsequently amended in December 2017, that granted us worldwide rights to develop and commercialize multiple early-stage hematology product candidates and an option for us to negotiate a license for a recombinant pegaspargase product candidate with Pfenex. Under the amended agreement, Pfenex is eligible to receive future payments of up to $163 million

based on the achievement of development, regulatory and sales milestones. Potential future milestone payments to other third parties under other agreements could be up to an aggregate of $123 million. These would become due and payable to other third parties upon the achievement of certain developmental, clinical, regulatory and/or commercial milestones, the timing and likelihood of which are not known. We are also obligated under these agreements to pay royalties on net sales of certain products at specified rates, which royalties are dependent on future product sales and are not provided for in the table above as they are not estimable.

(2) Estimated interest for variable rate debt was calculated based on the interest rates in effect as of December 31, 2019. The interest rate for our term loan borrowing was 3.17% as of December 31, 2019. Interest that is fixed, associated with our interest rate swaps, is calculated based on the fixed interest swap rate as of December 31, 2019.

(3) We used the fixed interest rates of 1.875% on the 2021 Notes and 1.50% on the 2024 Notes to estimate interest owed as of December 31, 2019 until the respective final maturity dates of these notes.

(4) Our revolving credit facility has a commitment fee payable on the undrawn amount ranging from 0.25% to 0.35% per annum based upon our secured leverage ratio. In the table above, we used a rate of 0.25% and assumed undrawn amounts of $1.6 billion as of December 31, 2019 to estimate commitment fees owed.

(5) Consists primarily of non-cancelable commitments to our third party manufacturers and to ImmunoGen under our amended collaboration and option agreement.

(6) Consists primarily of the minimum lease payments for our office buildings and automobile lease payments for our sales force. Operating expenses associated with our leased office buildings are not included in table above.

We do not provide for Irish income taxes on undistributed earnings of our foreign operations that are intended to be indefinitely reinvested in our foreign subsidiaries. Cumulative unremitted earnings of our foreign subsidiaries totaled approximately $1.6 billion at December 31, 2019. In the event of the distribution of those earnings in the form of dividends or otherwise, we may be liable for income taxes, subject to an adjustment, if any, for foreign tax credits and foreign withholding taxes payable to certain foreign tax authorities. As of December 31, 2019, it is not practicable to determine the amount of the income tax liability related to these undistributed earnings due to a variety of factors.

In addition, our liability for unrecognized tax benefits has been excluded from the above contractual obligations table as the nature and timing of future payments, if any, cannot be reasonably estimated. As of December 31, 2019, our liability for gross unrecognized tax benefits amounted to $124.3 million (excluding interest and penalties). We do not anticipate that the amount of our existing liability for unrecognized tax benefits will significantly change in the next twelve months.

Critical Accounting Policies and Significant Estimates

A critical accounting policy is one that is both important to the portrayal of our financial condition and results of operations and requires management's most difficult, subjective or complex judgments, often as a result of the need to make estimates about the effect of matters that are inherently uncertain. While our significant accounting policies are described in more detail in Note 2, Summary of Significant Accounting Policies, of the Notes to Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K, we believe the following accounting estimates and policies to be critical.

Revenue Recognition

Revenues are recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services.

Product Sales, Net

Product sales revenue is recognized when control has transferred to the customer, which occurs at a point in time, which is typically on delivery to the customer or, in the case of products that are subject to consignment agreements, when the customer removes product from our consigned inventory location for shipment directly to a patient.

A significant portion of our net product revenues is derived from sales of Xyrem. We sell Xyrem in the U.S. to a single central pharmacy, Express Scripts Specialty Distribution Services, Inc., or ESSDS. In 2019, sales of Xyrem to Express Scripts accounted for 76% of our net product sales. We recognize revenues from sales of Xyrem within the U.S. when control has transferred to the customer, which occurs when ESSDS removes product from our consigned inventory location at its facility for shipment directly to a patient. We do not accept returns of Xyrem from ESSDS.

Items Deducted from Gross Product Sales. Revenues from sales of products are recorded net of government rebates and rebates under managed care plans and commercial payor contracts, estimated allowances for sales returns, government chargebacks, prompt payment discounts, patient coupon programs, and specialty distributor and wholesaler fees. Calculating certain of these items involves

estimates and judgments based on sales or invoice data, contractual terms, historical utilization rates, new information regarding changes in applicable regulations and guidelines that would impact the amount of the actual rebates, our expectations regarding future utilization rates and channel inventory data. We review the adequacy of our provisions for sales deductions on a quarterly basis. Amounts accrued for sales deductions are adjusted when trends or significant events indicate that adjustment is appropriate and to reflect actual experience. Because we derive a significant portion of our revenues from sales of Xyrem in the U.S. to one specialty pharmacy customer, ESSDS, we have a much higher level of knowledge about each prescription than if we sold the product through the normal pharmaceutical wholesaler channel as we do with most of our other products. The most significant items deducted from gross product sales where we exercise judgment are rebates, sales returns and chargebacks.

The following table presents the activity and ending balances for our sales-related accruals and allowances (in thousands):

	Rebates Payable	Sales Returns Reserve	Chargebacks	Discounts and Distributor Fees	Total
Balance at December 31, 2016	$ 68,263	$ 4,366	$ 4,749	$ 4,199	$ 81,577
Provision, net	144,596	446	41,941	36,642	223,625
Payments/credits	(135,697)	(1,161)	(43,027)	(36,532)	(216,417)
Balance at December 31, 2017	77,162	3,651	3,663	4,309	88,785
Provision, net	160,648	1,203	41,387	42,956	246,194
Payments/credits	(156,696)	(2,344)	(44,642)	(41,808)	(245,490)
Balance at December 31, 2018	81,114	2,510	408	5,457	89,489
Provision, net	153,930	5,519	41,864	56,041	257,354
Payments/credits	(152,191)	(4,567)	(41,138)	(47,377)	(245,273)
Balance at December 31, 2019	$ 82,853	$ 3,462	$ 1,134	$ 14,121	$ 101,570

Total items deducted from gross product sales were $257.4 million, $246.2 million and $223.6 million, or 10.8%, 11.6% and 12.3% as a percentage of gross product sales, in 2019, 2018 and 2017, respectively. Included in these amounts are immaterial adjustments related to prior-year sales due to changes in estimates. Such amounts represented less than 1% of net product sales for each of the years ended December 31, 2019, 2018 and 2017.

Rebates

We are subject to rebates on sales made under governmental and managed-care pricing programs and commercial payor contracts in the U.S. The largest of these rebates is associated with sales covered by Medicaid. We participate in state government-managed Medicaid programs as well as certain other qualifying federal and state government programs under the terms of which discounts and rebates are provided to participating government entities. We offer rebates and discounts to managed health care organizations and commercial payors in the U.S. In estimating our provisions for rebates, we consider relevant statutes with respect to governmental pricing programs and contractual sales terms with managed-care providers, commercial payors and group purchasing organizations. We estimate the rebate provision based on historical utilization rates, historical payment experience, new information regarding changes in regulations and guidelines that would impact the amount of the actual rebates, our expectations regarding future utilization rates and channel inventory data obtained from our major U.S. wholesalers in accordance with our inventory management agreements. Estimating these rebates is complex, in part due to the time delay between the date of sale and the actual settlement of the liability. We believe that the methodology we use to estimate rebates on product sales made under governmental and managed-care pricing programs is reasonable and appropriate given current facts and circumstances. However, estimates may vary from actual experience.

Rebates were $153.9 million, $160.6 million and $144.6 million, or 6.5%, 7.6% and 7.9% as a percentage of gross product sales, in 2019, 2018 and 2017, respectively. Rebates as a percentage of gross product sales decreased in 2019 compared to 2018 primarily due to a decrease in the Tricare per unit rebate amount. Rebates as a percentage of gross product sales did not change materially in 2018 compared to 2017. We expect that rebates will continue to significantly impact our reported net sales. Rebates as a percentage of gross product sales are expected to increase in 2020 compared to 2019, primarily due to the entry into additional contracts with commercial payors.

Sales returns

For certain products, we allow customers to return product within a specified period before and after the applicable expiration date and issue credits which may be applied against existing or future invoices. We account for sales returns as a reduction in net revenue at the time a sale is recognized by establishing an accrual in an amount equal to the estimated value of products expected to be returned. The sales return accrual is estimated principally based on historical experience, the level and estimated shelf life of inventory in the distribution channel, our return policy and expected market events including generic competition.

Sales returns were $5.5 million, $1.2 million and $0.4 million, or 0.2%, 0.1% and 0% as a percentage of gross product sales in 2019, 2018 and 2017, respectively. Sales returns as a percentage of gross product sales did not change materially in 2019 and 2018 compared to the immediately preceding years. Sales returns as a percentage of gross product sales are not expected to change materially in 2020 compared to 2019.

Chargebacks

We participate in chargeback programs with a number of entities, principally the U.S. Department of Defense, the U.S. Department of Veterans Affairs and other public parties, under which pricing on products below wholesalers' list prices is provided to participating entities. These entities purchase product through wholesalers at the lower negotiated price and the wholesalers charge back to us the difference between their acquisition cost and the lower negotiated price. We record the difference as allowances against accounts receivable. We determine our estimate of the chargebacks provision primarily based on historical experience on a product and program basis, current contract prices under the chargeback programs and channel inventory data.

Chargebacks were $41.9 million, $41.4 million and $41.9 million, or 1.8%, 2.0% and 2.3% as a percentage of gross product sales in 2019, 2018 and 2017, respectively. Chargebacks as a percentage of gross product sales did not change materially in 2019 and 2018 compared to the immediately preceding years. We expect that chargebacks will continue to significantly impact our reported net product sales. Chargebacks as a percentage of gross product sales are not expected to change materially in 2020 compared to 2019.

Discounts and distributor fees

Discounts and distributor fees comprise prompt payment discounts, patient coupon programs and specialty distributor and wholesaler fees. We offer customers a cash discount on gross product sales as an incentive for prompt payment. We estimate provisions for prompt pay discounts based on contractual sales terms with customers and historical payment experience. To help patients afford our products, we have various programs to assist them, including patient assistance programs, a free product voucher program and co-pay coupon programs for certain products. We estimate provisions for these programs primarily based on expected program utilization, adjusted as necessary to reflect our actual experience on a product and program basis. Specialty distributor and wholesaler fees comprise fees for distribution of our products. We estimate provisions for distributor and wholesaler fees primarily based on sales volumes and contractual terms with our distributors.

Discounts and distributor fees were $56.0 million, $43.0 million and $36.6 million, or 2.4%, 2.0% and 2.0% as a percentage of gross product sales in 2019, 2018 and 2017, respectively. Discounts and distributor fees as a percentage of gross product sales did not change materially in 2019 and 2018 compared to the immediately preceding years. We expect that discounts and distributor fees as a whole will continue to significantly impact our reported net product sales. Discounts and distributor fees as a percentage of gross product sales are not expected to change materially in 2020 compared to 2019.

Goodwill and Intangible Assets

Goodwill

Goodwill represents the excess of the acquisition consideration over the fair value of assets acquired and liabilities assumed. We test goodwill for impairment annually in October and when events or changes in circumstances indicate that the carrying value may not be recoverable. We have determined that we operate in a single segment and have a single reporting unit associated with the development and commercialization of pharmaceutical products. The annual test for goodwill impairment is a two-step process. The first step is a comparison of the fair value of the reporting unit with its carrying amount, including goodwill. If this step indicates impairment, then in the second step, the loss is measured as the excess of recorded goodwill over its implied fair value. Implied fair value is the excess of the fair value of the reporting unit over the fair value of all identified assets and liabilities. We have determined the fair value of our single reporting unit to be equal to our market capitalization, as determined by our traded share price, plus a control premium. The control premium used was based on a review of such premiums identified in recent acquisitions of companies of similar size and in similar industries. We performed our annual goodwill impairment test in October 2019 and concluded that goodwill was not impaired as the fair value of the reporting unit significantly exceeded its carrying amount, including goodwill. As of December 31, 2019, we had $920.0 million of goodwill resulting from acquisitions accounted for as business combinations.

Intangible Assets

We have acquired a number of intangible assets, including intangible assets related to currently marketed products (developed technology) and intangible assets related to product candidates (IPR&D). When significant identifiable intangible assets are acquired, we engage an independent third party valuation firm to assist in determining the fair values of these assets as of the acquisition date.

Discounted cash flow models are typically used in these valuations, which require the use of significant estimates and assumptions, including but not limited to:

- estimating the timing of and expected costs to complete the in-process projects;
- projecting regulatory approvals;
- estimating future cash flows from product sales resulting from completed products and in-process projects; and
- developing appropriate discount rates and probability rates by project.

We believe the fair values that we assign to the intangible assets acquired are based upon reasonable estimates and assumptions given available facts and circumstances as of the acquisition dates. No assurance can be given, however, that the underlying assumptions used to estimate expected cash flows will transpire as estimated. In addition, we are required to estimate the period of time over which to amortize the intangible assets, which requires significant judgment.

Finite-lived intangible assets consist primarily of purchased developed technology and are amortized on a straight-line basis over their estimated useful lives, which range from two to 18 years. The estimated useful lives associated with intangible assets are consistent with the estimated lives of the products and may be modified when circumstances warrant. Intangible assets with finite lives are reviewed for impairment whenever events or circumstances indicate that the carrying value of an asset may not be recoverable. Events giving rise to impairment are an inherent risk in the pharmaceutical industry and cannot be predicted. Factors that we consider in deciding when to perform an impairment review include significant under-performance of a product in relation to expectations, significant negative industry or economic trends, and significant changes or planned changes in our use of the assets. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of the asset and its eventual disposition are less than its carrying amount. Estimating future cash flows related to an intangible asset involves estimates and assumptions. If our assumptions are not correct, there could be an impairment loss or, in the case of a change in the estimated useful life of the asset, a change in amortization expense.

IPR&D is not amortized but is tested for impairment annually or when events or circumstances indicate that the fair value may be below the carrying value of the asset. If the carrying value of the assets is not expected to be recovered, the assets are written down to their estimated fair values.

As of December 31, 2019, we had $2.3 billion of finite-lived intangible assets and $0.1 billion of IPR&D assets. In relation to the sale of our rights to Prialt to TerSera in 2018, we adjusted the carrying value of the assets held for sale to fair value less costs to sell, which resulted in an impairment charge of $42.9 million in our consolidated statements of income in 2018, primarily related to the carrying balances of intangible assets. We did not recognize an impairment charge related to our intangible assets in 2019 and 2017.

Please refer to Note 9, Goodwill and Intangible assets, of the Notes to Consolidated Financial Statements included elsewhere in this Annual Report on Form 10-K for further information about our intangible assets and the remaining useful lives of our finite-lived intangible assets as of December 31, 2019.

Income Taxes

We use the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amount and the tax basis of assets and liabilities and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. We provide a valuation allowance when it is more-likely-than-not that deferred tax assets will not be realized.

Our most significant tax jurisdictions are Ireland and the U.S. Significant estimates are required in determining our provision for income taxes. Some of these estimates are based on management's interpretations of jurisdiction-specific tax laws or regulations and the likelihood of settlement related to tax audit issues. Various internal and external factors may have favorable or unfavorable effects on our future effective income tax rate. These factors include, but are not limited to, changes in tax laws, regulations and/or rates, changing interpretations of existing tax laws or regulations, changes in estimates of prior years' items, the impact of accounting for share-based compensation, changes in our international organization, likelihood of settlement, and changes in overall levels of income before taxes.

Realization of our deferred tax assets is dependent upon the generation of future taxable income, the amount and timing of which are uncertain. In evaluating our ability to recover our deferred tax assets, we consider all available positive and negative evidence, including cumulative income in recent fiscal years, our forecast of future taxable income exclusive of certain reversing temporary differences and significant risks and uncertainties related to our business. In determining future taxable income, we are responsible for assumptions utilized including the amount of state, federal and international pre-tax operating income, the reversal of certain temporary differences and the

implementation of feasible and prudent tax planning strategies. These assumptions require significant judgment about the forecasts of future taxable income and are consistent with the plans and estimates that we are using to manage our underlying business.

We maintain a valuation allowance against certain other deferred tax assets where realizability is not certain. We periodically evaluate the likelihood of the realization of deferred tax assets and reduce the carrying amount of these deferred tax assets by a valuation allowance to the extent we believe a portion will not be realized. This determination depends on a variety of factors, some of which are subjective, including our recent cumulative earnings experience by taxing jurisdiction, expectations of future taxable income, carryforward periods available to us for tax reporting purposes, various income tax strategies and other relevant factors. If we determine that the deferred tax assets are not realizable in a future period, we would record material changes to income tax provision in that period.

We have also provided for unrecognized tax benefits that we believe are not more-likely-than-not to be sustained upon examination by tax authorities. The evaluation of unrecognized tax benefits is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. We evaluate unrecognized tax benefits on a quarterly basis and adjust the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions. Our liabilities for unrecognized tax benefits can be relieved only if the contingency becomes legally extinguished through either payment to the taxing authority or the expiration of the statute of limitations, the recognition of the benefits associated with the position meet the more-likely-than-not threshold or the liability becomes effectively settled through the examination process. We consider matters to be effectively settled once the taxing authority has completed all of its required or expected examination procedures, including all appeals and administrative reviews. We also accrue for potential interest and penalties related to unrecognized tax benefits in income tax provision (benefit).

Share-Based Compensation

We have elected to use the Black-Scholes option pricing model to calculate the fair value of share option grants under our equity incentive plans and grants under our employee stock purchase plan, or ESPP, and we are using the straight-line method to allocate compensation cost to reporting periods. The fair value of share options was estimated using the following assumptions:

	Year Ended December 31,		
	2019	2018	2017
Volatility	32%	35%	35%
Expected term (years)	4.5	4.5	4.3
Range of risk-free rates	1.3-2.5%	2.2-3.0%	1.6-2.1%
Expected dividend yield	— %	— %	— %

The two inputs which require the greatest judgment and have a large impact on fair values are volatility and expected term.

We rely only on a blend of the historical and implied volatilities of our own ordinary shares to determine expected volatility for share option grants. In addition, we use a single volatility estimate for each share option grant. The weighted-average volatility is determined by calculating the weighted average of volatilities for all share options granted in a given year.

The expected term of share option grants represents the weighted-average period the awards are expected to remain outstanding. We estimated the weighted-average expected term based on historical exercise data.

Recent Accounting Pronouncements

For a discussion of recent accounting pronouncements, please see Note 2, Summary of Significant Accounting Policies, of the Notes to Consolidated Financial Statements included in Part IV of this Annual Report on Form 10-K.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. The primary objectives of our investment policy, in order of priority, are as follows: safety and preservation of principal and diversification of risk; liquidity of investments sufficient to meet cash flow requirements; and competitive yield. Although our investments are subject to market risk, our investment policy specifies credit quality standards for our investments and limits the amount of credit exposure from any single issue, issuer or certain types of investment. Our investment policy allows us to maintain a portfolio of cash equivalents and short-term investments in a variety of securities, including U.S. federal government and federal agency securities, corporate bonds or commercial paper issued by U.S. corporations, money market instruments, certain qualifying money market mutual funds, certain repurchase agreements, and tax-exempt obligations of states, agencies and municipalities in the U.S. Our cash equivalents and investments as of December 31, 2019 consisted of time deposits and money market funds which are not subject to significant interest rate risk.

We are exposed to risks associated with changes in interest rates in connection with our term loan borrowings. On June 7, 2018, we entered into the amended credit agreement to provide for a revolving credit facility of $1.6 billion, which replaced the existing revolving credit facility of $1.25 billion, and a new $667.7 million term loan facility, which replaced the $750.0 million term loan facility, of which $617.7 million principal amount was outstanding as of December 31, 2019. There were no borrowings outstanding under the revolving credit facility as of December 31, 2019. To achieve a desired mix of floating and fixed interest rates on our term loan, we entered into interest rate swap agreements in March 2017 that are designated as cash flow hedges. These derivative instruments are utilized for risk management purposes, and we do not use these derivatives for speculative trading purposes. The interest rate swap agreements have a notional amount of $300.0 million and are effective from March 3, 2017 through July 12, 2021 and convert the floating rate on a portion of our term loan to a fixed rate of 1.895%, plus the borrowing spread. The impact of a hypothetical increase or decrease in interest rates on the fair value of our interest rate swap contracts would be offset by a change in the value of the underlying liability. If interest rates were to increase or decrease by 100 basis points, interest expense for 2020 would increase or decrease by approximately $2.8 million, based on the unhedged portion of our outstanding variable rate borrowings.

In August 2014, we completed a private placement of $575.0 million aggregate principal amount of the 2021 Notes. In the third quarter of 2017, we completed another private placement of $575.0 million aggregate principal amount of the 2024 Notes. The 2021 Notes and 2024 Notes have fixed annual interest rates of 1.875% and 1.50%, respectively, and we, therefore, do not have economic interest rate exposure on the Exchangeable Senior Notes. However, the fair values of the Exchangeable Senior Notes are exposed to interest rate risk. Generally, the fair values of the Exchangeable Senior Notes will increase as interest rates fall and decrease as interest rates rise. The fair values of the Exchangeable Senior Notes are also affected by volatility in our ordinary share price. As of December 31, 2019, the fair values of the 2021 Notes and the 2024 Notes were estimated to be $592 million and $579 million, respectively.

In July 2017, the Financial Conduct Authority, the authority that regulates LIBOR, announced it intended to stop compelling banks to submit rates for the calculation of LIBOR after 2021. The Alternative Reference Rates Committee, or ARRC, in the U.S. has proposed that the Secured Overnight Financing Rate, or SOFR, is the rate that represents best practice as the alternative to the U.S. dollar, or USD, LIBOR for use in derivatives and other financial contracts that are currently indexed to USD LIBOR. ARRC has proposed a paced market transition plan to SOFR from USD LIBOR and organizations are currently working on industry wide and company specific transition plans as it relates to derivatives and cash markets exposed to USD LIBOR. We have certain financial contracts, including the amended credit agreement and our interest rate swaps, that are indexed to USD LIBOR and are monitoring this activity and evaluating the related risks.

Foreign Exchange Risk. We have significant operations in Europe as well as in the U.S. The functional currency of each foreign subsidiary is generally the local currency. We are exposed to foreign currency exchange risk as the functional currency financial statements of foreign subsidiaries are translated to U.S. dollars. The assets and liabilities of our foreign subsidiaries having a functional currency other than the U.S. dollar are translated into U.S. dollars at the exchange rate prevailing at the balance sheet date, and at the average exchange rate for the reporting period for revenue and expense accounts. The cumulative foreign currency translation adjustment is recorded as a component of accumulated other comprehensive loss in shareholders' equity. The reported results of our foreign subsidiaries will be influenced by their translation into U.S. dollars by currency movements against the U.S. dollar. Our primary currency translation exposure is related to our subsidiaries that have functional currencies denominated in the euro. A hypothetical 10% strengthening or weakening in the rates used to translate the results of our foreign subsidiaries that have functional currencies denominated in euro would have increased or decreased net income for the year ended December 31, 2019 by approximately $14 million.

Transactional exposure arises where transactions occur in currencies other than the functional currency. Transactions in foreign currencies are recorded at the exchange rate prevailing at the date of the transaction. The resulting monetary assets and liabilities are translated into the appropriate functional currency at exchange rates prevailing at the balance sheet date and the resulting gains and losses are reported in foreign exchange gain (loss) in the consolidated statements of income. As of December 31, 2019, our primary exposure to transaction risk related to euro net monetary liabilities, including intercompany loans, held by subsidiaries with a U.S. dollar

functional currency. We have entered into foreign exchange forward contracts to manage this currency risk. These foreign exchange forward contracts are not designated as hedges; gains and losses on these derivative instruments are designed to offset gains and losses on the underlying balance sheet exposures. As of December 31, 2019, we held foreign exchange forward contracts with notional amounts totaling $180.9 million. The net asset fair value of outstanding foreign exchange forward contracts was $2.3 million as of December 31, 2019. Based on our foreign currency exchange rate exposures as of December 31, 2019, a hypothetical 10% adverse fluctuation in exchange rates would decrease the fair value of our foreign exchange forward contracts by approximately $15 million as of December 31, 2019. The resulting loss on these forward contracts would be offset by a positive impact on the underlying monetary assets and liabilities.

Item 8. Financial Statements and Supplementary Data

Our consolidated financial statements as listed below are included in this Annual Report on Form 10-K as pages F-1 through F-44.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures. We have carried out an evaluation under the supervision and with the participation of management, including our chief executive officer, who is both our principal executive officer and interim principal financial officer, of our disclosure controls and procedures (as defined in Rule 13a-15(e) of the Exchange Act) as of the end of the period covered by this Annual Report on Form 10-K. Based on his evaluation, our chief executive officer, who is both our principal executive officer and interim principal financial officer concluded that our disclosure controls and procedures were effective as of December 31, 2019.

Limitations on the Effectiveness of Controls. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Because of inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues, if any, within an organization have been detected. Accordingly, our disclosure controls and procedures are designed to provide reasonable, not absolute, assurance that the objectives of our disclosure control system are met and, as set forth above, our chief executive officer, who is both our principal executive officer and interim principal financial officer has concluded, based on his evaluation as of the end of the period covered by this report, that our disclosure controls and procedures were effective to provide reasonable assurance that the objectives of our disclosure control system were met.

Changes in Internal Control over Financial Reporting. During the quarter ended December 31, 2019, there were no changes to our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting. The following report is provided by management in respect of our internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act):

1. Our management is responsible for establishing and maintaining adequate internal control over financial reporting.
2. Our management used the Committee of Sponsoring Organizations of the Treadway Commission Internal Control—Integrated Framework (2013), or the COSO framework, to evaluate the effectiveness of internal control over financial reporting. Management believes that the COSO framework is a suitable framework for its evaluation of financial reporting because it is free from bias, permits reasonably consistent qualitative and quantitative measurements of our internal control over financial reporting, is sufficiently complete so that those relevant factors that would alter a conclusion about the effectiveness of our internal control over financial reporting are not omitted and is relevant to an evaluation of internal control over financial reporting.
3. Management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2019 and has concluded that such internal control over financial reporting was effective. There were no material weaknesses in internal control over financial reporting identified by management.
4. KPMG, our independent registered public accounting firm, has audited the consolidated financial statements of Jazz Pharmaceuticals plc as of and for the year ended December 31, 2019, included herein, and has issued an audit report on our internal control over financial reporting, which is included below.

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Jazz Pharmaceuticals plc:

Opinion on Internal Control Over Financial Reporting

We have audited Jazz Pharmaceuticals plc's and subsidiaries' (the 'Company') internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ('PCAOB'), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, and the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes and financial statement schedule at Item 15(a)2 (collectively, the "consolidated financial statements"), and our report dated February 25, 2020 expressed an unqualified opinion on those consolidated financial statements.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG

Dublin, Ireland
February 25, 2020

Item 9B. Other Information

Not applicable.

PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K and incorporated by reference to our definitive proxy statement for our 2020 annual general meeting of shareholders, or our 2020 Proxy Statement, to be filed pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, or Exchange Act. If our 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this item is to be included in our 2020 Proxy Statement as follows:

- The information relating to our directors and nominees for director is to be included in the section entitled "Proposal 1—Election of Directors;"
- The information relating to our executive officers is to be included in the section entitled "Executive Officers;"
- The information relating to our audit committee, audit committee financial expert and procedures by which shareholders may recommend nominees to our board of directors is to be included in the section entitled "Corporate Governance and Board Matters;" and
- The information regarding compliance with Section 16(a) of the Exchange Act is to be included in the section entitled "Section 16(a) Beneficial Ownership Reporting Compliance."

Such information is incorporated herein by reference to our 2020 Proxy Statement, provided that if the 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

Our Code of Conduct applies to all of our employees, directors and officers, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, and those of our subsidiaries. The Code of Conduct is available on our website at *www.jazzpharmaceuticals.com* under the section entitled "About" under "Corporate Ethics." We intend to satisfy the disclosure requirements under Item 5.05 of the SEC Form 8-K regarding an amendment to, or waiver from, a provision of our Code of Conduct by posting such information on our website at the website address and location specified above.

Item 11. Executive Compensation

The information required by this item is to be included in our 2020 Proxy Statement under the sections entitled "Executive Compensation," "Director Compensation," "Corporate Governance and Board Matters—Compensation Committee Interlocks and Insider Participation" and "Corporate Governance and Board Matters—Compensation Committee Report" and is incorporated herein by reference, provided that if the 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this item with respect to equity compensation plans is to be included in our 2020 Proxy Statement under the section entitled "Equity Compensation Plan Information" and the information required by this item with respect to security ownership of certain beneficial owners and management is to be included in our 2020 Proxy Statement under the section entitled "Security Ownership of Certain Beneficial Owners and Management" and in each case is incorporated herein by reference, provided that if the 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this item is to be included in our 2020 Proxy Statement under the sections entitled "Certain Relationships and Related Party Transactions" and "Corporate Governance and Board Matters—Independence of the Board of Directors" and is incorporated herein by reference, provided that if the 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

Item 14. Principal Accountant Fees and Services

The information required by this item is to be included in our 2020 Proxy Statement under the section entitled "Proposal 2—On a Non-Binding Advisory Basis, Ratify Appointment of Independent Registered Accounting Firm and, On a Binding Basis, Authorize the Board of Directors, Acting Through the Audit Committee, to Determine the Independent Auditors' Remuneration" and is incorporated herein by reference, provided that if the 2020 Proxy Statement is not filed within 120 days after the end of the fiscal year covered by this Annual Report on Form 10-K, the omitted information will be included in an amendment to this Annual Report on Form 10-K filed not later than the end of such 120-day period.

PART IV

Item 15. Exhibits and Financial Statement Schedules

(a) The following documents are filed as part of this Annual Report on Form 10-K:

1. Index to Financial Statements:

See Index to Consolidated Financial Statements in Item 8 of this Annual Report on Form 10-K.

2. Financial Statement Schedules:

The following financial statement schedule of Jazz Pharmaceuticals plc is filed as part of this Annual Report on Form 10-K on page F-44 and should be read in conjunction with the consolidated financial statements of Jazz Pharmaceuticals plc.

Schedule II: Valuation and Qualifying Accounts

All other schedules are omitted because they are not applicable, not required under the instructions, or the requested information is shown in the consolidated financial statements or related notes thereto.

(b) Exhibits—The following exhibits are included herein or incorporated herein by reference:

Exhibit Number	Description of Document
2.1	Agreement and Plan of Merger and Reorganization, dated as of September 19, 2011, by and among Azur Pharma Limited (now Jazz Pharmaceuticals plc), Jaguar Merger Sub Inc., Jazz Pharmaceuticals, Inc. and Seamus Mulligan, solely in his capacity as the Indemnitors' Representative (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals, Inc.'s Current Report on Form 8-K (File No. 001-33500) filed with the SEC on September 19, 2011).
2.2	Letter Agreement, dated as of January 17, 2012, by and among Jazz Pharmaceuticals plc, Jaguar Merger Sub Inc., Jazz Pharmaceuticals, Inc. and Seamus Mulligan, solely in his capacity as the Indemnitors' Representative (incorporated herein by reference to Exhibit 2.2 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on January 18, 2012).
2.3	Agreement and Plan of Merger, dated as of April 26, 2012, by and among Jazz Pharmaceuticals plc, Jewel Merger Sub Inc., EUSA Pharma Inc., and Essex Woodlands Health Ventures, Inc., Mayflower L.P., and Bryan Morton, in their capacity as the representatives of the equity holders of EUSA Pharma Inc. (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on April 27, 2012).
2.4	Assignment, dated as of June 11, 2012, by and among Jazz Pharmaceuticals plc and Jazz Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 2.1B in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on June 12, 2012).

Exhibit Number	Description of Document
2.5	Tender Offer Agreement, dated December 19, 2013, by and among Jazz Pharmaceuticals Public Limited Company, Jazz Pharmaceuticals Italy S.r.l. and Gentium S.p.A. (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K/A (File No. 001-33500), as filed with the SEC on December 20, 2013).
2.6†	Asset Purchase Agreement, dated January 13, 2014, by and among Jazz Pharmaceuticals International III Limited, Aerial BioPharma, LLC and Jazz Pharmaceuticals plc (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on January 13, 2014).
2.7†	Assignment Agreement, dated July 1, 2014, by and among Jazz Pharmaceuticals International II Limited, Sigma-Tau Pharmaceuticals, Inc., Jazz Pharmaceuticals plc and Gentium S.p.A. (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on August 5, 2014).
2.8	Amended and Restated Agreement for the Acquisition of the Topaz Portfolio Business of Jazz Pharmaceuticals plc, dated March 20, 2015, between Jazz Pharmaceuticals plc and Essex Bidco Limited (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on March 23, 2015).
2.9	Agreement and Plan of Merger, dated as of May 27, 2016, by and among Jazz Pharmaceuticals plc, Plex Merger Sub, Inc., and Celator Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on May 31, 2016).
3.1	Amended and Restated Memorandum and Articles of Association of Jazz Pharmaceuticals plc, as amended on August 4, 2016 (incorporated herein by reference to Exhibit 3.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2016, as filed with the SEC on August 9, 2016).
4.1	Reference is made to Exhibit 3.1.
4.3A	Investor Rights Agreement, dated July 7, 2009 by and between Jazz Pharmaceuticals, Inc. and the other parties named therein (incorporated herein by reference to Exhibit 10.88 in Jazz Pharmaceuticals, Inc.'s Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on July 7, 2009).
4.3B	Assignment, Assumption and Amendment Agreement, dated as of January 18, 2012, by and among Jazz Pharmaceuticals, Inc., Jazz Pharmaceuticals plc and the other parties named therein (incorporated herein by reference to Exhibit 4.7B in the Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2011, as filed by Jazz Pharmaceuticals plc on behalf of and as successor to Jazz Pharmaceuticals, Inc. with the SEC on February 28, 2012).
4.4A	Indenture, dated as of August 13, 2014, by and among Jazz Pharmaceuticals plc, Jazz Investments I Limited and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on August 13, 2014).
4.4B	Form of 1.875% Exchangeable Senior Note due 2021 (incorporated herein by reference to Exhibit 4.2 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on August 13, 2014).
4.5A	Indenture, dated as of August 23, 2017, among Jazz Pharmaceuticals Public Limited Company, Jazz Investments I Limited and U.S. Bank National Association (incorporated herein by reference to Exhibit 4.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on August 23, 2017).
4.5B	Form of 1.50% Exchangeable Senior Note due 2024 (incorporated herein by reference to Exhibit 4.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on August 23, 2017).
4.6	Description of Share Capital
10.1	Settlement Agreement, dated as of April 5, 2017, by and between Jazz Pharmaceuticals, Inc. and Jazz Pharmaceuticals Ireland Limited, and Roxane Laboratories, Inc., West-Ward Pharmaceuticals Corp., Eurohealth (USA), Inc., and Hikma Pharmaceuticals PLC (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2017, as filed with the SEC on August 8, 2017).
10.2	Settlement Agreement, dated as of April 4, 2019, by and among United States of America, acting through the United States Department of Justice and on behalf of the Office of Inspector General of the Department of Health and Human Services, Jazz Pharmaceuticals plc, Jazz Pharmaceuticals, Inc., and Jazz Pharmaceuticals Ireland Ltd. (incorporated herein by reference to Exhibit 10.7 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).

Exhibit Number	Description of Document
10.3	Corporate Integrity Agreement, dated as of April 3, 2019, by and between Jazz Pharmaceuticals plc and the Office of Inspector General of the United States Department of Health and Human Services (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.4†	Supply Agreement, dated as of April 1, 2010, by and between Jazz Pharmaceuticals, Inc. and Siegfried (USA) Inc. (incorporated herein by reference to Exhibit 10.54 in Jazz Pharmaceuticals, Inc.'s Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2010, as filed with the SEC on May 6, 2010).
10.5†	Royalty Bearing Licence Agreement and Supply Agreement Re Erwinia-Derived Asparaginase, dated July 22, 2005, between Public Health England (formerly Health Protection Agency) and EUSA Pharma SAS (formerly OPi, S.A.), as amended on each of December 22, 2009, March 23, 2012 and August 8, 2012 (incorporated herein by reference to Exhibit 10.11 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q/A (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 9, 2012).
10.6	Novation Agreement relating to Royalty Bearing Licence Agreement and Supply Agreement re Erwinia-Derived Asparaginase, dated as of May 13, 2015, by and among EUSA Pharma SAS, the Secretary of State for Health acting through Public Health England and Porton Biopharma Limited (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2015, as filed with the SEC on August 5, 2015).
10.7	Contract Variation Agreement by and between Porton Biopharma Limited and Jazz Pharmaceuticals France SAS, dated as of December 20, 2018 (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2018, as filed with the SEC on February 26, 2019).
10.8†	Master Manufacturing Services Agreement, dated as of October 1, 2015, by and between Jazz Pharmaceuticals Ireland Limited and Patheon Pharmaceuticals Inc. (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2015, as filed with the SEC on February 23, 2016).
10.9A†	Clinical and Commercial Manufacturing and Supply Agreement, dated as of December 22, 2010, between Celator Pharmaceuticals, Inc. and Baxter Oncology GmbH (incorporated herein by reference to Exhibit 10.8 in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the year ended December 31, 2017, as filed with the SEC on February 27, 2018).
10.9B†	Amendment No. 1 Clinical and Commercial Manufacturing and Supply Agreement, dated as of January 18, 2018, by and between Jazz Pharmaceuticals Ireland Limited and Baxter Oncology GmbH (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2018, as filed with the SEC on May 8, 2018).
10.10‡	Contract Manufacturing Agreement, dated as of January 20, 2020, by and between Jazz Pharmaceuticals Ireland Limited and Siegfried AG.
10.11A†	Pharmacy Master Services Agreement, dated as of July 1, 2017, by and between Jazz Pharmaceuticals, Inc. and Express Scripts Specialty Distribution Services, Inc. (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2017, as filed with the SEC on August 8, 2017).
10.11B	Amendment No. 1 to Pharmacy Master Services Agreement, effective as of June 30, 2019, by and between Jazz Pharmaceuticals, Inc. and Express Scripts Specialty Distribution Services, Inc. (incorporated herein by reference to Exhibit 10.8 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.12‡	License Agreement, dated as of December 19, 2019, between Pharma Mar, S.A. and Jazz Pharmaceuticals Ireland Limited (incorporated herein by reference to Exhibit 2.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on January 22, 2020).
10.13A	Credit Agreement, dated as of June 18, 2015, among Jazz Pharmaceuticals plc, Jazz Securities Limited, Jazz Pharmaceuticals, Inc., Jazz Financing I Limited, Jazz Pharmaceuticals Ireland Limited, the lenders party thereto and Bank of America, N.A., as Collateral Agent, Administrative Agent, Swing Line Lender and L/C Issuer (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on June 18, 2015).

Exhibit Number	Description of Document
10.13B	Amendment No. 1, dated as of July 12, 2016, to Credit Agreement, dated as of June 18, 2015, among Jazz Pharmaceuticals plc, Jazz Securities Limited, Jazz Pharmaceuticals, Inc., Jazz Financing I Limited, Jazz Pharmaceuticals Ireland Limited, the lenders party thereto and Bank of America, N.A., as Collateral Agent, Administrative Agent, Swing Line Lender and L/C Issuer (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2016, as filed with the SEC on August 9, 2016).
10.13C	Amendment No. 2, dated as of June 7, 2018, to Credit Agreement, dated as of June 18, 2015 (as previously amended by Amendment No. 1, dated as of July 12, 2016), among Jazz Pharmaceuticals plc, Jazz Securities Designated Activity Company, Jazz Pharmaceuticals, Inc., Jazz Financing I Designated Activity Company, Jazz Pharmaceuticals Ireland Limited, the lenders party thereto and Bank of America, N.A., as Collateral Agent, Administrative Agent, Swing Line Lender and L/C Issuer (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
10.14A	Commercial Lease, dated as of June 2, 2004, by and between Jazz Pharmaceuticals, Inc. and The Board of Trustees of the Leland Stanford Junior University (incorporated herein by reference to Exhibit 10.52 in Jazz Pharmaceuticals, Inc.'s registration statement on Form S-1, as amended (File No. 333-141164), as filed with the SEC on March 27, 2007).
10.14B	First Amendment of Lease, dated June 1, 2009, by and between Jazz Pharmaceuticals, Inc. and Wheatley-Fields, LLC, successor in interest to The Board of Trustees of the Leland Stanford Junior University (incorporated herein by reference to Exhibit 10.86 in Jazz Pharmaceuticals, Inc.'s Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on June 4, 2009).
10.14C	Second Amendment of Lease, dated February 28, 2012, by and between Jazz Pharmaceuticals, Inc. and Wheatley-Fields, LLC, successor in interest to The Board of Trustees of the Leland Stanford Junior University (incorporated herein by reference to Exhibit 10.31 in the Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2011, as filed by Jazz Pharmaceuticals plc on behalf of and as successor to Jazz Pharmaceuticals, Inc. with the SEC on February 28, 2012).
10.15	Lease, dated May 8, 2012, by and between John Ronan and Castle Cove Property Developments Limited and Jazz Pharmaceuticals plc (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 7, 2012).
10.16A	Commercial Lease, dated as of January 7, 2015, by and between The Board of Trustees of the Leland Stanford Junior University and Jazz Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.10 in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2014, as filed with the SEC on February 24, 2015).
10.16B	First Amendment, dated as of January 29, 2018, to Commercial Lease, dated as of January 7, 2015, by and between The Board of Trustees of the Leland Stanford Junior University and Jazz Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
10.16C	Second Amendment, dated as of July 26, 2018, to Commercial Lease, dated as of January 7, 2015, by and between The Board of Trustees of the Leland Stanford Junior University and Jazz Pharmaceuticals, Inc., as previously amended by the First Amendment to Lease, dated as of January 29, 2018 (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2018, as filed with the SEC on November 6, 2018).
10.17A	Commercial Lease, dated as of September 22, 2017, by and between Jazz Pharmaceuticals, Inc. and The Board of Trustees of the Leland Stanford Junior University (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2017, as filed with the SEC on November 7, 2017).
10.17B	First Amendment, dated as of January 29, 2018, to Commercial Lease, dated as of September 22, 2017, by and between The Board of Trustees of the Leland Stanford Junior University and Jazz Pharmaceuticals, Inc. (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
10.18+	Form of Indemnification Agreement between Jazz Pharmaceuticals plc and its officers and directors (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Current Report on Form 8-K (File No. 001-33500), as filed with the SEC on January 18, 2012).

Exhibit Number	Description of Document
10.19+	Offer Letter from Jazz Pharmaceuticals, Inc. to Matthew Young (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2014, as filed with the SEC on May 8, 2014).
10.20+	Offer Letter from Jazz Pharmaceuticals, Inc. to Michael Miller (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2014, as filed with the SEC on November 4, 2014).
10.21+	Transition and Termination Agreement, dated as of November 2, 2019, by and between Jazz Pharmaceuticals, Inc. and Mike Miller (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.22+	Compromise Agreement, dated as of October 5, 2019, by and between Jazz Pharmaceuticals Ireland Limited and Paul Treacy.
10.23+	Offer Letter from Jazz Pharmaceuticals, Inc. to Daniel N. Swisher, Jr. (incorporated herein by reference to Exhibit 10.21 in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the year ended December 31, 2017, as filed with the SEC on February 27, 2018).
10.24+	Offer Letter from Jazz Pharmaceuticals, Inc. to Robert Iannone dated as of April 11, 2019 (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2019, as filed with the SEC on August 6, 2019).
10.25A+	Employment Agreement, dated as of May 16, 2012 by and between Patricia Carr and Jazz Pharmaceuticals plc (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.25B+	Change in Control Severance Terms, dated as of May 15, 2016, by and between Jazz Pharmaceuticals Ireland Ltd. and Patricia Carr (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.25C+	Change in Control Stock Award Acceleration Agreement, dated as of May 15, 2016 by and between Jazz Pharmaceuticals plc and Patricia Carr (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.26+	Offer Letter, dated as of July 5, 2019 by and between Jazz Pharmaceuticals, Inc. and Neena M. Patil (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.27+	Employment Contract, dated as of February 22, 2013, by and between Jazz Pharmaceuticals Ireland Limited and Finbar Larkin.
10.28A+	Employment Contract, dated as of December 14, 2019, by and between Jazz Pharmaceuticals UK Limited and Samantha Pearce.
10.28B+	Equity Award Letter, dated as of December 9, 2019, by and between Jazz Pharmaceuticals UK Limited and Samantha Pearce.
10.29A+	Jazz Pharmaceuticals plc 2007 Equity Incentive Plan (incorporated herein by reference to Exhibit 99.3 in Jazz Pharmaceuticals plc's registration statement on Form S-8 (File No. 333-179075), as filed with the SEC on January 18, 2012).
10.29B+	Jazz Pharmaceuticals plc 2007 Equity Incentive Plan Sub-Plan Governing Awards to Participants in the Republic of Ireland (incorporated herein by reference to Exhibit 10.3B in the Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2011, as filed by Jazz Pharmaceuticals plc on behalf of and as successor to Jazz Pharmaceuticals Inc. with the SEC on February 28, 2012).
10.29C+	Form of Notice of Grant of Stock Options and Form of Option Agreement (U.S.) under the Jazz Pharmaceuticals plc 2007 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.27C in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.29D+	Form of Notice of Grant of Stock Options and Form of Option Agreement (Irish) under Jazz Pharmaceuticals plc 2007 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.27D in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).

Exhibit Number	Description of Document
10.29E+	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (U.S.) under the Jazz Pharmaceuticals plc 2007 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.27E in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.29F+	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (Irish) under the Jazz Pharmaceuticals plc 2007 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.27F in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.29G+	Jazz Pharmaceuticals plc 2007 Equity Incentive Plan—Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.29H+	Jazz Pharmaceuticals plc 2007 Equity Incentive Plan—Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Form of Non-U.S. Restricted Stock Unit Award Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.30A+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 99.1 in Jazz Pharmaceuticals plc's registration statement on Form S-8 (File No. 333-179075), as filed with the SEC on January 18, 2012).
10.30B+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan Sub-Plan Governing Awards to Participants in the Republic of Ireland (incorporated herein by reference to Exhibit 10.39B in the Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2011, as filed by Jazz Pharmaceuticals plc on behalf of and as successor to Jazz Pharmaceuticals Inc. with the SEC on February 28, 2012).
10.30C+	Form of Stock Option Grant Notice and Form of Option Agreement (U.S.) under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.7 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 7, 2012).
10.30D+	Form of Stock Option Grant Notice and Form of Option Agreement (Irish) under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.8 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 7, 2012).
10.30E+	Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.28E in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.30F+	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (U.S.) under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.9 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 7, 2012).
10.30G+	Form of Restricted Stock Unit Grant Notice and Form of Restricted Stock Unit Award Agreement (Irish) under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.10 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2012, as filed with the SEC on August 7, 2012).
10.30H+	Form of Non-U.S. Restricted Stock Unit Grant Notice and Form of Non-U.S. Restricted Stock Unit Agreement under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.28H in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.30I+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of U.S. Option Grant Notice and Form of U.S. Option Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.30J+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of U.S. Restricted Stock Unit Award Grant Notice and Form of U.S. Restricted Stock Unit Award Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).

Exhibit Number	Description of Document
10.30K+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.30L+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Form of Non-U.S. Restricted Stock Unit Award Agreement (approved July 31, 2013) (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.30M+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2016, as filed with the SEC on May 10, 2016).
10.30N+	Jazz Pharmaceuticals plc 2011 Equity Incentive Plan—Form of Non-U.S. Restricted Stock Unit Grant Notice and Form of Non-U.S. Restricted Stock Unit Award Agreement (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2016, as filed with the SEC on May 10, 2016).
10.30O+	Amended and Restated 2011 Equity Incentive Plan (approved August 4, 2016) (incorporated herein by reference to Exhibit 10.8 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2016, as filed with the SEC on August 9, 2016).
10.30P+	Amended and Restated 2011 Equity Incentive Plan (approved November 3, 2016) (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.30Q+	Form of U.S. Restricted Stock Unit Award Grant Notice and Form of U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.30R+	Form of U.S. Option Grant Notice and Form of U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.7 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.30S+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Form of Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.8 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.30T+	Form of Non-U.S. Option Grant Notice and Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
10.30U+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
10.30V+	Form of Non-U.S. Option Grant Notice and Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.30W+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc 2011 Equity Incentive Plan (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.31+	Jazz Pharmaceuticals plc Amended and Restated Directors Deferred Compensation Plan (incorporated herein by reference to Exhibit 99.6 in Jazz Pharmaceuticals plc's registration statement on Form S-8 (File No. 333-179075), as filed with the SEC on January 18, 2012).

Exhibit Number	Description of Document
10.32A+	Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Option Plan (incorporated herein by reference to Exhibit 99.4 in Jazz Pharmaceuticals plc's registration statement on Form S-8 (File No. 333-179075), as filed with the SEC on January 18, 2012).
10.32B+	Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Option Plan (incorporated herein by reference to Exhibit 10.30B in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.32C+	Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Option Plan—Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement (approved August 1, 2013) (incorporated herein by reference to Exhibit 10.7 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2013, as filed with the SEC on November 5, 2013).
10.32D+	Amended and Restated 2007 Non-Employee Directors Stock Award Plan (approved August 4, 2016) (incorporated herein by reference to Exhibit 10.9 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2016, as filed with the SEC on August 9, 2016).
10.32E+	Amended and Restated 2007 Non-Employee Directors Stock Award Plan (approved November 3, 2016) (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.32F+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Form of Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan (incorporated herein by reference to Exhibit 10.4 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.32G+	Form of Non-U.S. Option Grant Notice and Form of Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated Non-Employee Directors 2007 Stock Award Plan (incorporated herein by reference to Exhibit 10.5 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2016, as filed with the SEC on November 8, 2016).
10.32H+	Form of Non-U.S. Option Grant Notice and Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2018, as filed with the SEC on November 6, 2018).
10.32I+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2018, as filed with the SEC on November 6, 2018).
10.32J+	Form of Non-U.S. Option Grant Notice and Non-U.S. Option Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan (incorporated herein by reference to Exhibit 10.2 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.32K+	Form of Non-U.S. Restricted Stock Unit Award Grant Notice and Non-U.S. Restricted Stock Unit Award Agreement under the Jazz Pharmaceuticals plc Amended and Restated 2007 Non-Employee Directors Stock Award Plan (incorporated herein by reference to Exhibit 10.3 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2019, as filed with the SEC on May 7, 2019).
10.33A+	Jazz Pharmaceuticals plc 2007 Employee Stock Purchase Plan, as amended and restated (incorporated herein by reference to Exhibit 10.31A in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2012, as filed with the SEC on February 26, 2013).
10.33B+	Jazz Pharmaceuticals plc 2007 Employee Stock Purchase Plan Sub-Plan Governing Purchase Rights to Participants in the Republic of Ireland (incorporated herein by reference to Exhibit 10.14C in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended March 31, 2012, as filed with the SEC on May 8, 2012).
10.34A+	Jazz Pharmaceuticals plc Cash Bonus Plan for U.S. Affiliates (approved October 31, 2018) (incorporated herein by reference to Exhibit 10.26C in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2018, as filed with the SEC on February 26, 2019).

Exhibit Number	Description of Document
10.34B+	Jazz Pharmaceuticals Cash Bonus Plan (Ireland and Other Specified Affiliates) (Calendar Year 2019) (incorporated herein by reference to Exhibit 10.26D in Jazz Pharmaceuticals plc's Annual Report on Form 10-K (File No. 001-33500) for the period ended December 31, 2018, as filed with the SEC on February 26, 2019).
10.34C+	Jazz Pharmaceuticals plc Cash Bonus Plan for U.S. Affiliates (approved October 30, 2019).
10.34D+	Jazz Pharmaceuticals Cash Bonus Plan (Ireland and Other Specified Affiliates) (Calendar Year 2020).
10.35+	Amended and Restated Executive Change in Control and Severance Benefit Plan, dated as of July 31, 2019 (incorporated herein by reference to Exhibit 10.6 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended September 30, 2019, as filed with the SEC on November 5, 2019).
10.36A+	Amended and Restated Non-Employee Director Compensation Policy (approved May 5, 2016) (incorporated herein by reference to Exhibit 10.7 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2016, as filed with the SEC on August 9, 2016).
10.36B+	Amended and Restated Non-Employee Director Compensation Policy (approved May 3, 2018) (incorporated herein by reference to Exhibit 10.1 in Jazz Pharmaceuticals plc's Quarterly Report on Form 10-Q (File No. 001-33500) for the period ended June 30, 2018, as filed with the SEC on August 7, 2018).
21.1	Subsidiaries of Jazz Pharmaceuticals plc.
23.1	Consent of KPMG, Independent Registered Public Accounting Firm.
24.1	Power of Attorney (included on the signature page hereto).
31.1	Certification of Principal Executive Officer and Interim Principal Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) promulgated under the Securities Exchange Act of 1934, as amended.
32.1*	Certification of Principal Executive Officer and Interim Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document—The instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

+ Indicates management contract or compensatory plan.

† Confidential treatment has been granted for portions of this exhibit. Omitted portions have been filed separately with the Securities and Exchange Commission.

‡ Pursuant to Item 601(b)(2) of Regulation S-K, certain portions of this agreement have been omitted because the omitted portions are both not material and would likely cause competitive harm to Jazz Pharmaceuticals if publicly disclosed.

* The certifications attached as Exhibit 32.1 accompany this Annual Report on Form 10-K pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed "filed" by the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Date: February 25, 2020

Jazz Pharmaceuticals public limited company
(Registrant)

/s/ BRUCE C. COZADD

Bruce C. Cozadd
Chairman and Chief Executive Officer and Director
(Principal Executive Officer and Interim Principal Financial Officer)

/s/ PATRICIA CARR

Patricia Carr
Vice President, Finance
(Principal Accounting Officer)

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Bruce C. Cozadd, Neena M. Patil and Patricia Carr, and each of them, as his or her true and lawful attorneys-in-fact and agents, with full power of substitution for him or her, and in his or her name in any and all capacities, to sign any and all amendments to this Annual Report on Form 10-K, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done therewith, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, and any of them, his or her substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, the following persons on behalf of the registrant and in the capacities and on the dates indicated have signed this report below:

Signature	Title	Date
/s/ BRUCE C. COZADD **Bruce C. Cozadd**	Chairman, Chief Executive Officer and Director *(Duly Authorizer Officer, Principal Executive Officer and Interim Principal Financial Officer)*	February 25, 2020
/s/ PATRICIA CARR **Patricia Carr**	Vice President, Finance *(Principal Accounting Officer)*	February 25, 2020
/s/ PAUL L. BERNS **Paul L. Berns**	Director	February 25, 2020
/s/ PATRICK G. ENRIGHT **Patrick G. Enright**	Director	February 25, 2020
/s/ PETER GRAY **Peter Gray**	Director	February 25, 2020
/s/ HEATHER ANN MCSHARRY **Heather Ann McSharry**	Director	February 25, 2020
/s/ SEAMUS C. MULLIGAN **Seamus C. Mulligan**	Director	February 25, 2020
/s/ KENNETH W. O'KEEFE **Kenneth W. O'Keefe**	Director	February 25, 2020
/s/ ANNE O'RIORDAN **Anne O'Riordan**	Director	February 25, 2020
/s/ NORBERT G. RIEDEL, PH.D. **Norbert G. Riedel, Ph.D.**	Director	February 25, 2020
/s/ ELMAR SCHNEE **Elmar Schnee**	Director	February 25, 2020
/s/ CATHERINE A. SOHN, PHARM.D. **Catherine A. Sohn, Pharm.D.**	Director	February 25, 2020
/s/ RICK E WINNINGHAM **Rick E Winningham**	Director	February 25, 2020

Report of Independent Registered Public Accounting Firm

To the Shareholders and Board of Directors
Jazz Pharmaceuticals plc:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of Jazz Pharmaceuticals plc and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2019, and the related notes and financial statement schedule at Item 15(a)2 (collectively, "the consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 25, 2020 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of the impairment analysis for the Vyxeos and Erwinaze/se intangible assets

As discussed in notes 2 and 9 to the consolidated financial statements, the finite-lived intangible assets balance as of December 31, 2019 was $2.3 billion, a substantial portion of which relates to finite-lived intangible assets in respect of Vyxeos and to a lesser extent, Erwinaze/se. The Company reviews finite-lived intangible assets for impairment when events or circumstances indicate that the carrying value of such assets may not be recoverable.

We identified the assessment of the impairment analysis for the Vyxeos and Erwinaze/se intangible assets as a critical audit matter. There was a high degree of subjectivity in assessing the significant assumptions upon which the revenue forecasts are dependent, specifically the Company's revenue growth rates for Vyxeos and supply forecasts for Erwinaze/se.

The primary procedures we performed to address this critical audit matter included the following:

– We tested certain internal controls over the Vyxeos and Erwinaze/se intangible asset impairment review processes, including controls related to the development of the revenue growth rate assumptions for Vyxeos and supply forecast assumptions for Erwinaze/se;

– We compared the Company's historical forecasted revenue growth rate assumptions for Vyxeos and historical supply forecast assumptions for Erwinaze/se to actual results to assess the Company's ability to accurately forecast;

– We evaluated the reasonableness of management's revenue growth rate assumptions for Vyxeos and supply forecast assumptions for Erwinaze/se by comparing those assumptions to (1) company-specific operational information and management's communications to the board of directors, (2) available third-party reports on expected market share, and (3) industry reports containing analyses of the Company's and its competitor's products; and

– We performed sensitivity analyses over the revenue growth rate assumptions for Vyxeos and supply forecast assumptions for Erwinaze/se to assess the impact of changes to those assumptions on the Company's determination of the carrying value of the Vyxeos and Erwinaze/se intangible assets.

Evaluation of the recoverability of U.S. and Irish deferred tax assets

As discussed in notes 2 and 21 to the consolidated financial statements, the Company had $642.1 million of deferred tax assets as of December 31, 2019, a substantial proportion of which relates to U.S. net operating losses (NOLs) and tax credits carried forward, and differences between the financial statement carrying amounts of Irish assets and liabilities and their respective tax basis.

We identified evaluation of the recoverability of U.S. and Irish deferred tax assets as a critical audit matter due to the subjectivity involved in assessing the Company's forecast of sufficient future taxable income in periods where losses or tax credits are available for use. In particular, evaluating the Company's revenue growth rate assumptions involved a high degree of auditor judgment.

The primary procedures we performed to address this critical audit matter included the following:

– We tested certain internal controls over the Company's deferred tax asset valuation allowance process including controls related to the development of revenue growth rate assumptions;

– We involved income tax professionals with specialized skills and knowledge, who assisted in performing a technical assessment of the Company's tax positions, application of the relevant tax regulations and utilization of NOLs and tax credits; and

– To assess the Company's ability to forecast, we compared the Company's previous forecasts to actual historic outcomes and compared current assumptions to underlying calculations. We assessed the integrity of underlying calculations and we checked certain information to third party sources, including expectations of performance of certain assets.

We have served as the Company's auditor since 2012.

/s/ KPMG

Dublin, Ireland
February 25, 2020

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED BALANCE SHEETS
(In thousands, except per share amounts)

	December 31, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 637,344	$ 309,622
Investments	440,000	515,000
Accounts receivable, net of allowances of $1,296 and $534 at December 31, 2019 and 2018, respectively	355,987	263,838
Inventories	78,608	52,956
Prepaid expenses	39,434	25,017
Other current assets	78,895	67,572
Total current assets	1,630,268	1,234,005
Property, plant and equipment, net	131,506	200,358
Operating lease assets	139,385	—
Intangible assets, net	2,440,977	2,731,334
Goodwill	920,018	927,630
Deferred tax assets, net	221,403	57,879
Deferred financing costs	7,426	9,589
Other non-current assets	47,914	42,696
Total assets	$5,538,897	$5,203,491
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 47,545	$ 40,602
Accrued liabilities	267,873	264,887
Current portion of long-term debt	33,387	33,387
Income taxes payable	10,965	1,197
Deferred revenue	4,720	5,414
Total current liabilities	364,490	345,487
Deferred revenue, non-current	4,861	9,581
Long-term debt, less current portion	1,573,870	1,563,025
Operating lease liabilities, less current portion	151,226	—
Deferred tax liabilities, net	224,095	309,097
Other non-current liabilities	109,374	218,879
Commitments and contingencies (Note 13)		
Shareholders' equity:		
Ordinary shares, nominal value $0.0001 per share; 300,000 shares authorized; 56,140 and 57,504 shares issued and outstanding at December 31, 2019 and 2018, respectively	6	6
Non-voting euro deferred shares, €0.01 par value per share; 4,000 shares authorized, issued and outstanding at both December 31, 2019 and 2018	55	55
Capital redemption reserve	472	472
Additional paid-in capital	2,266,026	2,113,630
Accumulated other comprehensive loss	(223,393)	(197,791)
Retained earnings	1,067,815	841,050
Total shareholders' equity	3,110,981	2,757,422
Total liabilities and shareholders' equity	$5,538,897	$5,203,491

The accompanying notes are an integral part of these consolidated financial statements.

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF INCOME
(In thousands, except per share amounts)

	Year Ended December 31,		
	2019	2018	2017
Revenues:			
Product sales, net	$2,135,601	$1,869,473	$1,601,399
Royalties and contract revenues	26,160	21,449	17,294
Total revenues	2,161,761	1,890,922	1,618,693
Operating expenses:			
Cost of product sales (excluding amortization of acquired developed technologies)	127,930	121,544	110,188
Selling, general and administrative	736,942	683,530	544,156
Research and development	299,726	226,616	198,442
Intangible asset amortization	354,814	201,498	152,065
Impairment charges	—	42,896	—
Acquired in-process research and development	109,975	—	85,000
Total operating expenses	1,629,387	1,276,084	1,089,851
Income from operations	532,374	614,838	528,842
Interest expense, net	(72,261)	(77,075)	(77,756)
Foreign exchange loss	(5,811)	(6,875)	(9,969)
Loss on extinguishment and modification of debt	—	(1,425)	—
Income before income tax provision (benefit) and equity in loss of investees	454,302	529,463	441,117
Income tax provision (benefit)	(73,154)	80,162	(47,740)
Equity in loss of investees	4,089	2,203	1,009
Net income	$ 523,367	$ 447,098	$ 487,848
Net income per ordinary share:			
Basic	$ 9.22	$ 7.45	$ 8.13
Diluted	$ 9.09	$ 7.30	$ 7.96
Weighted-average ordinary shares used in per share calculations—basic	56,749	59,976	60,018
Weighted-average ordinary shares used in per share calculations—diluted	57,550	61,221	61,317

The accompanying notes are an integral part of these consolidated financial statements.

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Net income	$523,367	$447,098	$487,848
Other comprehensive income (loss):			
Foreign currency translation adjustments	(20,720)	(58,988)	174,973
Unrealized gain (loss) on hedging activities, net of income tax provision (benefit) of ($697), $289 and $212, respectively	(4,882)	2,022	1,482
Other comprehensive income (loss)	(25,602)	(56,966)	176,455
Total comprehensive income	$497,765	$390,132	$664,303

The accompanying notes are an integral part of these consolidated financial statements.

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY
(In thousands)

	Ordinary Shares		Non-voting Euro Deferred		Capital Redemption Reserve	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Equity
	Shares	Amount	Shares	Amount					
Balance at December 31, 2016	59,820	$ 6	4,000	$ 55	$472	$1,665,232	$(317,333)	$ 528,907	$1,877,339
Issuance of Exchangeable Senior Notes	—	—	—	—	—	149,767	—	—	149,767
Issuance of ordinary shares in conjunction with exercise of share options	428	—	—	—	—	22,683	—	—	22,683
Issuance of ordinary shares under employee stock purchase plan	104	—	—	—	—	9,141	—	—	9,141
Issuance of ordinary shares in conjunction with vesting of restricted stock units	250	—	—	—	—	—	—	—	—
Shares withheld for payment of employee's withholding tax liability	—	—	—	—	—	(18,589)	—	—	(18,589)
Share-based compensation	—	—	—	—	—	107,252	—	—	107,252
Shares repurchased	(704)	—	—	—	—	—	—	(98,799)	(98,799)
Other comprehensive income	—	—	—	—	—	—	176,455	—	176,455
Net income	—	—	—	—	—	—	—	487,848	487,848
Balance at December 31, 2017	59,898	6	4,000	55	472	1,935,486	(140,878)	917,956	2,713,097
Cumulative effect adjustment from adoption of new accounting standards	—	—	—	—	—	—	53	(332)	(279)
Issuance of ordinary shares in conjunction with exercise of share options	772	—	—	—	—	82,918	—	—	82,918
Issuance of ordinary shares under employee stock purchase plan	111	—	—	—	—	10,419	—	—	10,419
Issuance of ordinary shares in conjunction with vesting of restricted stock units	253	—	—	—	—	—	—	—	—
Shares withheld for payment of employee's withholding tax liability	—	—	—	—	—	(17,925)	—	—	(17,925)
Share-based compensation	—	—	—	—	—	102,732	—	—	102,732
Shares repurchased	(3,530)	—	—	—	—	—	—	(523,672)	(523,672)
Other comprehensive loss	—	—	—	—	—	—	(56,966)	—	(56,966)
Net income	—	—	—	—	—	—	—	447,098	447,098
Balance at December 31, 2018	57,504	$ 6	4,000	$ 55	$472	$2,113,630	$(197,791)	$ 841,050	$2,757,422

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY—(Continued)
(In thousands)

	Ordinary Shares		Non-voting Euro Deferred		Capital Redemption Reserve	Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Equity
	Shares	Amount	Shares	Amount					
Balance at December 31, 2018	57,504	$ 6	4,000	$ 55	$472	$2,113,630	$(197,791)	$ 841,050	$2,757,422
Cumulative effect adjustment from adoption of new accounting standards	—	—	—	—	—	—	—	4,848	4,848
Issuance of ordinary shares in conjunction with exercise of share options	515	—	—	—	—	46,477	—	—	46,477
Issuance of ordinary shares under employee stock purchase plan	106	—	—	—	—	11,354	—	—	11,354
Issuance of ordinary shares in conjunction with vesting of restricted stock units	265	—	—	—	—	—	—	—	—
Shares withheld for payment of employee's withholding tax liability	—	—	—	—	—	(16,739)	—	—	(16,739)
Share-based compensation	—	—	—	—	—	111,304	—	—	111,304
Shares repurchased	(2,250)	—	—	—	—	—	—	(301,450)	(301,450)
Other comprehensive loss	—	—	—	—	—	—	(25,602)	—	(25,602)
Net income	—	—	—	—	—	—	—	523,367	523,367
Balance at December 31, 2019	56,140	$ 6	4,000	$ 55	$472	$2,266,026	$(223,393)	$1,067,815	$3,110,981

The accompanying notes are an integral part of these consolidated financial statements.

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Operating activities			
Net income	$ 523,367	$ 447,098	$ 487,848
Adjustments to reconcile net income to net cash provided by operating activities:			
Intangible asset amortization	354,814	201,498	152,065
Share-based compensation	110,563	102,441	106,900
Impairment charges	—	42,896	—
Depreciation	15,342	15,233	13,089
Acquired in-process research and development	109,975	—	85,000
Loss on disposal of assets	21	655	473
Deferred tax benefit	(236,610)	(88,815)	(225,591)
Provision for losses on accounts receivable and inventory	6,668	4,728	2,190
Loss on extinguishment and modification of debt	—	1,425	—
Amortization of debt discount and deferred financing costs	46,396	43,960	30,026
Other non-cash transactions	(4,051)	4,499	14,321
Changes in assets and liabilities:			
Accounts receivable	(92,326)	(40,132)	12,278
Inventories	(32,790)	(18,512)	(8,667)
Prepaid expenses and other current assets	(25,650)	6,697	(26,874)
Other non-current assets	(14,830)	(320)	119
Operating lease assets	14,148	—	—
Accounts payable	4,770	17,040	214
Accrued liabilities	(5,565)	71,208	(6,578)
Income taxes payable	10,056	(19,735)	16,331
Deferred revenue	(5,414)	(7,497)	21,009
Other non-current liabilities	3,561	14,537	18,934
Operating lease liabilities, less current portion	(6,044)	—	—
Net cash provided by operating activities	776,401	798,904	693,087
Investing activities			
Acquisition of investments	(917,100)	(1,165,915)	(385,000)
Proceeds from maturity of investments	985,000	855,000	230,000
Acquired in-process research and development	(61,700)	—	(85,000)
Purchases of property, plant and equipment	(40,135)	(20,370)	(28,950)
Asset acquisition, net of cash acquired	(55,074)	—	—
Acquisition of intangible assets	(80,500)	(111,100)	—
Net proceeds from sale of assets	14,209	47,898	—
Net cash used in investing activities	(155,300)	(394,487)	(268,950)
Financing activities			
Proceeds from employee equity incentive and purchase plans	57,831	93,337	31,824
Share repurchases	(301,450)	(523,672)	(98,799)
Payment of employee withholding taxes related to share-based awards	(16,739)	(17,925)	(18,589)
Repayments of long-term debt	(33,387)	(25,717)	(36,094)
Payment of debt modification costs	—	(6,406)	—
Repayments under revolving credit facility	—	—	(850,000)
Proceeds from tenant improvement allowance on build-to-suit lease	—	1,253	3,154
Net proceeds from issuance of debt	—	—	559,393
Net cash used in financing activities	(293,745)	(479,130)	(409,111)
Effect of exchange rates on cash and cash equivalents	366	(1,700)	5,046
Net increase (decrease) in cash and cash equivalents	327,722	(76,413)	20,072
Cash and cash equivalents, at beginning of period	309,622	386,035	365,963
Cash and cash equivalents, at end of period	$ 637,344	$ 309,622	$ 386,035

JAZZ PHARMACEUTICALS PLC

CONSOLIDATED STATEMENTS OF CASH FLOWS—(Continued)
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Supplemental disclosure of cash flow information:			
Cash paid for interest	$ 43,002	$ 42,706	$ 44,609
Cash paid for income taxes	183,610	164,217	174,124
Non-cash investing activities:			
Amounts capitalized in connection with facility lease obligations	—	27,747	40,970

The accompanying notes are an integral part of these consolidated financial statements.

1. Organization and Description of Business

Jazz Pharmaceuticals plc is a global biopharmaceutical company dedicated to developing life-changing medicines for people with serious diseases – often with limited or no options. We have a diverse portfolio of marketed medicines and novel product candidates, from early- to late-stage development, in key therapeutic areas. Our focus is in neuroscience, including sleep medicine and movement disorders, and in oncology, including hematologic and solid tumors. We actively explore new options for patients including novel compounds, small molecule advancements, biologics and innovative delivery technologies.

Our lead marketed products are:

- **Xyrem® (sodium oxybate) oral solution**, the only product approved by the U.S. Food and Drug Administration, or FDA, and marketed in the U.S. for the treatment of both cataplexy and excessive daytime sleepiness, or EDS, in both adult and pediatric patients with narcolepsy;
- **Sunosi® (solriamfetol)**, a product approved by the FDA and marketed in the U.S. to improve wakefulness in adult patients with EDS associated with narcolepsy or obstructive sleep apnea and also approved in Europe in January 2020 by the European Commission;
- **Defitelio® (defibrotide sodium)**, a product approved in the U.S. for the treatment of adult and pediatric patients with hepatic veno-occlusive disease, or VOD, also known as sinusoidal obstruction syndrome, with renal or pulmonary dysfunction following hematopoietic stem cell transplantation, or HSCT, and in Europe (where it is marketed as Defitelio® (defibrotide)) for the treatment of severe VOD in adults and children undergoing HSCT therapy;
- **Erwinaze® (asparaginase** ***Erwinia chrysanthemi*****)**, a treatment approved in the U.S. and in certain markets in Europe (where it is marketed as Erwinase®) for patients with acute lymphoblastic leukemia who have developed hypersensitivity to *E. coli*-derived asparaginase; and
- **Vyxeos® (daunorubicin and cytarabine) liposome for injection**, a product approved in the U.S. and in Europe (where it is marketed as Vyxeos® liposomal 44 mg/100 mg powder for concentrate for solution for infusion) for the treatment of adults with newly-diagnosed therapy-related acute myeloid leukemia, or AML, or AML with myelodysplasia-related changes.

In February 2020, the FDA accepted for filing with priority review the new drug application, or NDA, for lurbinectedin for the treatment of relapsed small cell lung cancer, or SCLC, a product candidate for which we recently acquired exclusive U.S. development and commercialization rights. In January 2020, we submitted an NDA to the FDA seeking marketing approval for JZP-258, an oxybate product candidate that contains 92%, or approximately 1,000 to 1,500 milligrams per day, less sodium than Xyrem, for the treatment of cataplexy and EDS in narcolepsy patients seven years of age and older. We also have in development JZP-458, a recombinant *Erwinia* asparaginase product candidate, for the treatment of pediatric and adult patients with ALL or lymphoblastic lymphoma, or LBL, who are hypersensitive to *E. coli*-derived asparaginase products.

Our strategy to create shareholder value is focused on:

- Strong financial execution through growth in sales of our current lead marketed products;
- Building a diversified product portfolio and development pipeline through a combination of our internal research and development efforts and obtaining rights to clinically meaningful and differentiated on- or near-market products and early- to late-stage product candidates through acquisitions, collaborations, licensing arrangements, partnerships and venture investments; and
- Maximizing the value of our products and product candidates by continuing to implement our comprehensive global development plans, including through generating additional clinical data and seeking regulatory approval for new indications and new geographies.

Throughout this report, unless otherwise indicated or the context otherwise requires, all references to “Jazz Pharmaceuticals,” “the registrant,” “we,” “us,” and “our” refer to Jazz Pharmaceuticals plc and its consolidated subsidiaries. Throughout this report, all references to “ordinary shares” refer to Jazz Pharmaceuticals plc’s ordinary shares.

2. Summary of Significant Accounting Policies

Basis of Presentation

The consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or U.S. GAAP, and include the accounts of Jazz Pharmaceuticals plc and our subsidiaries and intercompany transactions and balances have been eliminated. Our consolidated financial statements include the results of operations of businesses we have acquired from the date of each acquisition for the applicable reporting periods.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosures in the consolidated financial statements and accompanying notes. Management bases its estimates on historical experience and on assumptions believed to be reasonable under the circumstances. Actual results could differ materially from those estimates.

Adoption of New Accounting Standards

In February 2016, the Financial Accounting Standards Board, or FASB, issued ASU No. 2016-02. Under the new guidance, lessees are required to recognize a right-of-use asset, which represents the lessee's right to use, or control the use of, a specified asset for the lease term, and a corresponding lease liability, which represents the lessee's obligation to make lease payments under a lease, measured on a discounted basis. We adopted ASU No. 2016-02 on a modified retrospective basis applied to leases existing as of, or entered into after, January 1, 2019. We elected the package of practical expedients permitted under the transition guidance within the new standard, which among other things, allowed us to carry forward the historical lease classification of those leases in place as of January 1, 2019.

The adoption of ASU No. 2016-02 resulted in the recognition of right-of-use assets and lease liabilities of $149.4 million and $162.9 million, respectively, on the consolidated balance sheet as of January 1, 2019, and the de-recognition of the build-to-suit assets and related financing obligations on the consolidated balance sheet as of December 31, 2018 of $95.4 million and $109.8 million, respectively, with the balance impacting retained earnings, deferred rent and deferred tax liabilities. The right-of-use assets and lease liabilities primarily relate to real estate leases. Refer to Note 12 for lease-related disclosures.

The cumulative effect of the changes made to our consolidated balance sheet as of January 1, 2019 for the adoption of the ASU No. 2016-02 was as follows (in thousands):

	Balance at December 31, 2018	Transition Adjustments	Balance at January 1, 2019
Assets:			
Property, plant and equipment, net	$200,358	$ (95,397)	$104,961
Operating lease assets	—	149,442	149,442
Liabilities:			
Accrued liabilities	264,887	8,165	273,052
Operating lease liabilities, less current portion	—	153,158	153,158
Deferred tax liabilities, net	309,097	1,489	310,586
Other non-current liabilities	218,879	(113,615)	105,264
Shareholders' Equity:			
Retained earnings	841,050	4,848	845,898

Significant Risks and Uncertainties

Our financial results are significantly influenced by sales of Xyrem. Our ability to maintain or increase Xyrem product sales is subject to a number of risks and uncertainties including, without limitation, the introduction of new products in the U.S. market that compete with, or otherwise disrupt the market for, Xyrem in the treatment of cataplexy and/or EDS in narcolepsy, including generic or authorized generic versions of sodium oxybate; increased pricing pressure from, changes in policies by, or restrictions on reimbursement imposed by, third party payors; challenges to our intellectual property around Xyrem; and continued acceptance of Xyrem by physicians and patients.

In addition to risks related specifically to Xyrem, we are subject to other challenges and risks specific to our business and our ability to execute on our strategy, as well as risks and uncertainties common to companies in the pharmaceutical industry with development and commercial operations, including, without limitation, risks and uncertainties associated with: obtaining regulatory approval of our late-stage product candidates and effectively commercializing our approved products such as Sunosi and, if approved, JZP-258 and lurbinectedin; obtaining and maintaining adequate coverage and reimbursement for our products; increasing scrutiny of pharmaceutical product pricing and resulting changes in healthcare laws and policy; market acceptance; delays or problems in the supply of our products, loss of single source suppliers or failure to comply with manufacturing regulations; identifying, acquiring or in-licensing additional products or product candidates; pharmaceutical product development and the inherent uncertainty of clinical success; the challenges of protecting and enhancing our intellectual property rights; complying with applicable regulatory requirements; and possible restrictions on our ability and flexibility to pursue certain future opportunities as a result of our substantial outstanding debt obligations.

Concentrations of Risk

Financial instruments that potentially subject us to concentrations of credit risk consist of cash, cash equivalents, investments and derivative contracts. Our investment policy permits investments in U.S. federal government and federal agency securities, corporate bonds or commercial paper issued by U.S. corporations, money market instruments, certain qualifying money market mutual funds, certain repurchase agreements, and tax-exempt obligations of U.S. states, agencies and municipalities and places restrictions on credit ratings, maturities, and concentration by type and issuer. We are exposed to credit risk in the event of a default by the financial institutions holding our cash, cash equivalents and investments to the extent recorded on the balance sheet.

We manage our foreign currency transaction risk and interest rate risk within specified guidelines through the use of derivatives. All of our derivative instruments are utilized for risk management purposes, and we do not use derivatives for speculative trading purposes. As of December 31, 2019 and 2018, we had foreign exchange forward contracts with notional amounts totaling $180.9 million and $271.5 million, respectively. As of December 31, 2019 and 2018, the outstanding foreign exchange forward contracts had a net asset fair value of $2.3 million and a net liability fair value of $0.3 million, respectively. As of December 31, 2019 and 2018, we had interest rate swap contracts with notional amounts totaling $300.0 million. These outstanding interest rate swap contracts had a net liability fair value of $1.5 million and a net asset fair value of $4.1 million as of December 31, 2019 and 2018, respectively. The counterparties to these contracts are large multinational commercial banks, and we believe the risk of nonperformance is not significant.

We are also subject to credit risk from our accounts receivable related to our product sales. We monitor our exposure within accounts receivable and record a reserve against uncollectible accounts receivable as necessary. We extend credit to pharmaceutical wholesale distributors and specialty pharmaceutical distribution companies, primarily in the U.S., and to other international distributors and hospitals. Customer creditworthiness is monitored and collateral is not required. We monitor deteriorating economic conditions in certain European countries which may result in variability of the timing of cash receipts and an increase in the average length of time that it takes to collect accounts receivable outstanding. Historically, we have not experienced significant credit losses on our accounts receivable and as of December 31, 2019, allowances on receivables were not material. As of December 31, 2019, two customers accounted for 89% of gross accounts receivable, Express Scripts Specialty Distribution Services, Inc. and its affiliates, or ESSDS, which accounted for 77% of gross accounts receivable, and McKesson Corporation and affiliates, or McKesson, which accounted for 12% of gross accounts receivable. As of December 31, 2018, two customers accounted for 89% of gross accounts receivable, ESSDS, which accounted for 74% of gross accounts receivable, and McKesson, which accounted for 15% of gross accounts receivable.

We depend on single source suppliers for most of our products, product candidates and their APIs. With respect to Xyrem, the API is manufactured for us by a single source supplier and the finished product is manufactured both by us in our facility in Athlone, Ireland and by our U.S.-based Xyrem supplier.

Business Acquisitions

Our consolidated financial statements include the results of operations of an acquired business from the date of acquisition. We account for acquired businesses using the acquisition method of accounting. The acquisition method of accounting for acquired businesses requires, among other things, that assets acquired, liabilities assumed and any noncontrolling interests in the acquired business be recognized at their estimated fair values as of the acquisition date, with limited exceptions, and that the fair value of acquired in-process research and development, or IPR&D, be recorded on the balance sheet. Also, transaction costs are expensed as incurred. Any excess of the acquisition consideration over the assigned values of the net assets acquired is recorded as goodwill. Contingent consideration is

included within the acquisition cost and is recognized at its fair value on the acquisition date. A liability resulting from contingent consideration is remeasured to fair value at each reporting date until the contingency is resolved and changes in fair value are recognized in earnings.

Cash Equivalents and Investments

We consider all highly liquid investments, readily convertible to cash, that mature within three months or less from date of purchase to be cash equivalents.

Investments consist of time deposits with initial maturities of greater than three months. Collectively, cash equivalents and investments are considered available-for-sale and are recorded at fair value. Unrealized gains and losses, net of tax, are recorded in accumulated other comprehensive loss in shareholders' equity. We use the specific-identification method for calculating realized gains and losses on securities sold. Realized gains and losses and declines in value judged to be other than temporary on investments are included in interest expense, net in the consolidated statements of income.

Derivative Instruments and Hedging Activities

We record the fair value of derivative instruments as either assets or liabilities on the consolidated balance sheets. Changes in the fair value of derivative instruments are recorded each period in current earnings or other comprehensive income (loss), depending on whether a derivative instrument is designated as part of a hedging transaction and, if it is, the type of hedging transaction. For a derivative to qualify as a hedge at inception and throughout the hedged period, we formally document the nature and relationships between the hedging instruments and hedged item. We assess, both at inception and on an on-going basis, whether the derivative instruments that are used in cash flow hedging transactions are highly effective in offsetting the changes in cash flows of hedged items. Gains or losses on cash flow hedges are reclassified from other comprehensive income (loss) to earnings when the hedged transaction occurs. If we determine that a forecasted transaction is no longer probable of occurring, we discontinue hedge accounting and any related unrealized gain or loss on the derivative instrument is recognized in current earnings. Derivatives that are not designated and do not qualify as hedges are adjusted to fair value through current earnings.

Inventories

Inventories are valued at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method for all inventories. Our policy is to write down inventory that has become obsolete, inventory that has a cost basis in excess of its expected net realizable value and inventory in excess of expected requirements. The estimate of excess quantities is subjective and primarily dependent on our estimates of future demand for a particular product. If our estimate of future demand changes, we consider the impact on the reserve for excess inventory and adjust the reserve as required. Increases in the reserve are recorded as charges in cost of product sales.

We capitalize inventory costs associated with our products prior to regulatory approval when, based on management's judgment, future commercialization is considered probable and the future economic benefit is expected to be realized; otherwise, such costs are expensed as research and development. The determination to capitalize inventory costs is based on various factors, including status and expectations of the regulatory approval process, any known safety or efficacy concerns, potential labeling restrictions, and any other impediments to obtaining regulatory approval. We had no pre-approval inventory on our consolidated balance sheet as of December 31, 2019 or 2018.

Property, Plant and Equipment

Property, plant and equipment are stated at cost, less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. Estimated useful lives are as follows:

Buildings	40 years
Manufacturing equipment and machinery	5-10 years
Computer software and equipment	3-7 years
Furniture and fixtures	5 years

Leasehold improvements are amortized over the shorter of the noncancelable term of our leases or their economic useful lives. Maintenance and repairs are expensed as incurred.

Leases

We determine if an arrangement is a lease at inception. Operating leases are included in operating lease assets, other current liabilities, and operating lease liabilities on our consolidated balance sheets. Operating lease assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. In determining the net present value of lease payments, we use our incremental borrowing rate based on the information available at the lease commencement date. The operating lease asset also includes any lease payments made, reduced by lease incentives and increased by initial direct costs incurred. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Lease expense for minimum lease payments is recognized on a straight-line basis over the lease term.

We have lease agreements with lease and non-lease components, which are generally accounted for separately. For vehicle leases we account for the lease and non-lease components as a single lease component.

We have elected the short-term lease exemption and, therefore, do not recognize a right-of-use asset or corresponding liability for lease arrangements with an original term of 12 months or less. Rent expense under short-term leases is recognized on a straight-line basis over the lease term.

Goodwill

Goodwill represents the excess of the acquisition consideration over the fair value of assets acquired and liabilities assumed. We have determined that we operate in a single segment and have a single reporting unit associated with the development and commercialization of pharmaceutical products. The annual test for goodwill impairment is a two-step process. The first step is a comparison of the fair value of the reporting unit with its carrying amount, including goodwill. If this step indicates impairment, then, in the second step, the loss is measured as the excess of recorded goodwill over its implied fair value. Implied fair value is the excess of the fair value of the reporting unit over the fair value of all identified assets and liabilities. We test goodwill for impairment annually in October and when events or changes in circumstances indicate that the carrying value may not be recoverable.

Acquired In-Process Research and Development

The initial costs of rights to IPR&D projects acquired in an asset acquisition are expensed as IPR&D unless the project has an alternative future use. The fair value of IPR&D projects acquired in a business combination are capitalized and accounted for as indefinite-lived intangible assets until the underlying project receives regulatory approval, at which point the intangible asset will be accounted for as a finite-lived intangible asset, or discontinued, at which point the intangible asset will be written off. Development costs incurred after an acquisition are expensed as incurred.

Intangible Assets

Intangible assets with finite useful lives consist primarily of purchased developed technology and are amortized on a straight-line basis over their estimated useful lives, which range from two to 18 years. The estimated useful lives associated with finite-lived intangible assets are consistent with the estimated lives of the associated products and may be modified when circumstances warrant. Such assets are reviewed for impairment when events or circumstances indicate that the carrying value of an asset may not be recoverable. An impairment loss would be recognized when estimated undiscounted future cash flows expected to result from the use of an asset and its eventual disposition are less than its carrying amount. The amount of any impairment is measured as the difference between the carrying amount and the fair value of the impaired asset.

Revenue Recognition

Our revenue comprises product sales, net and royalty and contract revenues. Revenues are recognized when control of the promised goods or services is transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for those goods or services. Prior to recognizing revenue, we make estimates of the transaction price, including variable consideration that is

subject to a constraint. Amounts of variable consideration are included in the transaction price to the extent that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is subsequently resolved.

Product Sales, Net

Product sales revenue is recognized when control has transferred to the customer, which occurs at a point in time, which is typically on delivery to the customer or, in the case of products that are subject to consignment agreements, when the customer removes product from our consigned inventory location for shipment directly to a patient.

Reserves for Variable Consideration

Revenues from sales of products are recorded at the net sales price, which includes estimates of variable consideration for which reserves are established and which relate to returns, specialty distributor fees, wholesaler fees, prompt payment discounts, government rebates, government chargebacks, coupon programs and rebates under managed care plans and commercial payor contracts. Calculating certain of these reserves involves estimates and judgments and we determine their expected value based on sales or invoice data, contractual terms, historical utilization rates, new information regarding changes in these programs' regulations and guidelines that would impact the amount of the actual rebates, our expectations regarding future utilization rates for these programs and channel inventory data. These reserves reflect our best estimates of the amount of consideration to which we are entitled based on the terms of the contract. The amount of variable consideration that is included in the transaction price may be constrained, and is included in the net sales price only to the extent that it is probable that a significant reversal in the amount of the cumulative revenue recognized will not occur in a future period. We reassess our reserves for variable consideration at each reporting date. Historically, adjustments to estimates for these reserves have not been material.

Reserves for returns, specialty distributor fees, wholesaler fees, government rebates, coupon programs and rebates under managed care plans and commercial payor contracts are included within current liabilities in our consolidated balance sheets. Reserves for government chargebacks and prompt payment discounts are shown as a reduction in accounts receivable.

Royalties and Contract Revenues

We enter into out-licensing agreements under which we license certain rights to our products or product candidates to third parties. If a licensing arrangement includes multiple goods or services, we consider whether the license is distinct. If the license to our intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, we recognize revenue from non-refundable, upfront fees allocated to the license when the license is transferred to the licensee and the licensee is able to use and benefit from the license. If the license to our intellectual property is determined not to be distinct, it is combined with other goods or services into a combined performance obligation. We consider whether the combined performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress for purposes of recognizing revenue from non-refundable, upfront fees. We evaluate the measure of progress each reporting date and, if necessary, adjust the measure of performance and related revenue recognition.

At the inception of each arrangement that includes development milestone payments, we evaluate whether the milestones are considered probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control or that of the licensee, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. The transaction price is allocated to each performance obligation on a relative stand-alone selling price basis, for which we recognize revenue as or when the performance obligations under the contract are satisfied. At the end of each subsequent reporting period, we re-evaluate the probability of achievement of such development milestones and any related constraint, and if necessary, adjust our estimate of the overall transaction price.

For arrangements that include sales-based royalties and milestone payments based on the level of sales, and the license is deemed to be the predominant item to which the royalties and sales-based milestones relate, we recognize revenue at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty or sales-based milestone has been allocated has been satisfied (or partially satisfied).

Cost of Product Sales

Cost of product sales includes manufacturing and distribution costs, the cost of drug substance, royalties due to third parties on product sales, product liability and cargo insurance, FDA user fees, freight, shipping, handling and storage costs and salaries and related costs of employees involved with production. Excluded from cost of product sales shown on the consolidated statements of income is amortization of acquired developed technology of $243.7 million, $201.3 million and $149.1 million in 2019, 2018 and 2017, respectively.

Research and Development

Research and development expenses consist primarily of costs related to clinical studies and outside services, personnel expenses and other research and development costs, including milestone payments incurred prior to regulatory approval of products. Clinical study and outside services costs relate primarily to services performed by clinical research organizations, clinical studies performed at clinical sites, materials and supplies, and other third party fees. Personnel expenses relate primarily to salaries, benefits and share-based compensation. Other research and development expenses primarily include overhead allocations consisting of various support and facilities-related costs. Research and development costs are expensed as incurred. For product candidates that have not been approved by the FDA, inventory used in clinical trials is expensed at the time of production and recorded as research and development expense. For products that have been approved by the FDA, inventory used in clinical trials is expensed at the time the inventory is packaged for the trial.

Advertising Expenses

We expense the costs of advertising, including promotional expenses, as incurred. Advertising expenses were $65.4 million, $37.4 million and $36.6 million in 2019, 2018 and 2017, respectively.

Income Taxes

We use the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between the financial statement carrying amount and the tax basis of assets and liabilities and are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. A valuation allowance is provided when it is more-likely-than-not that some portion or all of a deferred tax asset will not be realized. We recognize the benefits of a tax position if it is “more-likely-than-not” of being sustained. A recognized tax benefit is then measured as the largest amount of tax benefit that is greater than fifty percent likely of being realized upon settlement. Interest and penalties related to unrecognized tax benefits are included in the income tax provision and classified with the related liability on the consolidated balance sheets.

Foreign Currency

Our functional and reporting currency is the U.S. dollar. The assets and liabilities of our subsidiaries that have a functional currency other than the U.S. dollar are translated into U.S. dollars at the exchange rate prevailing at the balance sheet date with the results of operations of subsidiaries translated at the weighted average exchange rate for the reporting period. The cumulative foreign currency translation adjustment is recorded as a component of accumulated other comprehensive income (loss) in shareholders’ equity.

Transactions in foreign currencies are translated into the functional currency of the relevant subsidiary at the weighted average exchange rate for the reporting period. Any monetary assets and liabilities arising from these transactions are translated into the relevant functional currency at exchange rates prevailing at the balance sheet date or on settlement. Resulting gains and losses are recorded in foreign exchange gain (loss) in our consolidated statements of income.

Deferred Financing Costs

Deferred financing costs are reported at cost, less accumulated amortization and are presented in the consolidated balance sheets as a direct deduction from the carrying value of the associated debt, with the exception of deferred financing costs associated with revolving-debt arrangements which are presented as assets. The related amortization expense is included in interest expense, net in our consolidated statements of income.

Contingencies

From time to time, we may become involved in claims and other legal matters arising in the ordinary course of business. We record accruals for loss contingencies to the extent that we conclude that it is probable that a liability has been incurred and the amount of the related loss can be reasonably estimated. Legal fees and other expenses related to litigation are expensed as incurred and included in selling, general and administrative expenses.

Share-Based Compensation

We account for compensation cost for all share-based awards at fair value on the date of grant. The fair value is recognized as expense over the service period, net of estimated forfeitures, using the straight-line method. The estimation of share-based awards that will ultimately vest requires judgment, and, to the extent actual results or updated estimates differ from current estimates, such amounts will be recorded as a cumulative adjustment in the period estimates are revised. We primarily consider historical experience when estimating expected forfeitures.

Recent Accounting Pronouncements

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes", which simplifies the accounting for income taxes by removing certain exceptions to the general principles in the existing guidance for income taxes and making other minor improvements. The amendments are effective for annual reporting periods beginning after December 15, 2020 with early adoption permitted. We are currently evaluating the impact of adopting this new accounting guidance.

In August 2018, the FASB issued ASU No. 2018-15, "Intangibles-Goodwill and Other-Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract", which aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. The standard is effective for us beginning January 1, 2020 and early adoption is permitted. The new guidance is not expected to have a material impact on our results of operations and financial position.

In January 2017, the FASB issued ASU No. 2017-04, "Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment" which simplifies the accounting for goodwill impairment by eliminating Step 2 of the current goodwill impairment test. Goodwill impairment will now be the amount by which the reporting unit's carrying value exceeds its fair value, limited to the carrying value of the goodwill. The standard is effective for us beginning January 1, 2020. Early adoption is permitted for any impairment tests performed after January 1, 2017. The new guidance is not expected to have a material impact on our results of operations and financial position.

3. Asset Acquisition, Collaborations and Disposition

Asset Acquisition

On August 12, 2019, we announced the acquisition of Cavion, Inc., or Cavion, a clinical-stage biotechnology company, for an upfront payment of $52.5 million with the potential for additional payments of up to $260.0 million upon the achievement of certain clinical, regulatory and commercial milestones, for a total potential consideration of $312.5 million. As a result of the acquisition, we added JZP-385, a modulator of T-type calcium channels, for the potential treatment of essential tremor, to our clinical pipeline. The acquisition of Cavion was accounted for as an asset acquisition because it did not meet the definition of a business.

The following table summarizes the total consideration for the acquisition and the value of assets acquired and liabilities assumed (in thousands):

Consideration	
Upfront payment for acquisition of Cavion's outstanding shares	$ 52,500
Cash acquired	397
Working capital adjustment	(255)
Transaction costs	2,829
Total consideration	$ 55,471
Assets Acquired and Liabilities Assumed	
Cash	$ 397
In-process research and development	48,275
Deferred tax assets	7,995
Other assets and liabilities	(1,196)
Total net assets acquired	$ 55,471

The value attributed to in-process research and development relates to JZP-385 and was expensed as it was determined to have no alternative future use.

Collaboration and License Agreement

On January 2, 2019, we entered into a strategic collaboration agreement with Codiak BioSciences, Inc., or Codiak, focused on the research, development and commercialization of exosome therapeutics to treat cancer. Codiak granted us an exclusive, worldwide, royalty-bearing license to develop, manufacture and commercialize therapeutic candidates directed at five targets to be developed using Codiak's engEx™ precision engineering platform for exosome therapeutics.

Under the terms of the agreement, Codiak is responsible for the execution of preclinical and early clinical development of therapeutic candidates directed at all five targets through Phase 1/2 proof of concept studies. Following the conclusion of the applicable Phase 1/2 study, we will be responsible for future development, potential regulatory submissions and commercialization for each product. Codiak has the option to participate in co-commercialization and cost/profit-sharing in the U.S. and Canada on up to two products.

As part of the agreement, we paid Codiak an upfront payment of $56.0 million in January 2019, which was recorded as acquired IPR&D expense in our consolidated statements of income for the year ended December 31, 2019. Codiak is eligible to receive up to $20 million in preclinical development milestone payments. Codiak is also eligible to receive milestone payments totaling up to $200 million per target based on investigational new drug application acceptance, clinical and regulatory milestones, including approvals in the U.S., the European Union and Japan, and certain sales milestones. Codiak is also eligible to receive tiered royalties on net sales of each approved product.

Collaboration and Option Agreement

In 2017, we entered into a collaboration and option agreement with ImmunoGen, Inc., or ImmunoGen, and we paid them a non-refundable upfront payment of $75.0 million, which was charged to acquired IPR&D expense upon closing of the transaction.

This agreement was amended in November 2019. Under the amended agreement we have the right to opt into an exclusive, worldwide license to develop and commercialize IMGN632, a CD123-targeted ADC for hematological malignancies, currently in Phase 1. ImmunoGen will be responsible for the development of IMGN632 prior to any potential opt-in by us. Following any opt-in, we would be responsible for any further development as well as for potential regulatory submissions and commercialization.

As part of the amended agreement, we will pay ImmunoGen up to $25 million in development funding. We may exercise our opt-in right at any time prior to a pivotal study or any time prior to a biologics license application upon payment of an option exercise fee. The option exercise fee depends on the timing of exercise and certain other conditions. If we elect to opt-in, ImmunoGen would be eligible to receive milestone payments based on receiving regulatory approval of the applicable product, plus tiered royalties as a percentage of

commercial sales. After opt-in, we will share with ImmunoGen the costs associated with developing and obtaining regulatory approvals in the U.S. and the EU. ImmunoGen has the right to co-commercialize the product with us in the U.S. with U.S. profit-sharing in lieu of our payment of applicable U.S. milestone and royalties to ImmunoGen.

Disposition

On June 29, 2018, we entered into an asset purchase agreement, or APA, with TerSera Therapeutics LLC, or TerSera, pursuant to which TerSera agreed to purchase substantially all of our assets related to the manufacture, marketing and sale of Prialt, but excluding accounts receivable, and to assume certain related liabilities as set forth in the APA. We entered into an amendment to the APA, and the transaction closed, on September 27, 2018. The total sales price was $80.0 million, of which we received $50.0 million at closing and $15.0 million, less certain reimbursable expenses on December 30, 2019. We are entitled to receive a further $15.0 million, less certain reimbursable expenses payable on December 31, 2020, or earlier under certain conditions.

The related assets met the assets held for sale criteria and were reclassified to assets held for sale as of June 30, 2018. We adjusted the carrying value of the assets held for sale to fair value less costs to sell, which resulted in an impairment charge of $42.9 million in our consolidated statements of income in 2018, primarily related to the carrying balances of intangible assets. Upon closing, we recognized a loss on disposal of $0.5 million within selling, general and administrative expenses in our consolidated statements of income in 2018.

We determined that the disposal of these assets does not qualify for reporting as a discontinued operation since it does not represent a strategic shift that has or will have a major effect on our operations and financial results.

4. Cash and Available-for-Sale Securities

Cash and cash equivalents and investments consisted of the following (in thousands):

	December 31, 2019					
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Cash and Cash Equivalents	Investments
Cash	$ 333,172	$—	$—	$ 333,172	$333,172	$ —
Time deposits	460,000	—	—	460,000	20,000	440,000
Money market funds	284,172	—	—	284,172	284,172	—
Totals	$1,077,344	$—	$—	$1,077,344	$637,344	$440,000

	December 31, 2018					
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Cash and Cash Equivalents	Investments
Cash	$ 215,606	$—	$—	$ 215,606	$215,606	$ —
Time deposits	515,000	—	—	515,000	—	515,000
Money market funds	94,016	—	—	94,016	94,016	—
Totals	$ 824,622	$—	$—	$ 824,622	$309,622	$515,000

Cash equivalents and investments are considered available-for-sale securities. We use the specific-identification method for calculating realized gains and losses on securities sold and include them in interest expense, net in the consolidated statements of income. Our investment balances represent time deposits with original maturities of greater than three months and less than one year. Interest income from available-for-sale securities was $20.5 million, $16.9 million and $4.1 million in 2019, 2018 and 2017, respectively.

5. Fair Value Measurement

The following table summarizes, by major security type, our available-for-sale securities and derivative contracts that were measured at fair value on a recurring basis and were categorized using the fair value hierarchy (in thousands):

	December 31, 2019			December 31, 2018		
	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total Estimated Fair Value	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Total Estimated Fair Value
Assets:						
Available-for-sale securities:						
Time deposits	$ —	$460,000	$460,000	$ —	$515,000	$515,000
Money market funds	284,172	—	284,172	94,016	—	94,016
Interest rate contracts	—	—	—	—	4,070	4,070
Foreign exchange forward contracts	—	2,508	2,508	—	1,194	1,194
Totals	$284,172	$462,508	$746,680	$94,016	$520,264	$614,280
Liabilities:						
Interest rate contracts	$ —	$ 1,515	$ 1,515	$ —	$ —	$ —
Foreign exchange forward contracts	—	182	182	—	1,460	1,460
Totals	$ —	$ 1,697	$ 1,697	$ —	$ 1,460	$ 1,460

As of December 31, 2019, our available-for-sale securities included time deposits and money market funds and their carrying values were approximately equal to their fair values. Time deposits were measured at fair value using Level 2 inputs and money market funds were measured using quoted prices in active markets, which represent Level 1 inputs. Level 2 inputs, obtained from various third party data providers, represent quoted prices for similar assets in active markets, or these inputs were derived from observable market data, or if not directly observable, were derived from or corroborated by other observable market data.

Our derivative assets and liabilities include interest rate and foreign exchange derivatives that are measured at fair value using observable market inputs such as forward rates, interest rates, our own credit risk as well as an evaluation of our counterparties' credit risks. Based on these inputs, the derivative assets and liabilities are classified within Level 2 of the fair value hierarchy.

There were no transfers between the different levels of the fair value hierarchy in 2019 or in 2018.

As of December 31, 2019 and 2018, the carrying amount of investments measured using the measurement alternative for equity investments without a readily determinable fair value was $4.5 million. The carrying amount, which is recorded within other non-current assets, represents the purchase price paid in 2018.

As of December 31, 2019, the estimated fair values of our 1.875% exchangeable senior notes due 2021, or the 2021 Notes, and our 1.50% exchangeable senior notes due 2024, or the 2024 Notes, were approximately $592 million and $579 million, respectively. The fair values of the 2021 Notes and the 2024 Notes, which we refer to together as the Exchangeable Senior Notes, were estimated using quoted market prices obtained from brokers (Level 2). The estimated fair value of our borrowings under our term loan was approximately equal to its book value based on the borrowing rates currently available for variable rate loans (Level 2).

6. Derivative Instruments and Hedging Activities

We are exposed to certain risks arising from operating internationally, including fluctuations in interest rates on our outstanding term loan borrowings and fluctuations in foreign exchange rates primarily related to the translation of euro-denominated net monetary liabilities, including intercompany balances, held by subsidiaries with a U.S. dollar functional currency. We manage these exposures within specified guidelines through the use of derivatives. All of our derivative instruments are utilized for risk management purposes, and we do not use derivatives for speculative trading purposes.

To achieve a desired mix of floating and fixed interest rates on our variable rate debt, we entered into interest rate swap agreements in March 2017 which are effective until July 2021. These agreements hedge contractual term loan interest rates. As of December 31, 2019 and 2018, the interest rate swap agreements had a notional amount of $300.0 million. As a result of these agreements, the interest rate on a portion of our term loan borrowings was fixed at 1.895%, plus the borrowing spread, until July 2021.

The effective portion of changes in the fair value of derivatives designated as and that qualify as cash flow hedges is recorded in accumulated other comprehensive loss and is subsequently reclassified into earnings in the period that the hedged forecasted transaction affects earnings. The impact on accumulated other comprehensive loss and earnings from derivative instruments that qualified as cash flow hedges was as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Interest Rate Contracts:			
Gain (loss) recognized in accumulated other comprehensive loss, net of tax	$(3,903)	$2,274	$ (213)
Loss (gain) reclassified from accumulated other comprehensive loss to interest expense, net of tax	$ (979)	$ (252)	$1,695

Assuming no change in LIBOR-based interest rates from market rates as of December 31, 2019, $0.8 million of losses recognized in accumulated other comprehensive loss will be reclassified to earnings over the next 12 months.

We enter into foreign exchange forward contracts, with durations of up to 12 months, designed to limit the exposure to fluctuations in foreign exchange rates related to the translation of certain non-U.S. dollar denominated liabilities, including intercompany balances. Hedge accounting is not applied to these derivative instruments as gains and losses on these hedge transactions are designed to offset gains and losses on underlying balance sheet exposures. As of December 31, 2019 and 2018, the notional amount of foreign exchange contracts where hedge accounting was not applied was $180.9 million and $271.5 million, respectively.

The foreign exchange loss in our consolidated statements of income included the following gains and losses associated with foreign exchange contracts not designated as hedging instruments (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Foreign Exchange Forward Contracts:			
Gain (loss) recognized in foreign exchange loss	$(6,192)	$(14,648)	$17,902

The cash flow effects of our derivative contracts are included within net cash provided by operating activities in the consolidated statements of cash flows.

The following table summarizes the fair value of outstanding derivatives (in thousands):

	December 31, 2019			
	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Interest rate contracts	Other current assets	$ —	Accrued liabilities	$ 855
			Other non-current liabilities	660
Derivatives not designated as hedging instruments:				
Foreign exchange forward contracts	Other current assets	2,508	Accrued liabilities	182
Total fair value of derivative instruments		$2,508		$1,697

	December 31, 2018			
	Asset Derivatives		Liability Derivatives	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Interest rate contracts	Other current assets	$1,929	Accrued liabilities	$ —
	Other non-current assets	2,141		
Derivatives not designated as hedging instruments:				
Foreign exchange forward contracts	Other current assets	1,194	Accrued liabilities	1,460
Total fair value of derivative instruments		$5,264		$1,460

Although we do not offset derivative assets and liabilities within our consolidated balance sheets, our International Swap and Derivatives Association agreements provide for net settlement of transactions that are due to or from the same counterparty upon early termination of the agreement due to an event of default or other termination event. The following table summarizes the potential effect on our consolidated balance sheets of offsetting our interest rate contracts and foreign exchange forward contracts subject to such provisions (in thousands):

	December 31, 2019					
				Gross Amounts Not Offset in the Consolidated Balance Sheet		
Description	Gross Amounts of Recognized Assets/ Liabilities	Gross Amounts Offset in the Consolidated Balance Sheet	Net Amounts of Assets/ Liabilities Presented in the Consolidated Balance Sheet	Derivative Financial Instruments	Cash Collateral Received (Pledged)	Net Amount
Derivative assets	$ 2,508	$—	$ 2,508	$(596)	$—	$ 1,912
Derivative liabilities	$(1,697)	$—	$(1,697)	$ 596	$—	$(1,101)

	December 31, 2018					
				Gross Amounts Not Offset in the Consolidated Balance Sheet		
Description	Gross Amounts of Recognized Assets/ Liabilities	Gross Amounts Offset in the Consolidated Balance Sheet	Net Amounts of Assets/ Liabilities Presented in the Consolidated Balance Sheet	Derivative Financial Instruments	Cash Collateral Received (Pledged)	Net Amount
Derivative assets	$ 5,264	$—	$ 5,264	$(935)	$—	$4,329
Derivative liabilities	$(1,460)	$—	$(1,460)	$ 935	$—	$ (525)

7. Inventories

Inventories consisted of the following (in thousands):

	December 31,	
	2019	2018
Raw materials	$13,595	$10,895
Work in process	36,658	20,743
Finished goods	28,355	21,318
Total inventories	$78,608	$52,956

8. Property, Plant and Equipment

Property, plant and equipment consisted of the following (in thousands):

	December 31,	
	2019	2018
Leasehold improvements	$ 52,294	$ 33,273
Land and buildings	47,053	46,650
Manufacturing equipment and machinery	28,860	25,837
Computer software	25,680	19,062
Computer equipment	16,577	13,679
Furniture and fixtures	11,152	8,155
Construction-in-progress	5,147	51,243
Build-to-suit facility	—	52,067
Subtotal	186,763	249,966
Less accumulated depreciation and amortization	(55,257)	(49,608)
Property, plant and equipment, net	$131,506	$200,358

The decrease in the carrying amount of construction-in-progress and build-to-suit facility assets as of December 31, 2019 compared to December 31, 2018 primarily reflects the de-recognition of assets related to build-to-suit facility leases on adoption of ASU No. 2016-02.

Depreciation and amortization expense on property, plant and equipment amounted to $15.3 million, $15.2 million and $13.1 million for the years ended December 31, 2019, 2018 and 2017, respectively.

9. Goodwill and Intangible Assets

The gross carrying amount of goodwill was as follows (in thousands):

Balance at December 31, 2018	$927,630
Foreign exchange	(7,612)
Balance at December 31, 2019	$920,018

The gross carrying amounts and net book values of our intangible assets were as follows (in thousands):

	December 31, 2019				December 31, 2018		
	Remaining Weighted-Average Useful Life (In years)	Gross Carrying Amount	Accumulated Amortization	Net Book Value	Gross Carrying Amount	Accumulated Amortization	Net Book Value
Acquired developed technologies	13.3	$3,166,485	$(864,834)	$2,301,651	$3,110,641	$(632,413)	$2,478,228
Priority review voucher (PRV)	—	111,101	(111,101)	—	111,101	—	111,101
Manufacturing contracts	—	12,025	(12,025)	—	12,256	(12,256)	—
Trademarks	—	2,890	(2,890)	—	2,896	(2,896)	—
Total finite-lived intangible assets		3,292,501	(990,850)	2,301,651	3,236,894	(647,565)	2,589,329
Acquired IPR&D assets		139,326	—	139,326	142,005	—	142,005
Total intangible assets		$3,431,827	$(990,850)	$2,440,977	$3,378,899	$(647,565)	$2,731,334

The increase in the gross carrying amount of intangible assets as of December 31, 2019 compared to December 31, 2018 reflects the capitalization of milestone payments triggered by FDA approval of Sunosi in March 2019 and subsequent U.S. Drug Enforcement Agency scheduling in June 2019, partially offset by the negative impact of foreign currency translation adjustments due to the weakening of the euro against the U.S. dollar.

We amortized the cost of the priority review voucher, or PRV, of $111.1 million in full in the fourth quarter of 2019, following the notification to the FDA of our intention to redeem it in the NDA submission for JZP-258.

The assumptions and estimates used to determine future cash flows and remaining useful lives of our intangible and other long-lived assets are complex and subjective. They can be affected by various factors, including external factors, such as industry and economic trends, and internal factors such as changes in our business strategy and our forecasts for specific product lines. We reduced the estimated remaining useful life of the Erwinaze intangible asset due to the receipt of a contract termination notice from Porton Biopharma Limited in February 2019. The reduction in the estimated remaining useful life increased intangible asset amortization expense by $54.9 million, reduced net income by $37.3 million, reduced basic net income per ordinary share by $0.66, and reduced diluted net income per ordinary share by $0.65 during the year ended December 31, 2019. The carrying value of the Erwinaze intangible asset as of December 31, 2019 was $136.0 million.

Based on finite-lived intangible assets recorded as of December 31, 2019, and assuming the underlying assets will not be impaired and that we will not change the expected lives of any other assets, future amortization expenses were estimated as follows (in thousands):

Year Ending December 31,	Estimated Amortization Expense
2020	$ 251,032
2021	204,025
2022	159,038
2023	159,038
2024	159,038
Thereafter	1,369,480
Total	$2,301,651

10. Accrued Liabilities

Accrued liabilities consisted of the following (in thousands):

	December 31,	
	2019	2018
Rebates and other sales deductions	$ 96,860	$ 86,495
Employee compensation and benefits	80,290	58,543
Current portion of operating lease liabilities	12,728	—
Selling and marketing accruals	11,299	6,780
Inventory-related accruals	7,816	8,753
Accrued interest	7,386	7,407
Royalties	6,931	2,679
Professional fees	4,718	2,333
Sales returns reserve	3,462	2,510
Clinical trial accruals	2,551	5,904
Accrued construction-in-progress	1,564	1,065
Derivative instrument liabilities	1,037	1,460
Accrued loss contingency	—	58,154
Other	31,231	22,804
Total accrued liabilities	$267,873	$264,887

11. Debt

The following table summarizes the carrying amount of our indebtedness (in thousands):

	December 31, 2019	December 31, 2018
2021 Notes	$ 575,000	$ 575,000
Unamortized discount and debt issuance costs on 2021 Notes	(38,865)	(60,910)
2021 Notes, net	536,135	514,090
2024 Notes	575,000	575,000
Unamortized discount and debt issuance costs on 2024 Notes	(117,859)	(138,914)
2024 Notes, net	457,141	436,086
Term loan	613,981	646,236
Total debt	1,607,257	1,596,412
Less current portion	33,387	33,387
Total long-term debt	$1,573,870	$1,563,025

Credit Agreement

On June 18, 2015, Jazz Pharmaceuticals plc, as guarantor, and certain of our wholly owned subsidiaries, as borrowers, entered into a credit agreement, or the 2015 credit agreement, that provided for a $750.0 million principal amount term loan, which was drawn in full at closing, and a $750.0 million revolving credit facility, of which $160.0 million was drawn at closing and subsequently repaid. We used the proceeds from initial borrowings under the 2015 credit agreement to repay in full the $893.1 million principal amount of term loans outstanding under the credit agreement that we entered into in June 2012, as subsequently amended, which we refer to as the previous credit agreement, and to pay related fees and expenses. The previous credit agreement was terminated upon repayment of the term loans outstanding thereunder.

On July 12, 2016, we amended the 2015 credit agreement to provide for a revolving credit facility of $1.25 billion and a $750.0 million term loan facility. We used the proceeds of $1.0 billion of loans under the revolving credit facility, together with cash on hand, to fund the acquisition of Celator Pharmaceuticals, Inc., or the Celator Acquisition.

On June 7, 2018, we entered into the second amendment to the 2015 credit agreement to provide for a revolving credit facility of $1.6 billion, which replaced the existing revolving credit facility of $1.25 billion, and a new $667.7 million term loan facility, which replaced the $750.0 million term loan facility, of which $617.7 million principal amount was outstanding as of December 31, 2019. We refer to the 2015 credit agreement as amended by the first and second amendments as the amended credit agreement. We expect to use the proceeds from future loans under the revolving credit facility, if any, for permitted capital expenditures, permitted acquisitions, to provide for ongoing working capital requirements and for other general corporate purposes.

Under the amended credit agreement, the term loan matures on June 7, 2023 and the revolving credit facility terminates, and any loans outstanding thereunder become due and payable, on June 7, 2023.

Borrowings under the amended credit agreement bear interest, at our option, at a rate equal to either (a) the LIBOR rate, plus an applicable margin ranging from 1.375% to 1.750% per annum, based upon our secured leverage ratio, or (b) the prime lending rate, plus an applicable margin ranging from 0.375% to 0.750% per annum, based upon our secured leverage ratio. The revolving credit facility has a commitment fee payable on the undrawn amount ranging from 0.25% to 0.35% per annum based upon our secured leverage ratio.

As of December 31, 2019, the interest rate on the term loan was 3.17% and the effective interest rate was 3.66%. As of December 31, 2019, we had undrawn revolving credit facilities totaling $1.6 billion.

Jazz Pharmaceuticals plc and certain of our wholly owned subsidiaries are borrowers under the amended credit agreement. The borrowers' obligations under the amended credit agreement and any hedging or cash management obligations entered into with a lender

are guaranteed on a senior secured basis by Jazz Pharmaceuticals plc and certain of our subsidiaries (including the issuer of the Exchangeable Senior Notes as described below) and are secured by substantially all of Jazz Pharmaceuticals plc's, the borrowers' and the guarantor subsidiaries' assets.

We may make voluntary prepayments of principal at any time without payment of a premium. We are required to make mandatory prepayments of the term loan (without payment of a premium) with (1) net cash proceeds from certain non-ordinary course asset sales (subject to other exceptions), (2) net cash proceeds from issuances of debt (other than certain permitted debt), and (3) casualty proceeds and condemnation awards (subject to other exceptions).

Principal repayments of the term loan, which are due quarterly, are equal to 5.0% per annum of the principal amount outstanding on June 7, 2018 of $667.7 million, with any remaining balance payable on the maturity date.

The amended credit agreement contains financial covenants that require Jazz Pharmaceuticals plc and our restricted subsidiaries to not (a) exceed a maximum secured net leverage ratio or (b) fall below a cash interest coverage ratio. As of December 31, 2019, we were in compliance with these financial covenants.

In connection with our entry into the amendments to the 2015 credit agreement, we recorded a loss on extinguishment and modification of debt of $1.4 million in 2018.

Exchangeable Senior Notes Due 2024

In the third quarter of 2017, we completed a private placement of $575.0 million principal amount of 2024 Notes. We used the net proceeds from this offering to repay $500.0 million in outstanding loans under the revolving credit facility and to pay related fees and expenses. We used the remainder of the net proceeds for general corporate purposes. Interest on the 2024 Notes is payable semi-annually in cash in arrears on February 15 and August 15 of each year, beginning on February 15, 2018, at a rate of 1.50% per year. In certain circumstances, we may be required to pay additional amounts as a result of any applicable tax withholding or deductions required in respect of payments on the 2024 Notes. The 2024 Notes mature on August 15, 2024, unless earlier exchanged, repurchased or redeemed.

The holders of the 2024 Notes have the ability to require us to repurchase all or a portion of their 2024 Notes for cash in the event we undergo certain fundamental changes, such as specified change of control transactions, our liquidation or dissolution or the delisting of our ordinary shares from The Nasdaq Global Select Market. Prior to August 15, 2024, we may redeem the 2024 Notes, in whole but not in part, subject to compliance with certain conditions, if we have, or on the next interest payment date would, become obligated to pay to the holder of any 2024 Notes additional amounts as a result of certain tax-related events. We also may redeem the 2024 Notes on or after August 20, 2021, in whole or in part, if the last reported sale price per ordinary share has been at least 130% of the exchange price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide the notice of redemption.

The 2024 Notes are exchangeable at an initial exchange rate of 4.5659 ordinary shares per $1,000 principal amount of 2024 Notes, which is equivalent to an initial exchange price of approximately $219.02 per ordinary share. Upon exchange, the 2024 Notes may be settled in cash, ordinary shares or a combination of cash and ordinary shares, at our election. Our intent and policy is to settle the principal amount of the 2024 Notes in cash upon exchange. The exchange rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain make-whole fundamental changes occurring prior to the maturity date of the 2024 Notes or upon our issuance of a notice of redemption, we will in certain circumstances increase the exchange rate for holders of the 2024 Notes who elect to exchange their 2024 Notes in connection with that make-whole fundamental change or during the related redemption period. Prior to May 15, 2024, the 2024 Notes will be exchangeable only upon satisfaction of certain conditions and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date.

In accounting for the issuance of the 2024 Notes, we separated the 2024 Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the estimated fair value of a similar liability that does not have an associated exchange feature. The carrying amount of the equity component representing the exchange option was determined by deducting the fair value of the liability component from the face value of the 2024 Notes as a whole. The excess of the principal amount of the liability component over its carrying amount will be amortized to interest expense over the expected life of the 2024 Notes using the

effective interest method with an effective interest rate of 6.8% per annum. We have determined the expected life of the 2024 Notes to be equal to the original seven-year term. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. As of December 31, 2019 and 2018, the "if-converted value" did not exceed the principal amount of the 2024 Notes.

We allocated the total issuance costs incurred of $15.6 million to the liability and equity components based on their relative values. Issuance costs attributable to the liability component will be amortized to expense over the term of the 2024 Notes, and issuance costs attributable to the equity component were included with the equity component in our shareholders' equity.

As of December 31, 2019 and 2018, the carrying value of the equity component of the 2024 Notes, net of equity issuance costs, was $149.8 million.

Exchangeable Senior Notes Due 2021

In August 2014, we completed a private placement of the 2021 Notes. Interest on the 2021 Notes is payable semi-annually in cash in arrears on February 15 and August 15 of each year, beginning on February 15, 2015, at a rate of 1.875% per year. In certain circumstances, we may be required to pay additional amounts as a result of any applicable tax withholding or deductions required in respect of payments on the 2021 Notes. The 2021 Notes mature on August 15, 2021, unless earlier exchanged, repurchased or redeemed.

The holders of the 2021 Notes have the ability to require us to repurchase all or a portion of their 2021 Notes for cash in the event Jazz Pharmaceuticals plc undergoes certain fundamental changes. Prior to August 15, 2021, we may redeem the 2021 Notes, in whole but not in part, subject to compliance with certain conditions, if we have, or on the next interest payment date would, become obligated to pay to the holder of any 2021 Note additional amounts as a result of certain tax-related events. We also may redeem the 2021 Notes on or after August 20, 2018, in whole or in part, if the last reported sale price per ordinary share has been at least 130% of the exchange price then in effect for at least 20 trading days (whether or not consecutive) during any 30 consecutive trading day period ending on, and including, the trading day immediately preceding the date on which we provide the notice of redemption.

The 2021 Notes are exchangeable at an initial exchange rate of 5.0057 ordinary shares per $1,000 principal amount of 2021 Notes, which is equivalent to an initial exchange price of approximately $199.77 per ordinary share. Upon exchange, the 2021 Notes may be settled in cash, ordinary shares or a combination of cash and ordinary shares, at our election. Our intent and policy is to settle the principal amount of the 2021 Notes in cash upon exchange. The exchange rate will be subject to adjustment in some events but will not be adjusted for any accrued and unpaid interest. In addition, following certain make-whole fundamental changes occurring prior to the maturity date of the 2021 Notes or upon our issuance of a notice of redemption, we will in certain circumstances increase the exchange rate for holders of the 2021 Notes who elect to exchange their 2021 Notes in connection with that make-whole fundamental change or during the related redemption period. Prior to February 15, 2021, the 2021 Notes will be exchangeable only upon satisfaction of certain conditions and during certain periods, and thereafter, at any time until the close of business on the second scheduled trading day immediately preceding the maturity date.

In accounting for the issuance of the 2021 Notes, we separated the 2021 Notes into liability and equity components. The carrying amount of the liability component was calculated by measuring the estimated fair value of a similar liability that does not have an associated exchange feature. The carrying amount of the equity component representing the exchange option was determined by deducting the fair value of the liability component from the face value of the 2021 Notes as a whole. The excess of the principal amount of the liability component over its carrying amount will be amortized to interest expense over the expected life of the 2021 Notes using the effective interest method with an effective interest rate of 6.4% per annum. We have determined the expected life of the 2021 Notes to be equal to the original seven-year term. The equity component is not remeasured as long as it continues to meet the conditions for equity classification. As of December 31, 2019 and 2018, the "if-converted value" did not exceed the principal amount of the 2021 Notes.

We allocated the total issuance costs incurred of $16.1 million to the liability and equity components based on their relative values. Issuance costs attributable to the liability component will be amortized to expense over the term of the 2021 Notes, and issuance costs attributable to the equity component were included with the equity component in our shareholders' equity.

As of December 31, 2019 and 2018, the carrying value of the equity component of the 2021 Notes, net of equity issuance costs, was $126.9 million.

The Exchangeable Senior Notes were issued by Jazz Investments I Limited, or the Issuer, a 100%-owned finance subsidiary of Jazz Pharmaceuticals plc. The Exchangeable Senior Notes are senior unsecured obligations of the Issuer and are fully and unconditionally guaranteed on a senior unsecured basis by Jazz Pharmaceuticals plc. No subsidiary of Jazz Pharmaceuticals plc guaranteed the Exchangeable Senior Notes. Subject to certain local law restrictions on payment of dividends, among other things, and potential negative tax consequences, we are not aware of any significant restrictions on the ability of Jazz Pharmaceuticals plc to obtain funds from the Issuer or Jazz Pharmaceuticals plc's other subsidiaries by dividend or loan, or any legal or economic restrictions on the ability of the Issuer or Jazz Pharmaceuticals plc's other subsidiaries to transfer funds to Jazz Pharmaceuticals plc in the form of cash dividends, loans or advances. There is no assurance that in the future such restrictions will not be adopted.

For the years ended December 31, 2019, 2018 and 2017, we recognized $59.1 million, $56.7 million and $37.8 million, respectively, in interest expense, net related to the contractual coupon rate and amortization of the debt discount on the Exchangeable Senior Notes.

Scheduled maturities with respect to our long-term debt are as follows (in thousands):

Year Ending December 31,	Scheduled Long-Term Debt Maturities
2020	$ 33,387
2021	608,387
2022	33,387
2023	517,493
2024	575,000
Total	$1,767,654

12. Leases

We have noncancelable operating leases for our office buildings and we are obligated to make payments under noncancelable operating leases for automobiles used by our sales force.

The components of the lease expense for the year ended December 31, 2019 were as follows (in thousands):

Lease Cost	Year Ended December 31, 2019
Operating lease cost	$23,087
Short-term lease cost	2,465
Variable lease cost	5
Sublease income	(634)
Net lease cost	$24,923

Supplemental balance sheet information related to operating leases was as follows (in thousands):

Leases	Classification	December 31, 2019
Assets		
Operating lease assets	Operating lease assets	$139,385
Liabilities		
Current		
Operating lease liabilities	Accrued liabilities	12,728
Non-current		
Operating lease liabilities	Operating lease liabilities, less current portion	151,226
Total operating lease liabilities		$163,954

Lease Term and Discount Rate	December 31, 2019
Weighted-average remaining lease term—operating leases (years)	9.7
Weighted-average discount rate—operating leases	5.3%

Supplemental cash flow information related to operating leases was as follows (in thousands):

	Year Ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash outflows from operating leases	$ 17,066
Non-cash operating activities:	
Right-of-use assets obtained in exchange for new operating lease liabilities (1)	$153,448

(1) Includes the balances recognized on January 1, 2019 on adoption of ASU No. 2016-02.

Maturities of operating lease liabilities were as follows (in thousands):

Year Ending December 31,	Operating leases
2020	$ 21,315
2021	21,104
2022	21,139
2023	21,508
2024	23,857
Thereafter	104,655
Total lease payments	$213,578
Less imputed interest	(49,624)
Present value of lease liabilities	$163,954

13. Commitments and Contingencies

Indemnification

In the normal course of business, we enter into agreements that contain a variety of representations and warranties and provide for general indemnification, including indemnification associated with product liability or infringement of intellectual property rights. Our exposure under these agreements is unknown because it involves future claims that may be made but have not yet been made against us. To date, we have not paid any claims or been required to defend any action related to these indemnification obligations.

We have agreed to indemnify our executive officers, directors and certain other employees for losses and costs incurred in connection with certain events or occurrences, including advancing money to cover certain costs, subject to certain limitations. The maximum potential amount of future payments we could be required to make under the indemnification obligations is unlimited; however, we maintain insurance policies that may limit our exposure and may enable us to recover a portion of any future amounts paid. Assuming the applicability of coverage, the willingness of the insurer to assume coverage, and subject to certain retention, loss limits and other policy provisions, we believe the fair value of these indemnification obligations is not significant. Accordingly, we did not recognize any liabilities relating to these obligations as of December 31, 2019 and December 31, 2018. No assurances can be given that the covering insurers will not attempt to dispute the validity, applicability, or amount of coverage without expensive litigation against these insurers, in which case we may incur substantial liabilities as a result of these indemnification obligations.

Other Commitments

As of December 31, 2019, we had $74.5 million of noncancelable purchase commitments due within one year, primarily related to agreements with third party manufacturers.

Legal Proceedings

From time to time we are involved in legal proceedings arising in the ordinary course of business. We believe there is no litigation pending that could have, individually or in the aggregate, a material adverse effect on our results of operations or financial condition.

14. Shareholders' Equity

Share Repurchase Program

In November 2016, our board of directors authorized a share repurchase program pursuant to which we were authorized to repurchase a number of ordinary shares having an aggregate purchase price of up to $300.0 million, exclusive of any brokerage commissions. In November and December 2018, our board of directors increased the existing share repurchase program authorization by $320.0 million and $400.0 million. In October 2019, our board of directors authorized the additional repurchase of shares having an aggregate purchase price of up to $500.0 million, exclusive of any brokerage commissions. Under this program, which has no expiration date, we may repurchase ordinary shares from time to time on the open market. The timing and amount of repurchases will depend on a variety of factors, including the price of our ordinary shares, alternative investment opportunities, restrictions under the amended credit agreement, corporate and regulatory requirements and market conditions. The share repurchase program may be modified, suspended or discontinued at any time without prior notice. In 2019, we spent a total of $301.5 million to repurchase 2.3 million of our ordinary shares at an average total purchase price, including brokerage commissions, of $133.97 per share. In 2018, we spent a total of $523.7 million to repurchase 3.5 million of our ordinary shares at an average total purchase price, including brokerage commissions, of $148.33 per share. All ordinary shares repurchased were canceled. As of December 31, 2019, the remaining amount authorized under the share repurchase program was $577.7 million.

Authorized But Unissued Ordinary Shares

We had reserved the following shares of authorized but unissued ordinary shares (in thousands):

	December 31,	
	2019	2018
2011 Equity Incentive Plan	19,552	17,729
2007 Employee Stock Purchase Plan	1,883	1,126
Amended and Restated 2007 Non-Employee Directors Stock Award Plan	438	453
Amended and Restated Directors Deferred Compensation Plan	178	178
2007 Equity Incentive Plan	13	13
Total	22,064	19,499

Dividends

In 2019 and 2018, we did not declare or pay cash dividends on our common equity. Under Irish law, dividends may only be paid, and share repurchases and redemptions must generally be funded only out of, "distributable reserves." In addition, the terms of our credit agreement restrict our ability to make certain restricted payments, including dividends and other distributions by us in respect of our ordinary shares, subject to, among other exceptions, (1) a general exception for dividends and restricted payments up to $30 million in the aggregate and (2) an exception that allows for restricted payments, subject to a cap equal to the sum of (i) $100 million plus (ii) so long as our secured leverage ratio (as defined in our credit agreement) does not exceed 3:1 after giving pro forma effect to the restricted payment, a formula-based amount tied to our consolidated net income; provided that such cap applies only if our total leverage ratio (as defined in our credit agreement) exceeds 2:1 after giving pro forma effect to the restricted payment.

15. Comprehensive Income (Loss)

Comprehensive income (loss) includes net income and all changes in shareholders' equity during a period, except for those changes resulting from investments by shareholders or distributions to shareholders.

Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss as of December 31, 2019 and 2018 were as follows (in thousands):

	Net Unrealized Gain (Loss) From Hedging Activities	Foreign Currency Translation Adjustments	Total Accumulated Other Comprehensive Loss
Balance at December 31, 2018	$ 3,557	$(201,348)	$(197,791)
Other comprehensive loss before reclassifications	(3,903)	(20,720)	(24,623)
Amounts reclassified from accumulated other comprehensive loss	(979)	—	(979)
Other comprehensive loss, net	(4,882)	(20,720)	(25,602)
Balance at December 31, 2019	$(1,325)	$(222,068)	$(223,393)

In 2019, other comprehensive loss reflects foreign currency translation adjustments, primarily due to the weakening of the euro against the U.S. dollar, and the net unrealized loss on derivatives that qualify as cash flow hedges.

16. Net Income per Ordinary Share

Basic net income per ordinary share attributable to Jazz Pharmaceuticals plc is based on the weighted-average number of ordinary shares outstanding. Diluted net income per ordinary share attributable to Jazz Pharmaceuticals plc is based on the weighted-average number of ordinary shares outstanding and potentially dilutive ordinary shares outstanding.

Basic and diluted net income per ordinary share attributable to Jazz Pharmaceuticals plc were computed as follows (in thousands, except per share amounts):

	Year Ended December 31,		
	2019	2018	2017
Numerator:			
Net income	$523,367	$447,098	$487,848
Denominator:			
Weighted-average ordinary shares used in per share calculations—basic	56,749	59,976	60,018
Dilutive effect of employee equity incentive and purchase plans	801	1,245	1,299
Weighted-average ordinary shares used in per share calculations—diluted	57,550	61,221	61,317
Net income per ordinary share :			
Basic	$ 9.22	$ 7.45	$ 8.13
Diluted	$ 9.09	$ 7.30	$ 7.96

Potentially dilutive ordinary shares from our employee equity incentive and purchase plans and the Exchangeable Senior Notes are determined by applying the treasury stock method to the assumed exercise of share options, the assumed vesting of outstanding restricted stock units, or RSUs, the assumed issuance of ordinary shares under our employee stock purchase plan, or ESPP, and the assumed issuance of ordinary shares upon exchange of the Exchangeable Senior Notes. The potential issue of ordinary shares issuable upon exchange of the Exchangeable Senior Notes had no effect on diluted net income per ordinary share because the average price of our ordinary shares in 2019, 2018 and 2017 did not exceed the effective exchange prices per ordinary share of the Exchangeable Senior Notes.

The following table represents the weighted-average ordinary shares that were excluded from the computation of diluted net income attributable to Jazz Pharmaceuticals plc per ordinary share for the years presented because including them would have an anti-dilutive effect (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Exchangeable Senior Notes	5,504	5,504	3,805
Options, RSUs and ESPP	5,000	3,113	3,333

17. Segment and Other Information

Our operating segment is reported in a manner consistent with the internal reporting provided to the chief operating decision maker or, CODM. Our CODM has been identified as our chief executive officer. We have determined that we operate in one business segment, which is the identification, development and commercialization of meaningful pharmaceutical products that address unmet medical needs.

The following table presents total long-lived assets by location (in thousands):

	December 31,	
	2019	2018
Ireland	$ 77,237	$ 61,290
United States	171,079	126,941
Italy	12,959	8,760
Other	9,616	3,367
Total long-lived assets (1)	$270,891	$200,358

(1) Long-lived assets consist of property, plant and equipment and operating lease assets.

18. Revenues

The following table presents a summary of total revenues (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Xyrem	$1,642,525	$1,404,866	$1,186,699
Erwinaze/Erwinase	177,465	174,739	197,340
Defitelio/defibrotide	172,938	149,448	133,650
Vyxeos	121,407	100,835	33,790
Sunosi	3,714	—	—
Other	17,552	39,585	49,920
Product sales, net	2,135,601	1,869,473	1,601,399
Royalties and contract revenues	26,160	21,449	17,294
Total revenues	$2,161,761	$1,890,922	$1,618,693

The following table presents a summary of total revenues attributed to geographic sources (in thousands):

	Year Ended December 31,		
	2019	2018	2017
United States	$1,965,318	$1,727,576	$1,463,457
Europe	150,201	125,911	125,624
All other	46,242	37,435	29,612
Total revenues	$2,161,761	$1,890,922	$1,618,693

The following table presents a summary of the percentage of total revenues from customers that represented more than 10% of our total revenues:

	Year Ended December 31,		
	2019	2018	2017
ESSDS	76%	74%	73%
McKesson	14%	17%	16%

Financing and payment

Our payment terms vary by the type and location of our customer but payment is generally required in a term ranging from 30 to 45 days.

Contract Liabilities—Deferred Revenue

The deferred revenue balance as of December 31, 2019 primarily related to deferred upfront fees received from Nippon Shinyaku Co., Ltd., or Nippon Shinyaku, in connection with two license, development and commercialization agreements granting Nippon Shinyaku exclusive rights to develop and commercialize each of Defitelio and Vyxeos in Japan. We recognized contract revenues of $5.4 million in 2019 relating to these upfront payments. The deferred revenue balances are being recognized over an average of four years representing the period we expect to perform our research and developments obligations under each agreement.

The following table presents a reconciliation of our beginning and ending balances in contract liabilities from contracts with customers for the year ended December 31, 2019 (in thousands):

	Contract Liabilities
Balance as of December 31, 2018	$14,995
Amount recognized within royalties and contract revenues	(5,414)
Balance as of December 31, 2019	$ 9,581

19. Share-Based Compensation

2011 Equity Incentive Plan

On January 18, 2012, the businesses of Jazz Pharmaceuticals, Inc. and Azur Pharma were combined in a merger transaction, or the Azur Merger. In connection with the Azur Merger, Jazz Pharmaceuticals, Inc.'s board of directors adopted the 2011 Equity Incentive Plan, or the 2011 Plan, in October 2011 and its stockholders approved the 2011 Plan at the special meeting of the stockholders held in December 2011 in connection with the Azur Merger. The 2011 Plan became effective immediately before the consummation of the Azur Merger and was assumed and adopted by us upon the consummation of the Azur Merger. The terms of the 2011 Plan provide for the grant of stock options, stock appreciation rights, RSUs, other stock awards, and performance awards that may be settled in cash, shares, or other property. All outstanding grants under the 2011 Plan were granted to employees and vest ratably over service periods of four years and expire no more than 10 years after the date of grant. As of December 31, 2019, a total of 27,012,330 of our ordinary shares had been authorized for issuance under the 2011 Plan. In addition, the share reserve under the 2011 Plan will automatically increase on January 1 of each year through January 1, 2022, by the least of (a) 4.5% of the total number of ordinary shares outstanding on December 31 of the preceding calendar year, (b) 5,000,000 shares, or (c) such lesser number of ordinary shares as determined by our board of directors. On January 1, 2020, the share reserve under the 2011 Plan automatically increased by 2,526,341 ordinary shares pursuant to this provision.

2007 Equity Incentive Plan

The 2007 Equity Incentive Plan, or the 2007 Plan, which was initially adopted by the Jazz Pharmaceuticals, Inc. board of directors and approved by the Jazz Pharmaceuticals, Inc. stockholders in connection with its initial public offering, was continued and assumed by us upon consummation of the Azur Merger. The 2007 Plan provided for the grant of stock options, RSUs, stock appreciation rights, performance stock awards and other forms of equity compensation to employees, including officers, non-employee directors and consultants. Prior to the consummation of the Azur Merger, all of the grants under the 2007 Plan were granted to employees and vest ratably over service periods of three to five years and expire no more than 10 years after the date of grant. Effective as of the closing of the Azur Merger on January 18, 2012, the number of shares reserved for issuance under the 2007 Plan was set to 1,000,000 ordinary shares. The share reserve under the 2007 Plan will not automatically increase. Since the Azur Merger, all of the new grants under the 2007 Plan were granted to non-employee directors, vest ratably over service periods of one to three years and expire no more than 10 years after the date of grant. The 2007 Plan expired in April 2017, and accordingly, no new grants can be awarded under the 2007 Plan. As of December 31, 2019, the number of shares reserved represents issuable shares from options granted but not yet exercised under the 2007 Plan.

2007 Employee Stock Purchase Plan

In 2007, Jazz Pharmaceuticals, Inc.'s employees became eligible to participate in the ESPP. The ESPP was amended and restated by Jazz Pharmaceuticals, Inc.'s board of directors in October 2011 and approved by its stockholders in December 2011. The amended and restated ESPP became effective immediately prior to the effective time of the Azur Merger and was assumed by us upon the consummation of the Azur Merger. The amended and restated ESPP allows our eligible employee participants (including employees of any of a parent or subsidiary company if our board of directors designates such company as eligible to participate) to purchase our ordinary shares at a discount of 15% through payroll deductions. The ESPP consists of a fixed offering period of 24 months with four purchase periods within each offering period. The number of shares available for issuance under our ESPP during any six-month purchase period is 175,000 shares. As of December 31, 2019, a total of 4,421,024 of our ordinary shares had been authorized for issuance under the ESPP. The share reserve under the ESPP will automatically increase on January 1 of each year through January 1, 2022, by the least of (a) 1.5% of the total number of ordinary shares outstanding on December 31 of the preceding calendar year, (b) 1,000,000 shares, and (c) such lesser number of ordinary shares as determined by our board of directors or a duly-authorized committee thereof. On January 1, 2020, the share reserve under the ESPP automatically increased by 842,113 ordinary shares pursuant to this provision.

Amended and Restated 2007 Non-Employee Directors Stock Award Plan

The Amended and Restated 2007 Non-Employee Directors Stock Award Plan, or the 2007 Directors Award Plan, which was initially adopted by the Jazz Pharmaceuticals, Inc. board of directors and approved by the Jazz Pharmaceuticals, Inc. stockholders in connection with its initial public offering, was continued and assumed by us upon the consummation of the Azur Merger. Until October 2011, the 2007 Directors Award Plan provided for the automatic grant of stock options to purchase shares of Jazz Pharmaceuticals, Inc.'s common stock to its non-employee directors initially at the time any individual first became a non-employee director, which vest over three years, and then annually over their period of service on its board of directors, which vest over one year. On October 24, 2011, Jazz Pharmaceuticals, Inc.'s board of directors amended the 2007 Directors Award Plan to eliminate all future initial and annual automatic grants so that future automatic grants would not be made that would be subject to the excise tax imposed by Section 4985 of the Internal Revenue Code of 1986, as amended, or the Internal Revenue Code, in connection with the Azur Merger. Accordingly, all future stock option grants under the 2007 Directors Award Plan will be at the discretion of our board of directors. Since the Azur Merger, all of the new grants under the 2007 Directors Award Plan were granted to non-employee directors and vest ratably over service periods of one to three years and expire no more than 10 years after the date of grant. In addition, the 2007 Directors Award Plan provides the source of shares to fund distributions made prior to August 15, 2010 under the Directors Deferred Compensation Plan described below. In August 2016, our shareholders approved our proposal to expand the types of stock awards that may be granted to our non-employee directors under the 2007 Directors Award Plan and eliminate the final automatic share reserve increase under the 2007 Directors Award Plan that was scheduled to occur on January 1, 2017. As of December 31, 2019, a total of 903,938 of our ordinary shares had been authorized for issuance under the 2007 Directors Award Plan.

Amended and Restated Directors Deferred Compensation Plan

In May 2007, the Jazz Pharmaceuticals, Inc. board of directors adopted the Directors Deferred Compensation Plan, or the Directors Deferred Plan, which was amended in December 2008 and was then amended and restated in August 2010, and which was continued and assumed by us upon consummation of the Azur Merger. The Directors Deferred Plan allows each non-employee director to elect to defer receipt of all or a portion of his or her annual retainer fees to a future date or dates. Amounts deferred under the Directors Deferred Plan are credited as shares of Jazz Pharmaceuticals, Inc.'s common stock (or our ordinary shares following the Azur Merger) to a phantom stock account, the number of which are based on the amount of the retainer fees deferred divided by the market value of Jazz Pharmaceuticals, Inc.'s common stock (or our ordinary shares following the Azur Merger) on the first trading day of the first open window period following the date the retainer fees are deemed earned. On the 10th business day following the day of separation from the board of directors or the occurrence of a change in control, or as soon thereafter as practical once the non-employee director has provided the necessary information for electronic deposit of the deferred shares, each non-employee director will receive (or commence receiving, depending upon whether the director has elected to receive distributions from his or her phantom stock account in a lump sum or in installments over time) a distribution of his or her phantom stock account, in our ordinary shares (i) reserved under the 2007 Directors Option Plan prior to August 15, 2010 and (ii) from a new reserve of 200,000 shares set up under the Directors Deferred Plan on August 15, 2010. Since the consummation of the Azur Merger we have not permitted non-employee directors to defer any annual retainer fees under the Directors Deferred Plan. On October 31, 2019, our board of directors approved the termination of the Directors Deferred Plan, and all outstanding phantom stock will be distributed to each applicable non-employee director in November 2020. We recorded no expense in 2019, 2018 and 2017 related to retainer fees earned and deferred. As of December 31, 2019, 14,499 of our ordinary shares that were unissued related to retainer fees that were deferred under the Directors Deferred Plan.

Share-Based Compensation

The table below shows, for all share option grants, the weighted-average assumptions used in the Black-Scholes option pricing model and the resulting weighted-average grant date fair value of share options granted in each of the past three years:

	Year Ended December 31,		
	2019	2018	2017
Grant date fair value	$ 42.09	$ 47.17	$ 42.72
Volatility	32%	35%	35%
Expected term (years)	4.5	4.5	4.3
Range of risk-free rates	1.3-2.5%	2.2-3.0%	1.6-2.1%
Expected dividend yield	— %	— %	— %

We rely on a blend of the historical and implied volatilities of our own ordinary shares to determine expected volatility for share option grants. In addition, we use a single volatility estimate for each share option grant. The weighted-average volatility is determined by calculating the weighted average of volatilities for all share options granted in a given year.

The expected term of share option grants represents the weighted-average period the awards are expected to remain outstanding and our estimates were based on historical exercise data. The risk-free interest rate assumption was based on zero coupon U.S. Treasury instruments whose term was consistent with the expected term of our share option grants. The expected dividend yield assumption was based on our history and expectation of dividend payouts.

Share-based compensation expense related to share options, RSUs and grants under our ESPP was as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Selling, general and administrative	$ 78,697	$ 76,770	$ 83,218
Research and development	25,229	19,037	17,870
Cost of product sales	6,637	6,634	5,812
Total share-based compensation expense, pre-tax	110,563	102,441	106,900
Income tax benefit from share-based compensation expense	(15,712)	(17,230)	(21,792)
Total share-based compensation expense, net of tax	$ 94,851	$ 85,211	$ 85,108

We recognized income tax benefits related to share option exercises of $5.1 million, $7.7 million and $8.9 million in 2019, 2018 and 2017, respectively.

Share Options

The following table summarizes information as of December 31, 2019 and activity during 2019 related to our share option plans:

	Shares Subject to Outstanding Options (In thousands)	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (In thousands)
Outstanding at January 1, 2019	5,280	$127.08		
Options granted	1,691	138.14		
Options exercised	(515)	90.27		
Options forfeited	(436)	139.56		
Options expired	(186)	159.59		
Outstanding at December 31, 2019	5,834	$131.57	6.6	$127,778
Vested and expected to vest at December 31, 2019	5,553	$131.15	6.5	$124,884
Exercisable at December 31, 2019	3,402	$125.81	5.1	$102,366

Aggregate intrinsic value shown in the table above is equal to the difference between the exercise price of the underlying share options and the fair value of our ordinary shares for share options that were in the money. The aggregate intrinsic value changes based on the fair market value of our ordinary shares. The aggregate intrinsic value of share options exercised was $26.2 million, $43.4 million and $38.9 million during 2019, 2018 and 2017, respectively. We issued new ordinary shares upon exercise of share options.

As of December 31, 2019, total compensation cost not yet recognized related to unvested share options was $80.1 million, which is expected to be recognized over a weighted-average period of 2.6 years.

As of December 31, 2019, total compensation cost not yet recognized related to grants under the ESPP was $4.6 million, which is expected to be recognized over a weighted-average period of 1.0 years.

Restricted Stock Units

In 2019, we granted RSUs covering an equal number of our ordinary shares to employees with a weighted-average grant date fair value of $138.11. The fair value of RSUs is determined on the date of grant based on the market price of our ordinary shares as of that date. The fair value of the RSUs is recognized as an expense ratably over the vesting period of four years. In 2019, 391,000 RSUs were released with 265,000 ordinary shares issued and 126,000 ordinary shares withheld for tax purposes. The total fair value of shares vested was $52.0 million, $55.8 million and $53.2 million during 2019, 2018 and 2017, respectively.

As of December 31, 2019, total compensation cost not yet recognized related to unvested RSUs was $101.0 million, which is expected to be recognized over a weighted-average period of 2.5 years.

The following table summarizes information as of December 31, 2019 and activity during 2019 related to our RSUs:

	Number of RSUs (in thousands)	Weighted-Average Grant-Date Fair Value	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (In thousands)
Outstanding at January 1, 2019	1,102	$142.13		
RSUs granted	682	138.11		
RSUs released	(391)	144.34		
RSUs forfeited	(212)	140.76		
Outstanding at December 31, 2019	1,181	$139.32	1.4	$176,158

20. Employee Benefit Plans

We operate a number of defined contribution retirement plans. The costs of these plans are charged to the consolidated statements of income in the period they are incurred. We recorded expense related to our defined contribution plans of $8.2 million, $6.4 million and $5.5 million in 2019, 2018 and 2017, respectively. In Ireland, we operate a defined contribution plan in which we contribute up to 8% of an employee's eligible earnings. We recorded expense of $1.3 million, $1.2 million and $1.0 million in 2019, 2018 and 2017, respectively, in connection with the contributions we made under the Irish defined contribution plan. In the U.S., we provide a qualified 401(k) savings plan for our U.S.-based employees. All U.S.-based employees are eligible to participate, provided they meet the requirements of the plan. We match certain employee contributions under the 401(k) savings plan. We recorded expense of $5.0 million, $4.2 million and $3.7 million in 2019, 2018 and 2017, respectively. In the United Kingdom, or UK, we operate a defined contribution plan in which we contribute up to 12% of an employee's eligible earnings. We recorded expense of $1.1 million, $0.8 million and $0.7 million in 2019, 2018 and 2017, respectively, in connection with contributions we made under the UK defined contribution plan. In France, we operate a defined contribution plan in which we contribute up to 14% of an employee's eligible earnings. We recorded expense of $0.6 million, $0.4 million and $0.3 million in 2019, 2018 and 2017, respectively, in connection with the contributions we made under the French defined contribution plan. In France, we also accrue for a potential liability which is payable if an employee leaves employment. The accrued liability for France was $0.6 million as of December 31, 2019 and $0.4 million as of December 31, 2018. In Italy, we accrue for a potential liability which is payable if an employee leaves employment. The accrued liability for Italy was $0.3 million as of December 31, 2019 and 2018.

21. Income Taxes

The components of income before the income tax provision (benefit) and equity in loss of investees were as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Ireland	$ (6,451)	$170,666	$ 77,476
United States	317,728	294,621	271,440
Other	143,025	64,176	92,201
Total	$454,302	$529,463	$441,117

The following table sets forth the details of the income tax provision (benefit) (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Current			
Ireland	$ 51,696	$ 33,431	$ 28,045
United States	109,495	95,143	135,608
Other	2,265	40,403	14,198
Total current tax expense	163,456	168,977	177,851
Deferred, exclusive of other components below			
Ireland	(163,626)	(12,408)	(19,709)
United States	(41,297)	(41,337)	(27,559)
Other	(37,244)	(34,545)	(19,108)
Total deferred, exclusive of other components	(242,167)	(88,290)	(66,376)
Deferred, change in tax rates			
United States	203	(538)	(155,679)
Other	5,354	13	(3,536)
Total deferred, change in tax rates	5,557	(525)	(159,215)
Total deferred tax benefit	(236,610)	(88,815)	(225,591)
Total income tax provision (benefit)	$ (73,154)	$ 80,162	$ (47,740)

On December 22, 2017, the U.S. Tax Cuts and Jobs Act, or U.S. Tax Act, was signed into law. The legislation significantly changed U.S. tax law by, among other things, lowering corporate income tax rates, implementing a modified territorial tax system, imposing a one-time transition tax on deemed repatriated earnings of foreign subsidiaries and changing the rules which determine whether a U.S. person is a U.S. shareholder of a controlled foreign corporation, for 2017 and onwards. The U.S. Tax Act reduced the U.S. corporate income tax rate from a maximum of 35% to a flat 21% rate, effective January 1, 2018. It also included two new U.S. tax base erosion provisions, the global intangible low-taxed income, or GILTI, provisions and the base-erosion and anti-abuse tax, or BEAT, provisions. The GILTI provisions require us to include in our U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary's tangible assets. The GILTI tax expenses recognized in our consolidated statements of income in 2019 and 2018 were not significant. The Company elects to account for tax expenses associated with the GILTI provisions in the period they are incurred. The BEAT provisions in the U.S. Tax Act eliminate the deduction of certain base-erosion payments made to related foreign corporations, and impose a minimum tax if greater than regular tax. The Company was not subject to BEAT in 2019 or 2018.

We use the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax basis. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to reverse. As a result of the reduction in the U.S. federal income tax rate from 35% to 21% under the U.S. Tax Act, we remeasured our net deferred tax liabilities as of December 22, 2017 and recognized a $155.1 million income tax benefit in our consolidated statement of income in 2017.

Our income tax benefit of $73.2 million and $47.7 million in 2019 and 2017, respectively, and our income tax provision of $80.2 million in 2018 related to tax arising on income in Ireland, the U.S. and certain other foreign jurisdictions, certain unrecognized tax benefits and various expenses not deductible for income tax purposes. The income tax benefit in 2019 includes a discrete tax benefit of $112.3 million resulting from an intra-entity intellectual property asset transfer. The tax benefit, which represents a deferred future benefit, was recorded as a deferred tax asset. The income tax benefit in 2017 included a provisional benefit of $148.8 million relating to the impact of the enactment of the U.S Tax Act.

The effective tax rates for 2019, 2018 and 2017 were (16.1)%, 15.1% and (10.8)%, respectively. The effective tax rate for 2019 was lower than the Irish statutory rate of 12.5% primarily due to the impact of the intra-entity intellectual property asset transfer. The effective tax rates for 2018 was higher than the Irish statutory rate of 12.5%, primarily due to income taxable at a rate higher than the Irish statutory rate and unrecognized tax benefits, partially offset by the release of reserves related to unrecognized tax benefits from the expiration of a statute of limitation, originating tax credits and the release of a valuation allowance held against certain foreign net operating losses, or NOLs. The effective tax rate for 2017 was lower than the Irish statutory rate of 12.5%, primarily due to the impact of the enactment of the U.S. Tax Act. The decrease in the effective tax rate in 2019 compared to 2018 was primarily due to the impact of the intra-entity intellectual property asset transfer. Excluding this effect, the decrease in the effective tax rate in 2019 compared to 2018 was primarily due to the benefit from the application of the Italian patent box incentive regime for 2015 through 2019. The increase in the effective tax rate in 2018 compared to 2017 was primarily due to the impact of the enactment of the U.S. Tax Act in 2017. Excluding this effect, the effective tax rate in 2018 decreased compared to 2017, primarily due to a decrease in the U.S. corporate income tax rate.

The reconciliation between the statutory income tax rate applied to income before the income tax provision (benefit) and equity in loss of investees and our effective income tax rate was as follows:

	Year Ended December 31,		
	2019	2018	2017
Statutory income tax rate	12.5%	12.5%	12.5%
Intra-entity transfer of intellectual property assets	(24.7)%	— %	— %
Foreign income tax rate differential	8.7%	11.9%	20.3%
Research and other tax credits	(8.7)%	(3.0)%	(2.6)%
Patent box incentive benefit	(7.0)%	— %	— %
Deduction on subsidiary equity	(5.2)%	(0.5)%	(0.7)%
Change in valuation allowance	3.3%	3.2%	(2.8)%
Non-deductible acquired IPR&D	2.5%	— %	— %
Non-deductible compensation	1.8%	1.2%	2.6%
Financing costs	(1.7)%	(4.3)%	(5.6)%
Change in tax rate	1.5%	(0.1)%	(0.4)%
Change in estimates	0.3%	(1.1)%	(2.1)%
Change in unrecognized tax benefits	0.1%	1.1%	2.8%
Excess tax benefits from share-based compensation	(0.1)%	(0.4)%	(1.5)%
Non-deductible loss contingency	— %	0.8%	— %
Impact of U.S. Tax Act	— %	(1.4)%	(33.7)%
Investment in subsidiaries	— %	(4.8)%	— %
Other	0.6%	— %	0.4%
Effective income tax rate	(16.1)%	15.1%	(10.8)%

Significant components of our net deferred tax assets/(liabilities) were as follows (in thousands):

	December 31, 2019	December 31, 2018
Deferred tax assets:		
Net operating loss carryforwards	$ 90,670	$ 106,128
Tax credit carryforwards	230,447	156,242
Intangible assets	154,844	23,469
Share-based compensation	26,091	24,592
Accruals	49,063	57,575
Indirect effects of unrecognized tax benefits	39,432	34,349
Investment in subsidiaries	—	25,585
Lease liabilities	33,847	—
Other	48,630	51,175
Total deferred tax assets	673,024	479,115
Valuation allowance	(66,307)	(61,237)
Net deferred tax assets	606,717	417,878
Deferred tax liabilities:		
Intangible assets	(537,520)	(595,746)
Operating lease assets	(28,442)	—
Other	(43,447)	(73,350)
Total deferred tax liabilities	(609,409)	(669,096)
Net deferred tax liabilities	$ (2,692)	$(251,218)

The net change in valuation allowance was an increase of $5.1 million and $9.1 million in 2019 and 2018, respectively, and a decrease of $1.0 million in 2017.

The following table summarizes the presentation of deferred tax assets and liabilities (in thousands):

	December 31, 2019	December 31, 2018
Deferred tax assets	$ 221,403	$ 57,879
Deferred tax liabilities	(224,095)	(309,097)
Net deferred tax liabilities	$ (2,692)	$(251,218)

As of December 31, 2019, we had NOL carryforwards and tax credit carryforwards for U.S. federal income tax purposes of approximately $273.0 million and $173.1 million, respectively, available to reduce future income subject to income taxes. These NOL carryforwards are inclusive of $204.7 million from the Celator Acquisition in 2016 and $18.7 million from the Cavion acquisition in 2019. The U.S. federal NOL carryforwards will expire, if not utilized, in the tax years 2020 to 2036, and the U.S. federal tax credits will expire, if not utilized, in the tax years 2020 to 2039. In addition, we had approximately $94.0 million of NOL carryforwards and $11.3 million of tax credit carryforwards as of December 31, 2019 available to reduce future taxable income for U.S. state income tax purposes. The U.S. state NOL carryforwards will expire, if not utilized, in the tax years 2020 to 2038. As of December 31, 2019, there were NOL and other carryforwards for income tax purposes of approximately $78.4 million, $46.2 million, $45.2 million and $24.6 million available to reduce future income subject to income taxes in Ireland, United Kingdom, Luxembourg and Malta, respectively. The NOLs and other deductions generated in Ireland, the United Kingdom, Luxembourg and Malta have no expiration date. We also had foreign tax credit carryforwards in Ireland, as of December 31, 2019, of $41.7 million, which may only be utilized against certain sources of income. The foreign tax credit carryforwards have no expiration date.

Utilization of certain of our NOL and tax credit carryforwards in the U.S. is subject to an annual limitation due to the ownership change limitations provided by Sections 382 and 383 of the Internal Revenue Code and similar state provisions. Such an annual limitation may result in the expiration of certain NOLs and tax credits before future utilization. In addition, as a result of the Azur Merger, until 2022 we are subject to certain limitations under the Internal Revenue Code in relation to the utilization of U.S. NOLs to offset U.S. taxable income resulting from certain transactions.

Valuation allowances require an assessment of both positive and negative evidence when determining whether it is more likely than not that deferred tax assets are recoverable. Such assessment is required on a jurisdiction-by-jurisdiction basis. Our valuation allowance was $66.3 million and $61.2 million as of December 31, 2019 and 2018, respectively, for certain Irish, U.S. (federal and state) and foreign deferred tax assets which we maintain until sufficient positive evidence exists to support reversal. During 2019, as part of the overall change in valuation allowance, we recognized a net income tax provision of $6.3 million relating primarily to the creation of a valuation allowance of $15.7 million against certain deferred tax assets primarily associated with foreign tax credits and temporary differences related to foreign subsidiaries, partially offset by the net release of valuation allowances against certain deferred tax assets primarily associated with NOLs. During 2018, as part of the overall change in valuation allowance, we recognized a net income tax provision of $11.2 million relating primarily to the creation of a valuation allowance of $25.7 million against certain deferred tax assets primarily associated with temporary differences related to foreign subsidiaries, partially offset by the net release of valuation allowances against certain deferred tax assets primarily associated with NOLs and foreign tax credits. The $11.2 million net income tax provision included a benefit of $10.9 million relating to a change in judgment leading to the reversal of a valuation allowance against certain deferred tax assets, primarily related to NOLs in the United Kingdom and a benefit of $5.9 million relating to the reversal of a valuation allowance upon completing our analysis of our ability to utilize certain foreign tax credits generated by the one-time transition tax in the U.S. Management determined that valuation allowances were no longer needed on these deferred tax assets based on an assessment of the relative impact of all positive and negative evidence that existed at December 31, 2018, including an evaluation of cumulative income in recent years, future sources of taxable income exclusive of reversing temporary differences, and significant risks and uncertainties related to our business. During 2017, as part of the overall change in valuation allowance, we recognized a net income tax benefit of $6.6 million relating to the net release of a valuation allowance against certain deferred tax assets primarily associated with NOLs, partially offset by the creation of a provisional valuation allowance of $5.9 million against certain deferred tax assets primarily associated with excess foreign tax credits generated during the year as a result of the U.S. Tax Act. The $6.6 million net income tax benefit included a benefit of $9.1 million relating to the utilization of NOL carryforwards against which a valuation allowance was carried. We periodically evaluate the likelihood of the realization of deferred tax assets and will adjust such amounts in light of changing facts and circumstances including, but not limited to, future projections of taxable income, tax legislation, rulings by relevant tax authorities, the progress of tax audits and the regulatory approval of products currently under development. Realization of substantially all the deferred tax assets is dependent on future book income.

Temporary differences related to foreign subsidiaries that are considered indefinitely reinvested totaled approximately $1.6 billion and $1.2 billion as of December 31, 2019 and 2018, respectively. In the event of the distribution of those earnings in the form of dividends, a sale of the subsidiaries, or certain other transactions, we may be liable for income taxes, subject to an adjustment, if any, for foreign tax credits and foreign withholding taxes payable to certain foreign tax authorities. As of December 31, 2019, it was not practicable to determine the amount of the unrecognized deferred tax liability related to these earnings.

We only recognize the financial statement effects of a tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. As a result, we have recorded an unrecognized tax benefit for certain tax benefits which we judge may not be sustained upon examination.

A reconciliation of our gross unrecognized tax benefits follows (in thousands):

	December 31,		
	2019	2018	2017
Balance at the beginning of the year	$118,213	$106,162	$ 90,910
Increases related to current year tax positions	27,552	22,649	27,875
Increases related to prior year tax positions	761	7,584	1,620
Decreases related to prior year tax positions	(91)	—	(1,075)
Lapse of the applicable statute of limitations	(22,116)	(18,182)	(13,168)
Balance at the end of the year	$124,319	$118,213	$106,162

The unrecognized tax benefits were included in other non-current liabilities and deferred tax assets, net, in our consolidated balance sheets. Interest related to our unrecognized tax benefits is recorded in the income tax provision in our consolidated statements of income. As of December 31, 2019 and 2018, our accrued interest and penalties related to unrecognized tax benefits was $7.4 million and $6.3 million, respectively. Interest and penalties related to unrecognized tax benefits recognized in the statements of income were not

significant. Included in the balance of unrecognized tax benefits were potential benefits of $78.8 million and $78.5 million at December 31, 2019 and 2018, respectively, that, if recognized, would affect the effective tax rate on income.

We file income tax returns in multiple tax jurisdictions, the most significant of which are Ireland and the U.S. (both at the federal level and in various state jurisdictions). For Ireland we are no longer subject to income tax audits by taxing authorities for the years prior to 2014. The U.S. jurisdictions generally have statute of limitations three to four years from the later of the return due date or the date when the return was filed. However, in the U.S. (at the federal level and in most states), carryforward tax attributes that were generated in 2015 and earlier may still be adjusted upon examination by the tax authorities. Certain of our subsidiaries are currently under examination by the French tax authorities for the years ended December 31, 2012, 2013, 2015, 2016 and 2017. These examinations may lead to ordinary course adjustments or proposed adjustments to our taxes. In December 2015, we received proposed tax assessment notices, and, in October 2018 and December 2019, we received revised tax assessment notices from the French tax authorities for 2012 and 2013 and in December 2018 and September 2019, we received a proposed tax assessment notice for 2015, 2016 and 2017, relating to certain transfer pricing adjustments. The notices propose additional French tax of approximately $42 million for 2012 and 2013 and approximately $12 million for 2015, 2016 and 2017 including interest and penalties through the respective dates of the proposed assessments, translated at the foreign exchange rate at December 31, 2019. We disagree with the proposed assessments and are contesting them vigorously. Certain of our Italian subsidiaries are currently under examination by the Italian tax authorities for the year ended December 31, 2017.

22. Subsequent Event

License Agreement

On December 19, 2019, we entered into an exclusive license agreement with Pharma Mar, S.A., or PharmaMar, for development and U.S. commercialization of lurbinectedin, a product candidate under clinical investigation for the treatment of patients with relapsed SCLC. Lurbinectedin was granted orphan drug designation for SCLC by the FDA in August 2018. In December 2019, PharmaMar submitted an NDA to the FDA for accelerated approval of lurbinectedin for relapsed SCLC based on data from a Phase 2 trial, and in February 2020, the FDA accepted the NDA for filing with priority review.

Under the terms of this agreement, which become effective in January 2020 upon expiration of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, we paid PharmaMar an upfront payment of $200 million, which will be recorded as acquired IPR&D expense in our consolidated statements of income in the first quarter of 2020.

PharmaMar is eligible to receive potential regulatory milestone payments of up to $250 million upon the achievement of accelerated and/or full regulatory approval of lurbinectedin by FDA within certain timelines. PharmaMar is also eligible to receive up to $550 million in potential commercial milestone payments, as well as incremental tiered royalties on future net sales of lurbinectedin ranging from the high teens up to 30 percent. PharmaMar may receive additional payments on approval of other indications, with any such payments creditable against commercial milestone payment obligations. PharmaMar retains production rights for lurbinectedin and will supply the product to Jazz.

23. Quarterly Financial Data (Unaudited)

The following interim financial information presents our 2019 and 2018 results of operations on a quarterly basis (in thousands, except per share amounts):

	2019			
	March 31	June 30	September 30	December 31
Revenues	$508,186	$534,133	$537,702	$581,740
Gross margin (1)	469,825	495,747	500,921	541,178
Net income	85,201	261,898	102,276	73,992
Net income per ordinary share, basic	1.49	4.62	1.80	1.31
Net income per ordinary share, diluted	1.47	4.56	1.78	1.29

	2018			
	March 31	June 30	September 30	December 31
Revenues	$444,613	$500,479	$469,373	$476,457
Gross margin (1)	406,928	461,381	438,623	440,997
Net income	45,991	92,321	149,316	159,470
Net income per ordinary share, basic	0.77	1.53	2.47	2.69
Net income per ordinary share, diluted	0.75	1.50	2.41	2.64

(1) Gross margin is computed by subtracting cost of product sales (excluding amortization of acquired developed technologies) from product sales, net.

The interim financial information above includes the following items:

- Estimated loss contingency of $57.0 million in the first quarter of 2018;
- Impairment charges and disposal costs of $44.0 million in the second quarter of 2018;
- Upfront and milestone payments of $56.0 million and $48.3 million in the first and third quarters of 2019, respectively, and $11.0 million in the first quarter of 2018;
- A one-time tax benefit of $112.3 million resulting from an intra-entity intellectual property asset transfer in the second quarter of 2019; and
- Amortization costs of $111.1 million in the fourth quarter of 2019 in respect of the PRV.

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Schedule II

Valuation and Qualifying Accounts
(In thousands)

		Balance at beginning of period	Additions charged to costs and expenses	Other Additions	Deductions	Balance at end of period
For the year ended December 31, 2019						
Allowance for doubtful accounts	(1)	$ 50	$ 9	$ —	$ (9)	$ 50
Allowance for sales discounts	(1)	76	782	—	(745)	113
Allowance for chargebacks	(1)	408	41,864	—	(41,139)	1,133
Deferred tax asset valuation allowance	(2)(3)(4)	61,237	20,086	357	(15,373)	66,307
For the year ended December 31, 2018						
Allowance for doubtful accounts	(1)	$ 396	$ 20	$ —	$ (366)	$ 50
Allowance for sales discounts	(1)	103	811	—	(838)	76
Allowance for chargebacks	(1)	3,663	41,387	—	(44,642)	408
Deferred tax asset valuation allowance	(2)(3)	52,144	35,500	—	(26,407)	61,237
For the year ended December 31, 2017						
Allowance for doubtful accounts	(1)	$ 287	$ 231	$ —	$ (122)	$ 396
Allowance for sales discounts	(1)	118	1,087	—	(1,102)	103
Allowance for chargebacks	(1)	4,749	41,941	—	(43,027)	3,663
Deferred tax asset valuation allowance	(2)(3)(4)	53,184	7,509	5,581	(14,130)	52,144

(1) Shown as a reduction of accounts receivable. Charges related to sales discounts and chargebacks are reflected as a reduction of revenue.

(2) Additions to the deferred tax asset valuation allowance charged to costs and expenses relate to movements on certain Irish, U.S. (federal and state) and other foreign deferred tax assets where we continue to maintain a valuation allowance until sufficient positive evidence exists to support reversal.

(3) Deductions to the deferred tax asset valuation allowance include movements relating to utilization of NOLs and tax credit carryforwards, release in valuation allowance and other movements including adjustments following finalization of tax returns.

(4) Other additions to the deferred tax asset valuation allowance relate to currency translation adjustments recorded directly in other comprehensive income and, in 2019, additions resulting from the Cavion asset acquisition.

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EXECUTIVE COMMITTEE

Bruce C. Cozadd
Chairman and Chief Executive Officer

Renée Galá
Executive Vice President and Chief Financial Officer

Robert Iannone, M.D., M.S.C.E.
Executive Vice President, Research and Development

Finbar Larkin, Ph.D.
Senior Vice President, Technical Operations

Heidi Manna
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John Miller
Senior Vice President, Global Product Strategy

Neena M. Patil
Senior Vice President and General Counsel

Samantha Pearce
Senior Vice President, Europe and Rest of World

Kim Sablich
Executive Vice President and General Manager, North America

Daniel N. Swisher, Jr.
President and Chief Operating Officer

COMPANY SECRETARY

Aislinn Doody

ORDINARY SHARES

Jazz Pharmaceuticals plc ordinary shares are traded on the Nasdaq Global Select Market under the symbol "JAZZ"

JAZZ PHARMACEUTICALS PLC CORPORATE HEADQUARTERS

Fifth Floor, Waterloo Exchange
Waterloo Road, Dublin 4, Ireland
+353 1 634 7800
+353 1 634 7850 fax
www.jazzpharmaceuticals.com

ANNUAL GENERAL MEETING

The annual general meeting of shareholders will be held at 3:00 p.m. local time on July 30, 2020 at the company's corporate headquarters located at Fifth Floor, Waterloo Exchange, Waterloo Road, Dublin 4, Ireland

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

KPMG, Dublin, Ireland

BOARD OF DIRECTORS

Paul L. Berns
Venture Partner, ARCH and Executive Chair, BlackThorn Therapeutics

Bruce C. Cozadd
Chairman and Chief Executive Officer, Jazz Pharmaceuticals plc

Patrick G. Enright
Managing Director, Longitude Capital

Peter Gray
Chairman, UDG Healthcare plc

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Seamus Mulligan
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Elmar Schnee
Chairman, Calliditas Therapeutics AB and Santhera Pharmaceuticals Holding AG

Catherine A. Sohn, Pharm.D.
Chairperson, BioEclipse Therapeutics, Inc., and Director, Axcella Health Inc., Landec Corporation and Rubius Therapeutics

Rick E Winningham
Lead Independent Director, Jazz Pharmaceuticals plc
Chairman and Chief Executive Officer, Theravance Biopharma, Inc.

REGISTRAR AND TRANSFER AGENT

Computershare
www.computershare.com

Ireland
+353 1 447 5566
+353 1 447 5571 fax
3100 Lake Drive
Citywest Business Campus
Dublin 24, Ireland D24 AK82

United States
+1 781 575 2879 (outside U.S.)
+1 877 373 6374 (inside U.S.)
462 South 4th Street, Suite 1600
Louisville, KY 40202 U.S.A.

FOR MORE INFORMATION

Information about Jazz Pharmaceuticals plc can be found on the Internet at www.jazzpharmaceuticals.com. Inquiries regarding Jazz Pharmaceuticals plc and its activities may be directed to the Investor Relations Department at investorinfo@jazzpharmaceuticals.com or +353 1 634 7892 (Ireland) or + 650 496 2800 (U.S.). Communications concerning shares and transfer requirements, lost certificates or changes of address should be directed to the Transfer Agent.

"SAFE HARBOR" STATEMENT UNDER THE PRIVATE SECURITIES LITIGATION REFORM ACT OF 1995

This communication contains forward-looking statements, including, but not limited to, statements related to Jazz Pharmaceuticals' belief in its ability to invest in the business and build additional value for shareholders; the company's future long-term growth drivers including expectations regarding planned product launches and clinical and regulatory milestones; the company's plans to proactively manage operating expenses and prioritize investments in its most important revenue drivers; the company's expectation regarding COVID-19 impacts to the business, including on its clinical development timelines; and other statements that are not historical facts. These forward-looking statements are based on the company's current plans, objectives, estimates, expectations and intentions and inherently involve significant risks and uncertainties. Actual results and the timing of events could differ materially from those anticipated in such forward-looking statements as a result of these risks and uncertainties, which include, without limitation, risks and uncertainties associated with: the scale, duration and evolving effects of the COVID-19 pandemic and resulting global economic, financial and healthcare system disruptions and impacts to the company's business operations and financial condition; maintaining or increasing sales of and revenue from Xyrem; effectively commercializing the company's other products and product candidates; the time-consuming and uncertain regulatory approval process, including the risk that the company's current and planned regulatory submissions may not be submitted, accepted or approved by applicable regulatory authorities in a timely manner or at all; the costly and time-consuming pharmaceutical product development and the uncertainty of clinical success, including risks related to failure or delays in initiating or completing clinical trials; protecting and enhancing the company's intellectual property rights; delays or problems in the supply or manufacture of the company's products and product candidates; complying with applicable U.S. and non-U.S. regulatory requirements; government investigations and other actions; obtaining and maintaining adequate coverage and reimbursement for the company's products; identifying and acquiring, in-licensing or developing additional products or product candidates, financing these transactions and successfully integrating acquired businesses; the ability to achieve expected future financial performance and results and the uncertainty of future tax and other provisions and estimates; and other risks and uncertainties affecting the company, including those described from time to time under the caption "Risk Factors" and elsewhere in Jazz Pharmaceuticals plc's U.S. Securities and Exchange Commission filings and reports (Commission File No. 001-33500), including the company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2020 and future filings and reports by the company. Other risks and uncertainties of which the company is not currently aware may also affect the company's forward-looking statements and may cause actual results and timing of events to differ materially from those anticipated. The forward-looking statements herein are made only as of the date hereof or as of the dates indicated in the forward-looking statements, even if they are subsequently made available by the company on its website or otherwise. The company undertakes no obligation to update or supplement any forward-looking statements to reflect actual results, new information, future events, changes in its expectations or other circumstances that exist after the date as of which the forward-looking statements were made.

Jazz Pharmaceuticals

Fifth Floor, Waterloo Exchange
Waterloo Road, Dublin 4, Ireland
+353 1 634 7800

www.jazzpharmaceuticals.com