FORM 10-K

BIOMARIN PHARMACEUTICAL INC - BMRN

Filed: February 28, 2019 (period: December 31, 2018)

Annual report with a comprehensive overview of the company

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, 2018
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: **000-26727**

BioMarin Pharmaceutical Inc.

(Exact name of registrant as specified in its charter)

Delaware	**68-0397820**
(State of other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
770 Lindaro Street **San Rafael, California**	**94901**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(415) 506-6700**

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $.001 par value	**The Nasdaq Global Select Market**

Securities registered under 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 (§ 232.405 of this chapter) 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an 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 stock held by non-affiliates of the registrant as of June 30, 2018 was $8.8 billion, based on the closing price reported for such date on the Nasdaq Global Select Market.

As of February 12, 2019, the registrant had 178,372,202 shares of common stock, par value $0.001, outstanding.

The documents incorporated by reference are as follows: portions of the Registrant's Proxy Statement for its 2019 annual meeting of stockholders are incorporated by reference into Part III.

BIOMARIN PHARMACEUTICAL INC.
2018 FORM 10-K ANNUAL REPORT
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Unless the context suggests otherwise, references in this Annual Report on Form 10-K to "BioMarin," the "Company," "we," "us," and "our" refer to BioMarin Pharmaceutical Inc. and, where appropriate, its wholly owned subsidiaries.

Forward-Looking Statements

This Annual Report on Form 10-K contains "forward-looking statements" as defined under securities laws. Many of these statements can be identified by the use of terminology such as "believes," "expects," "intends," "anticipates," "plans," "may," "will," "could," would," "projects," "continues," "estimates," "potential," "opportunity" or the negative versions of these terms and other similar expressions. You should not place undue reliance on these types of forward-looking statements, which speak only as of the date that they were made. These forward-looking statements are based on the beliefs and assumptions of our management based on information currently available to management and should be considered in connection with any written or oral forward-looking statements that we may issue in the future as well as other cautionary statements we have made and may make. Our actual results or experience could differ significantly from the forward-looking statements. Factors that could cause or contribute to these differences include those discussed in the section titled "Risk Factors" in Part II, Item 1A of this Annual Report on Form 10-K as well as information provided elsewhere in this Annual Report on Form 10-K. You should carefully consider that information before you make an investment decision. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward-looking events and circumstances discussed in this Annual Report on Form 10-K may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

Except as required by law, we do not undertake any obligation to release publicly any revisions to these forward-looking statements after completion of the filing of this Annual Report on Form 10-K to reflect later events or circumstances or the occurrence of unanticipated events.

Part I

Item 1. Business

Overview

BioMarin Pharmaceutical Inc. (BioMarin, we, us or our) is a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. We select product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an opportunity to be first-to-market or offer a significant benefit over existing products.

Our portfolio consists of several commercial products and multiple clinical and pre-clinical product candidates for the treatment of various diseases. We continue to invest in our clinical and pre-clinical product pipeline by committing significant resources to research and development programs and business development opportunities within our areas of scientific, manufacturing and technical expertise.

A summary of our major commercial products is provided below:

Major Commercial Products	Indication	United States Orphan Drug Exclusivity Expiration (1)	United States Biologic Exclusivity Expiration (2)	European Union Orphan Drug Exclusivity Expiration (1)
Aldurazyme (laronidase)	MPS I (3)	Expired	Expired	Expired
Brineura (cerliponase alfa)	CLN2 (4)	2024	2029	2027
Kuvan (sapropterin dihydrochloride)	PKU (5)	Expired	Not Applicable (5)	2020 (5)
Naglazyme (galsulfase)	MPS VI (6)	Expired	Expired	Expired
Palynziq (pegvaliase-pqpz)	PKU (7)	2025	2030	TBD (7)
Vimizim (elosulfase alpha)	MPS IVA (8)	2021	2026	2024

(1) See “Government Regulation—Orphan Drug Designation” below for further discussion
(2) See “Government Regulation— Healthcare Reform” below for further discussion
(3) For the treatment of Mucopolysaccharidosis I (MPS I)
(4) For the treatment of late infantile neuronal ceroid lipofuscinosis type 2 (CLN2)
(5) For the treatment of phenylketonuria (PKU). Kuvan, a small molecule therapy, has been granted orphan drug status in the European Union (EU), which together with pediatric exclusivity, confers 12 years of market exclusivity in the EU that expires in 2020.
(6) For the treatment of Mucopolysaccharidosis VI (MPS VI)
(7) For adult patients with PKU. Palynziq (formerly referred to as pegvaliase) was approved by the United States (U.S.) Food and Drug Administration (FDA) in May 2018 and our European Marketing Authorization Application (MAA) submission for Palynziq was accepted by the European Medicines Agency (EMA) in March 2018. We expect to learn the status of this MAA during the first half of 2019.
(8) For the treatment of Mucopolysaccharidosis IV Type A (MPS IVA)

A summary of our ongoing major development programs, including key metrics, is provided below:

Major Product Candidates in Development	Target Indication	U.S. Orphan Designation	EU Orphan Designation	Stage
Palynziq in Europe	PKU	Yes	Yes	EU MAA regulatory review (1)
Valoctocogene roxaparvovec	Hemophilia A (2)	Yes	Yes	Clinical Phase 3
Vosoritide	Achondroplasia	Yes	Yes	Clinical Phase 3

(1) In May 2018, the FDA granted marketing approval for Palynziq in the U.S., and our MAA submission for Palynziq was accepted by the EMA in March 2018. We expect to learn the status of the MAA during the first half of 2019.
(2) Hemophilia A is also called factor VIII deficiency or classic hemophilia.

See “Patents and Proprietary Rights” below for additional information on our market protection.

Recent Developments

EMA Regulatory Review of Palynziq

The EMA accepted our MAA for Palynziq in March 2018. We anticipate an opinion from the Committee for Medicinal Products for Human Use (CHMP), the scientific committee of the EMA, on Palynziq Injection for the treatment of patients 16 and older with PKU in the first quarter of 2019. If the CHMP provides a positive opinion in the first quarter of 2019, then it is possible that the European Commission (EC) could provide marketing authorization for Palynziq in the EU in the second quarter of 2019.

Brineura Data at Three or More Years

On February 7, 2019, we announced that an ongoing open-label extension study treating patients with Brineura continued to show a reduced rate of decline compared to a natural history cohort of CLN2 disease for three years as measured by the CLN2 Clinical Rating Scale. The scale measures performance of motor and language domains, with a score of 0 representing no function and a score of 3 representing normal function for each of the two domains. A response to treatment was defined as the absence of an unreversed (i) two-point decline in the motor-language (ML) scale or (ii) score of 0. The data showed a durability of treatment effect in the primary efficacy endpoint where response to treatment was seen in 19 of 23, or 83%, of treated patients after three years. Natural history patients were 12 times more likely on average to have experienced an unreversed two-point decline in ML score than treated patients at three years. After three years on treatment with Brineura, treated patients’ ML scores were on average 3.8 points better than those of natural history patients. After two years on treatment with Brineura, treated patients’ ML scores were on average 3.3 points better than those of natural history patients. See “Major Commercial Products — Brineura” below for more information regarding Brineura.

Gene Therapy Product Candidate Valoctocogene Roxaparvovec for the Treatment of Hemophilia A

On January 7, 2019, we provided an update on our development of valoctocogene roxaparvovec, a gene therapy program for severe hemophilia A, that we completed enrollment of the initial cohort of patients in our Phase 3 study. Based on the FDA’s Draft Guidance for Human Gene Therapy for Hemophilia issued in July 2018, we expect that Phase 3 data from this cohort available in 2019 could support submission of a Biologics License Application (BLA) for valoctocogene roxaparvovec through an accelerated approval pathway. We plan to decide in the second half of 2019 whether we will submit a BLA through an accelerated approval pathway. The complete Phase 3 study is targeting enrollment of 130 patients by mid-year 2019. See “Major Product Candidates in Development — Valoctocogene Roxaparvovec” below for more information regarding valoctocogene roxaparvovec.

Product Candidate Vosoritide for the Treatment of Achondroplasia

On January 7, 2019, we provided an update on our development of vosoritide, an analog of C-type Natriuretic Peptide (CNP), in children with achondroplasia, the most common form of disproportionate short stature in humans. We announced that enrollment of the Phase 2 study of vosoritide in infants and young children up to age 5 with achondroplasia is on track, and in the early part of the study, vosoritide has been generally well-tolerated.

On November 7, 2018, we provided an update on the open-label Phase 2 study of vosoritide. Vosoritide has demonstrated sustained increase in average growth velocity over 42 months of treatment in a cohort of eight children who completed 42 months of daily dosing at 15 µg/kg/day. The cohort gained a mean of 5.7 cm of cumulative height over what the children’s baseline would have predicted. At 30 months, the same cohort experienced a 4 cm increase over what the children’s baseline growth velocity would have predicted. We also announced that the global Phase 3 study of vosoritide in children was fully enrolled, and we expect top line results by the end of 2019. See “Major Product Candidates in Development — Vosoritide” below for more information regarding vosoritide.

Palynziq Data at 36 Months

On November 7, 2018, we announced that in an ongoing open-label extension study at 36 months, patients being treated with Palynziq showed durability, and there was an increase in the percentage of patients reaching blood phenylalanine (Phe) thresholds of physiologically normal (<120 µmol/L), as well as Phe thresholds recommended in the U.S. (<360 µmol/L) and the EU (<600 µmol/L). At 36 months, 59% of the participants reached physiologically normal, 67% reached Phe levels as recommended in the U.S. and 74% reached Phe levels as recommended in the EU. See "Major Commercial Products — Palynziq" below for more information regarding Palynziq.

Gene Therapy Product Candidate BMN 307 for the Treatment of PKU

On November 7, 2018, we announced positive, preliminary pre-clinical data for BMN 307, a gene therapy program for PKU. We plan to submit an Investigational New Drug (IND) application and/or a clinical trial application (CTA) for BMN 307 in the second half of 2019.

Summary of Commercial Products and Development Programs

Major Commercial Products

Net Product Revenues related to our major commercial products consisted of the following:

	Years Ended December 31,		
Major Commercial Products	**2018**	**2017**	**2016**
Aldurazyme	$ 135.1	$ 90.0	$ 93.8
Brineura	$ 39.9	$ 8.6	$ —
Kuvan	$ 433.6	$ 407.5	$ 348.0
Naglazyme	$ 345.9	$ 332.2	$ 296.5
Palynziq	$ 12.2	$ —	$ —
Vimizim	$ 482.0	$ 413.3	$ 354.1

Aldurazyme

Aldurazyme is a highly purified protein that is designed to be identical to a naturally occurring form of the human enzyme alpha-L-iduronidase, a lysosomal enzyme normally required for the breakdown of glycosaminoglycans (GAGs). Aldurazyme is approved for marketing in the U.S., the EU and other international markets for patients with MPS I. MPS I is a progressive and debilitating life-threatening genetic disease, for which no other drug treatment currently exists, that is caused by the deficiency of alpha-L-iduronidase. Patients with MPS I typically become progressively worse and experience multiple severe and debilitating symptoms resulting from the build-up of carbohydrate residues in all tissues in the body. These symptoms include: inhibited growth, delayed and regressed mental development (in the severe form of the disease), enlarged liver and spleen, joint deformities and reduced range of motion, impaired cardiovascular function, upper airway obstruction, reduced pulmonary function, frequent ear and lung infections, impaired hearing and vision, sleep apnea, malaise and reduced endurance.

We developed Aldurazyme through collaboration with Genzyme Corporation (Genzyme), now a wholly owned subsidiary of Sanofi. Under our collaboration agreement with Genzyme, we are responsible for manufacturing Aldurazyme and supplying it to Genzyme. We receive payments ranging from 39.5% to 50% on worldwide net Aldurazyme sales by Genzyme depending on sales volume. Genzyme and we are members of BioMarin/Genzyme LLC, a 50/50 limited liability company (the BioMarin/Genzyme LLC) that: (1) holds the intellectual property relating to Aldurazyme and other collaboration products and licenses all such intellectual property on a royalty-free basis to us and Genzyme to allow us to exercise our rights and perform our obligations under the agreements related to the BioMarin/Genzyme LLC, and (2) engages in research and development activities that are mutually selected and funded by Genzyme and us.

On January 1, 2018, we adopted Accounting Standards Codification (ASC) 606, *Revenue from Contracts with Customers* (ASC Topic 606), which superseded nearly all existing revenue recognition guidance under generally accepted accounting principles in the U.S. After adopting ASC Topic 606, we recognize Aldurazyme revenues when the product is shipped to Genzyme and all required quality control certificates are complete, because all of our performance obligations are fulfilled at that point in time. Following the adoption, we record Aldurazyme net product revenues based on the estimated tiered payment that will be in effect when the product is sold through by Genzyme. Prior to the adoption of ASC Topic 606, we recognized product transfer revenues, representing the fixed amount per unit of Aldurazyme that Genzyme was required to pay us if they did not sell the product, at the time of fulfillment of Genzyme purchase orders. Product transfer revenue was subsequently deducted from the calculated variable consideration recognized when the product was sold by Genzyme to third parties. See Note 4 to our accompanying Consolidated Financial Statements for additional discussion of the impact of the adoption.

Brineura

Brineura is a recombinant human tripeptidyl peptidase 1 (TPP1) and is approved for the treatment of patients with CLN2, a form of Batten disease, in the U.S., the EU and other international markets. CLN2 is an incurable, rapidly progressive disease that ends in patient death by 10-12 years of age. Patients are initially healthy but begin to decline at approximately the age of three. We estimate that up to 1,200 to 1,600 cases exist worldwide. On April 27, 2017, Brineura was approved in the U.S. to slow the progression of loss of ambulation in symptomatic pediatric patients three years of age and older with CLN2. Brineura is the first treatment approved to slow the progression of loss of ambulation in children with CLN2 disease.

On June 1, 2017, we announced that the EC granted marketing authorization for Brineura in the EU to treat children with CLN2 disease. Brineura is the first treatment approved in the EU for the treatment of CLN2 disease, and the marketing authorization for Brineura includes all 28 countries of the EU, Norway, Iceland and Liechtenstein. On April 21, 2017, the CHMP, the scientific committee of the EMA adopted a positive opinion for our MAA for Brineura following an accelerated review procedure, reserved for medicinal products expected to be a major public health interest. Brineura is one of the first therapies to go through this process.

Brineura is administered via intracerebroventricular (ICV) infusion and intended to be used in combination with a delivery device, such as an injector or other delivery system. Please see “Government Regulation – Combination Products” below for additional information on combination products.

Kuvan

Kuvan is a proprietary synthetic oral form of 6R-BH4, a naturally occurring enzyme co-factor for phenylalanine hydroxylase (PAH), indicated for patients with PKU. Kuvan is the first drug for the treatment of PKU, which is an inherited metabolic disease that affects at least 50,000 diagnosed patients under the age of 40 in the developed world. We believe that approximately 30% to 50% of those with PKU could benefit from treatment with Kuvan. PKU is caused by a deficiency of activity of an enzyme, PAH, which is required for the metabolism of Phe. Phe is an essential amino acid found in all protein-containing foods. Without sufficient quantity or activity of PAH, Phe accumulates to abnormally high levels in the blood, resulting in a variety of serious neurological complications, including severe mental retardation and brain damage, mental illness, seizures and other cognitive problems. As a result of newborn screening efforts implemented in the 1960s and early 1970s, virtually all PKU patients under the age of 40 in developed countries have been diagnosed at birth. Currently, PKU can be managed by a Phe-restricted diet, which is supplemented by nutritional replacement products, like formulas and specially manufactured foods; however, it is difficult for most patients to adhere to the strict diet to the extent needed for achieving adequate control of blood Phe levels.

Kuvan tablets were granted marketing approval for the treatment of PKU in the U.S. in December 2007 and in the EU in December 2008. In December 2013, the FDA approved the use of Kuvan powder for oral solution that is provided in a dose sachet packet allowing faster dissolution of powder in solution compared to the current tablet form. We commenced the commercial launch of this new form of Kuvan in February 2014. We market Kuvan in the U.S., the EU and other international markets (excluding Japan). In certain international markets, Kuvan is also approved for, or is only approved for, the treatment of primary BH4 deficiency, a different disorder than PKU.

Two companies previously filed paragraph IV certifications and submitted abbreviated new drug applications (ANDAs) to produce sapropterin dihydrochloride tablets and powder and we subsequently entered into settlement agreements regarding Kuvan with both companies. We expect generic versions of Kuvan to first become available in the U.S. in the fourth quarter of 2020. Please see "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K for more information regarding the settlement agreements and for a discussion of the risks posed by generic versions of Kuvan. Please see "Government Regulation – The Hatch-Waxman Act" below for additional information regarding ANDAs.

Naglazyme

Naglazyme is a recombinant form of N-acetylgalactosamine 4-sulfatase (arylsulfatase B) indicated for patients with MPS VI. MPS VI is a debilitating life-threatening genetic disease for which no other drug treatment currently exists and is caused by the deficiency of arylsulfatase B, an enzyme normally required for the breakdown of certain complex carbohydrates known as GAGs. Patients with MPS VI typically become progressively worse and experience multiple severe and debilitating symptoms resulting from the build-up of carbohydrate residues in tissues in the body. These symptoms include: inhibited growth, spinal cord compression, enlarged liver and spleen, joint deformities and reduced range of motion, skeletal deformities, impaired cardiovascular function, upper airway obstruction, reduced pulmonary function, frequent ear and lung infections, impaired hearing and vision, sleep apnea, malaise and reduced endurance.

Naglazyme is approved for marketing in the U.S., the EU and other international markets.

Palynziq

Palynziq is a PEGylated recombinant phenylalanine ammonia lyase enzyme, which is delivered through subcutaneous injection to reduce blood Phe concentrations. On May 24, 2018, the FDA approved the use of Palynziq in adult patients with PKU who have uncontrolled blood Phe concentrations greater than 600 micromol/L (10mg/dL) on existing management. Palynziq is our second approved treatment for PKU. Palynziq is only available in the U.S. through the Palynziq Risk Evaluation and Mitigation Strategy (REMS) program, which is required by the FDA to mitigate the risk of anaphylaxis while using the product. Notable requirements of our REMS program include the following:

- prescribers must be certified by enrolling in the REMS program and completing training;
- prescribers must prescribe auto-injectable epinephrine with Palynziq;
- pharmacies must be certified with the REMS program and must dispense Palynziq only to patients who are authorized to receive it;
- patients must enroll in the REMS program and be educated about the risk of anaphylaxis by a certified prescriber to ensure they understand the risks and benefits of treatment with Palynziq; and
- patients must have auto-injectable epinephrine available at all times while taking Palynziq.

Please see "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K for a discussion of the risks posed by the REMS program.

Palynziq was first made commercially available in the U.S. in July 2018. The EMA accepted our MAA for Palynziq in March 2018. We anticipate an opinion from the CHMP, the scientific committee of the EMA, on Palynziq Injection for the treatment of patients 16 and older with PKU in the first quarter of 2019. If the CHMP provides a positive opinion in the first quarter of 2019, then it is possible that the EC could provide marketing authorization for Palynziq in the EU in the second quarter of 2019.

Vimizim

Vimizim is an enzyme replacement therapy for the treatment of MPS IVA, a lysosomal storage disorder. MPS IVA is a disease characterized by deficient activity of N-acetylgalactosamine-6-sulfatase (GALNS) causing excessive lysosomal storage of glycosaminoglycans such as keratan sulfate and chondroitin sulfate. This excessive storage causes a systemic skeletal dysplasia, short stature, and joint abnormalities, which limit mobility and endurance. Malformation of the chest impairs respiratory function, and looseness of joints in the neck cause spinal instability and potentially spinal cord compression. Other symptoms may include hearing loss, corneal clouding, and heart disease. Initial symptoms often become evident in the first five years of life. The disease substantially limits both the quality and length of life of those affected. We have identified over 2,000 patients worldwide suffering from MPS IVA and estimate that the total number of patients suffering from MPS IV A worldwide could be as many as 3,000.

Vimizim is approved for marketing in the U.S., the EU and other international markets.

Major Product Candidates in Development

Valoctocogene Roxaparvovec

Valoctocogene roxaparvovec is an adeno associated virus (AAV5) vector drug development candidate designed to restore factor VIII plasma concentrations in patients with severe hemophilia A. Hemophilia A, also called factor VIII deficiency or classic hemophilia, is a genetic disorder caused by missing or defective factor VIII, a clotting protein. According to the World Federation of Hemophilia rankings of severity of hemophilia A, the normal range of factor VIII activity levels is between 50% and 150%, expressed as a percentage of normal factor activity in blood, the mild hemophilia A range of factor VIII activity levels is between 5% and 40%, the moderate hemophilia A range of factor VIII activity levels is between 1% and 5%, and the severe hemophilia range of factor VIII activity levels is less than 1%. People living with hemophilia A are not able to form blood clots efficiently and are at risk for excessive bleeding from modest injuries, potentially endangering their lives. People with severe hemophilia often bleed spontaneously into their muscles or joints.

In July 2016, we announced positive proof-of-concept data from a Phase 1/2 dose-escalation study for valoctocogene roxaparvovec in patients with severe hemophilia A, and we subsequently provided positive updates to our interim results in January, July and December 2017. In May 2018, further updates on valoctocogene roxaparvovec were presented during an oral presentation at the World Federation of Hemophilia (WFH) 2018 World Congress in Glasgow, Scotland by John Pasi, M.B., Ch.B., Ph.D., from Barts and the London School of Medicine and Dentistry and primary investigator for this Phase 1/2 study. The data presented at WFH is the most current data and had a cut off of April 16, 2018. In the 6e13 vg/kg cohort, the data showed continued and substantial reductions in bleeding requiring factor VIII infusions with a 97% reduction in mean Annualized Bleed Rate (ABR), with no spontaneous bleeds and elimination of all bleeds in target joints in the second year. 71% and 86% of participants had zero bleeds requiring factor VIII infusions in years 1 and 2 respectively compared to 14%, who had zero bleeds requiring factor VIII infusions for a year at baseline. There was a 96% reduction in mean factor VIII usage through week 104. Quality of life as measured by the six-domain Haemo-QoL-A instrument rapidly improved across all domains by up to 17.3 points in mean over baseline through the second year. This is well above the 5.2 point increase considered to be the minimal clinically important difference. The 4e13 vg/kg cohort also showed a substantial reduction in bleeding requiring factor VIII infusions with a 92% reduction in ABR. 83% of participants had zero bleeds requiring factor VIII infusions following treatment for a year compared to 17%, who had zero bleeds requiring factor VIII infusions for a year at baseline. Mean factor VIII usage decreased by 98%. Consistent with the reduction in ABR and factor VIII usage, quality of life showed mean improvement by 3.8 to 6.3 points. At 104 weeks post-infusion, mean factor VIII activity level of the 6e13 vg/kg cohort was 59%, and the median was 46%. At 52 weeks post-infusion, mean and median factor VIII activity levels of the 4e13 vg/kg cohort were 32%. These factor VIII activity data were based on using a one-stage assay. The chromogenic assay tends to result in readings that are approximately 60% of the one-stage assay results. We expect to release both one-stage and chromogenic assay data in the future. Patients in the Phase 1/2 study will be monitored for safety for five years.

On December 19, 2017, we announced that we had dosed the first patient in the global GENEr8-1 Phase 3 study with the 6e13 vg/kg dose for valoctocogene roxaparvovec. This is the first of two Phase 3 studies in the global Phase 3 program to dose a first patient. The global Phase 3 program includes two studies with valoctocogene roxaparvovec, one with the 6e13 vg/kg dose (GENEr8-1) and one with the 4e13 vg/kg dose (GENEr8-2). Both Phase 3 GENEr8 studies are open-label single-arm studies to evaluate the efficacy and safety of valoctocogene roxaparvovec. The primary endpoint in both studies is based on the factor VIII activity level achieved following valoctocogene roxaparvovec, and the secondary endpoints measure annualized factor VIII replacement therapy use rate and annualized bleed rate. In May 2018 we announced that the protocol of global

GENEr8-1 Phase 3 study was amended to evaluate superiority compared to standard of care with increased enrollment of up to 130 patients. As further described above under "Recent Developments," we have completed enrollment of the initial cohort of patients in our Phase 3 program intended to support a BLA submission through the accelerated approval pathway. We plan to decide in the second half of 2019 whether we will submit a BLA through an accelerated approval pathway. If we decide to submit a BLA through an accelerated approval pathway, then we will disclose additional information on the timing of our plans regarding such BLA submission. The complete Phase 3 study is targeting enrollment of 130 patients by mid-year 2019.

In addition to the two global Phase 3 studies GENEr8-1 and GENEr8-2, we are also conducting a Phase 1/2 Study with the 6E13kg/vg dose of valoctocogene roxaparvovec in approximately 10 participants with pre-existing AAV5 antibodies. In May 2018, we announced that we dosed the first patient in the Phase 1/2 study (BMN 270-203) evaluating our investigational gene therapy, valoctocogene roxaparvovec, in severe hemophilia A patients with pre-existing AAV5 antibodies. Two additional and separate studies, one to study seroprevalence in people with severe hemophilia A and one non-interventional study to determine baseline characteristics in people with hemophilia A, are ongoing around the world.

Valoctocogene roxaparvovec has Orphan Drug designation from the FDA and the EMA. Valoctocogene roxaparvovec has also been accepted for Priority Medicines (PRIME) scheme from the EMA. Additionally, the FDA has granted valoctocogene roxaparvovec Breakthrough Therapy designation.

Vosoritide

Vosoritide is a peptide therapeutic in development for the treatment of achondroplasia, the most common form of disproportionate short stature in humans. In April 2016, we reported 12-month data for the patients in the 15 µg/kg/day cohort of the Phase 2 open-label, sequential cohort, dose-escalation study of vosoritide in children who are 5-14 years old, which showed a durable and consistent increase in mean annualized growth velocity of 46%-65% from baseline in the group. Vosoritide continued to be well tolerated with no treatment-related serious adverse events or adverse events leading to discontinuation. In October 2017, we provided an update on the Phase 2 study of vosoritide, which demonstrated sustained increase in average growth velocity over 30 months of treatment in 10 children that completed 30 months of daily dosing at 15 µg/kg/day. Over this period of time, patients experienced mean absolute growth increase of approximately 4 cm over what their baseline growth velocity would have predicted. The sustained increase in annualized growth velocity was accompanied by sustained improvements over time in height compared to age- and gender-matched unaffected children as measured by z-scores. In addition, treatment with vosoritide showed continued improvement over time in proportionality as measured by the U/L ratio.

Our global Phase 3 randomized, placebo-controlled study of vosoritide in approximately 110 children with achondroplasia ages 5-14 for 52 weeks also continued in 2018. The study will be followed by a subsequent open-label extension. Children in this study will have completed a minimum six-month baseline study to determine their respective baseline growth velocity prior to entering the Phase 3 study. Vosoritide is being tested only in children in the age range when their growth plates are still open, which is approximately 25% of people with achondroplasia. Enrollment of the Phase 3 study was completed in 2018 and we expect to have top-line data by the end of 2019. Additionally, we began enrolling an infant/toddler study in 2018 in children with achondroplasia ages 0-5. Finally, we are continuing our natural history program to augment our clinical understanding of outcomes of untreated patients for comparison to patients treated with vosoritide.

Manufacturing

We manufacture the active pharmaceutical ingredients (API) for Aldurazyme, Brineura, Naglazyme, Palynziq, Vimizim and vosoritide in our production facilities located in Novato, California. We currently also manufacture the API for Brineura and Vimizim in our manufacturing facility in Shanbally, Cork, Ireland. This facility has been approved by the FDA, Health Product Regulatory Authorities, EMA, EC, and health agencies in other countries for the testing, packaging, labeling, and release of Vimizim. These facilities have demonstrated compliance with current Good Manufacturing Practices (cGMPs) to the satisfaction of the FDA, the EC and health agencies in other countries for the commercial production of these products. Vialing and most packaging are performed by contract manufacturers. We believe that we have ample manufacturing capacity in our Novato facilities to support commercial demand for both Aldurazyme and Naglazyme for at least the next five years. We believe that with our Novato, California facility and our Shanbally facility, we have ample manufacturing capacity to support commercial demand for Aldurazyme, Brineura, Naglazyme, Palynziq and Vimizim for at least the next five years.

Firdapse, amifampridine phosphate for Lambert Eaton Myasthenic Syndrome (LEMS), and Kuvan tablets and powder sachets are currently manufactured on a contract basis by third parties. In general, we expect to

continue to contract with outside service providers for certain manufacturing services, including drug substance, API, final product vialing, tableting and sachet production and packaging operations for our products. All of our facilities and those of any third-party manufacturers will be subject to periodic inspections confirming compliance with applicable law and must pass inspection before we can manufacture our drugs for commercial sales. Third-party manufacturers' facilities are subject to periodic inspections to confirm compliance with applicable law and must be cGMPs certified. We believe that our current agreements with third-party manufacturers and suppliers provide for ample operating capacity to support the anticipated clinical and commercial demand for these products. In certain instances, there is only one approved contract manufacturer for certain aspects of the manufacturing process. In such cases, we attempt to prevent disruption of supplies through supply agreements, maintaining safety stock and other appropriate strategies. Although we have never experienced a disruption in supply from our contract manufacturers, we cannot provide assurance that we will not experience a disruption in the future.

In July 2017, we commissioned our commercial-scale gene therapy manufacturing facility, located in Novato, California, and began cGMP production of valoctocogene roxaparvovec to support clinical development activities and anticipated commercial demand. This facility is capable of supporting the manufacturing of product for approximately 2,000 patients per year, and the production process was developed in accordance with International Conference on Harmonisation Technical Requirements for Registration of Pharmaceuticals for Human Use facilitating worldwide registration with health authorities.

Raw Materials

Raw materials and supplies required for the production of our products and product candidates are available in some instances from one supplier and in other instances from multiple suppliers. In those cases where raw materials are only available through one supplier, such supplier may be either a sole source (the only recognized supply source available to us) or a single source (the only approved supply source for us among other sources). We have adopted policies to attempt, to the extent feasible, to minimize our raw material supply risks, including maintenance of greater levels of raw materials inventory and implementation of multiple raw materials sourcing strategies, especially for critical raw materials. Although to date we have not experienced any significant delays in obtaining any raw materials from our suppliers, we cannot provide assurance that we will not face shortages from one or more of them in the future.

Sales and Marketing

We have established a commercial organization, including a sales force, to support our product lines directly in the U.S., Europe, South America and certain other significant markets. For other selected markets, we have signed agreements with other companies to act as distributors of Brineura, Kuvan, Naglazyme and Vimizim. Most of these agreements generally grant the distributor the right to market the product in the territory and the obligation to secure all necessary regulatory approvals for commercial or named patient sales. Additional markets are being assessed at this time and additional agreements may be signed in the future.

Genzyme has the exclusive right to distribute, market and sell Aldurazyme globally and is required to purchase its requirements exclusively from us.

In the U.S., our products (other than Aldurazyme) are marketed through our commercial teams, including sales representatives and supporting staff members, who promote our products, directly to physicians in specialties appropriate for each product. Outside of the U.S., our sales representatives and supporting staff members market our products (other than Aldurazyme). We believe that with moderate changes in 2019, the size of our sales force will be appropriate to effectively reach our target audience in markets where our products are directly marketed. The launch of any future products, if approved, including Palynziq in the EU and valoctocogene roxaparvovec, will likely require expansion of our commercial organization, including our sales force, in the U.S. and abroad.

We utilize third-party logistics companies to store and distribute our products. Moreover, we use 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.

Customers

Our Brineura, Firdapse, Kuvan, Naglazyme, and Vimizim customers include a limited number of specialty pharmacies and end-users, such as hospitals and foreign government agencies. We also sell Brineura, Kuvan, Naglazyme and Vimizim to our authorized distributors and to certain larger pharmaceutical wholesalers globally, which act as intermediaries between us and end-users and generally do not stock significant quantities of our

products. However, in certain countries, such as those in Latin America, governments place large periodic orders for Naglazyme and Vimizim. The timing of these orders can be inconsistent and can create significant quarter to quarter variation in our revenue. Palynziq is currently distributed in the U.S. pursuant to the REMS program through a limited number of certified specialty pharmacies. During 2018, 44% of our net product revenues, excluding Aldurazyme, was generated by three customers. Genzyme is our sole customer for Aldurazyme and is responsible for marketing and selling Aldurazyme to third parties.

Competition

The biopharmaceutical industry is rapidly evolving and highly competitive. Within the industry, there are many public and private companies, including pharmaceutical companies and biotechnology companies that have or may soon initiate programs for the same indications that our products and product candidates are intended to treat. Furthermore, universities and non-profit research organizations may have research programs, both early-stage and clinical, in the same disease areas. Our competitors may have advantages over us due to greater financial or scientific resources, lower labor and other costs, or due to higher headcount and more robust organizational structures. Our competitors have considerable experience in drug manufacturing, preclinical and clinical research, regulatory affairs, marketing, sales, and distribution. They pursue broad patent portfolios and other intellectual property to protect the products they are developing. Their products may outcompete ours due to one or more factors, including faster progress through preclinical and clinical development, lower manufacturing costs, superior safety and efficacy, lower pricing, stronger patent protection, and better marketing, sales, and distribution capabilities. In this event, our products and product candidates, if approved, could fail to gain significant market share, and as a result, our business, financial condition and results of operations could be adversely affected.

Our products and product candidates have no direct approved competition currently on the market, however, other companies are in the development phase with new and generic products. Our products and product candidates have potential competition from products under development either using similar technology to our programs or different treatment strategies. The following is a summary of some of the primary possible future competitors for our products and product candidates, but the information below may not include all potential competition.

Products

Aldurazyme, Naglazyme, and Vimizim

In the mucopolysaccharidosis field, several companies are researching treatments using small molecules, gene therapy, and other novel technologies. Aldurazyme, for the treatment of MPS I, has potential competition from clinical stage product candidates from ArmaGen, Inc., RegenxBio Inc., Sangamo Therapeutics, Inc. and earlier stage product candidates, including product candidates from Eloxx Pharmaceuticals Ltd and Immusoft Corporation. Naglazyme, for the treatment of MPS VI, has potential competition from a clinical stage product candidate from Inventiva S.A. and other potential candidates in earlier stages.

Brineura

Brineura, for the treatment of CLN2, has potential competition from preclinical product candidates from RegenxBio Inc. and Spark Therapeutics, Inc.

Firdapse

Firdapse has potential competition from a clinical stage product candidate from Jacobus Pharmaceutical Co. Inc.

Kuvan and Palynziq

There are currently no other approved drugs in the U.S. or the EU for the treatment of PKU. However, two companies previously filed paragraph IV certifications and submitted ANDAs to produce sapropterin dihydrochloride tablets and powder. We entered into settlement agreements regarding Kuvan with both companies, which will allow these companies to market generic versions of sapropterin dihydrochloride. Please see “Risk Factors” included in Part I, Item 1A of this Annual Report on Form 10-K for more information regarding the settlement agreements and for a discussion of the risks posed by generic versions of Kuvan in the U.S. and abroad. Please see “Government Regulation – The Hatch-Waxman Act” below for additional information regarding ANDAs. Kuvan and Palynziq also have potential competition from clinical stage product candidates from Retrophin, Inc. and earlier stage product candidates, including product candidates from Rubius Therapeutics, Inc., and Moderna Therapeutics, Inc. BMN 307 is our preclinical gene therapy program for PKU,

and other companies are also developing gene therapy candidates for PKU, including a preclinical product candidate from Homology Medicines, Inc.

Clinical Product Candidates

Valoctocogene roxaparvovec

Valoctocogene roxaparvovec, a gene therapy product candidate for severe hemophilia A, could have competition from marketed recombinant factor VIII replacement therapies, a novel bispecific antibody marketed by Roche Holding Ltd, and clinical stage programs, including gene therapy product candidates under development by Bayer AG, Sangamo Therapeutics, Inc., Shire Plc and Spark Therapeutics, Inc., and preclinical product candidates from other companies, including Uniqure NV. In addition, Alnylam Pharmaceuticals, Inc. is developing a novel product candidate in the clinic for the treatment of hemophilia A.

Vosoritide

Vosoritide, for the treatment of achondroplasia, could have competition from clinical stage products under development by Ascendis Pharma A/S and Therachon AG and preclinical product candidates from other companies, including QED Therapeutics, Inc.

Patents and Proprietary Rights

Our success depends on an intellectual property portfolio that supports our future revenue streams and also erects barriers to our competitors. We are maintaining and building our patent portfolio through: filing new patent applications; prosecuting existing applications; and licensing and acquiring new patents and patent applications. Furthermore we seek to protect our ownership of know-how, trade secrets and trademarks through an active program of legal mechanisms including registrations, assignments, confidentiality agreements, material transfer agreements, research collaborations and licenses.

As of January 14, 2019, the number of our worldwide issued patents now stands at 1,747, including 125 patents issued by the U.S. Patent and Trademark Office (the USPTO). Furthermore, our portfolio of pending patent applications totals 548 applications, including 83 pending U.S. applications.

With respect to Aldurazyme, we have rights to 33 issued patents, including six U.S. patents. These patents cover our ultra-pure alpha-L-iduronidase composition of Aldurazyme, methods of treating deficiencies of alpha-L-iduronidase by administering pharmaceutical compositions comprising such ultra-pure alpha-L-iduronidase, a method of purifying such ultra-pure alpha-L-iduronidase and the use of compositions of ultra-pure biologically active fragments of alpha-L-iduronidase. These patents will expire in November 2019 and in 2020. There are U.S. patents on alpha-L-iduronidase owned and controlled by a third party. We have examined such issued U.S. patents, the related U.S. and foreign applications and their file histories, the prior art and other information. Corresponding foreign applications were filed in Canada, Europe and Japan. The European application was rejected and abandoned and cannot be re-filed. The Japanese application has also lapsed and cannot be re-filed. Claims in the related Canadian application issued in 2007. We believe that such patents may not survive a challenge to patent validity but that it is unlikely that a court in any country would order us to stop marketing the only life-saving drug that is currently approved for this disease. However, the processes of patent law are uncertain and any patent proceeding is subject to multiple unanticipated outcomes. We believe that it is in the best interest of our joint venture with Genzyme to market Aldurazyme with commercial diligence, in order to provide MPS I patients with the benefits of Aldurazyme. We believe that these patents and patent applications do not affect our ability to market Aldurazyme in Europe.

With respect to Brineura, we own or have licensed a number of patents and pending patent applications that relate generally to CLN2/TPP1 protein, use of CLN2/TPP1 protein and methods of treating late infantile neuronal ceroid lipofuscinosis, pharmaceutical compositions and liquid formulations of TPP1 formulations and intrathecal administration of TPP1. We have 13 issued patents, including give issued U.S. patents and eight foreign patents, and 19 pending applications including one US and 18 foreign applications. These patents will expire between 2021and 2036.

With respect to Firdapse, we have patent protection in the European Patent Organization countries. These patents will expire in 2022.

With respect to Kuvan, we own, co-own or have licensed a number of patents and pending patent applications that relate generally to formulations and forms of our drug substance, methods of use for various indications under development and dosing regimens. We have rights to 152 issued patents including 17 issued U.S. patents with claims to a stable tablet and oral solution formulation of 6R-BH4, methods of treating PKU using a once daily dosing regimen, methods of administration of Kuvan with food, crystalline forms of 6R-BH4, and methods of producing 6R-BH4. These patents will expire between 2024 and 2032. We have granted licenses to certain of these patents to two companies, as further described in “Major Commercial Products—Kuvan,” above.

With respect to Naglazyme, we have 54 issued patents, including three U.S. patents. Claims cover our ultrapure *N* -acetylgalactosamine-4-sulfatase compositions of Naglazyme, methods of treating deficiencies of *N* -acetylgalactosamine-4-sulfatase, including MPS VI, methods of producing and purifying such ultrapure *N* -acetylgalactosamine-4-sulfatase compositions and methods of detecting. These patents will expire between 2021 and 2028.

With respect to Vimizim, we own or have licensed a number of patents and pending patent applications that relate generally to compositions of matter, methods of use and methods of production. We have rights to 206 issued patents including 17 issued U.S. patents with claims to compositions of purified recombinant N-acetylgalactosamine-6-sulfate sulfatase (Vimizim) methods of treating Morquio Syndrome and sulfatase-modifying factor I (SUMF1) polypeptides and nucleic acids used in the manufacture of Vimizim. Issued U.S. patents cover SUMF1 compositions (set to expire in 2019), purified recombinant Vimizim compositions (set to expire in 2029) and methods of treating Morquio Syndrome (set to expire in 2029). We also have issued U.S. and European patents that cover methods of production (set to expire in 2024) and formulations (set to expire in 2031).

With respect to our clinical product candidates, we believe we have the necessary intellectual property rights to allowing us to undertake the development of these candidates. Certain of our product candidates are in therapeutic areas that have been the subject of many years of extensive research and development by academic organizations and third parties who may control patents or other intellectual property that they might assert against us, should one or more of our product candidates in these therapeutic areas succeed in obtaining regulatory approval and thereafter be commercialized. We continually evaluate the intellectual property rights of others in these areas in order to determine whether a claim of infringement may be made by others against us. Should we determine that a third party has intellectual property rights that could impact our ability to freely market a compound we consider a number of factors in determining how best to prepare for the commercialization of any such product candidate. In making this determination we consider, among other things, the stage of development of our product candidate and whether we and our outside counsel believe the intellectual property rights of others are valid, whether we infringe the intellectual property rights of others, whether a license is available upon commercially reasonable terms, whether we will seek to challenge the intellectual property rights of others, and the likelihood of and liability resulting from an adverse outcome should we be found to infringe the intellectual property rights of others.

Government Regulation

Regulation by governmental authorities in the U.S. and other countries is a significant factor in the development, manufacture, commercialization, pricing and reimbursement of our products. Our industry is subject to significant federal, state, local and foreign regulation. Our present and future business has been, and will continue to be, subject to a variety of laws in the U.S. and other jurisdictions. In the U.S., failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial sanctions, such as FDA refusal to approve pending new drug applications (NDAs) or BLAs, warning or untitled letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties, and criminal prosecution.

Our products require approval from the FDA, the EMA and corresponding agencies in other countries before they can be marketed.

Approval Process in the U.S. and EU

Pharmaceutical product development in the U.S. and the EU typically involves preclinical laboratory and animal tests, the submission to the applicable regulatory agency of an application (e.g., an IND or a CTA), which must become effective before clinical testing may commence, and adequate and well-controlled human clinical trials to establish the safety and effectiveness of the drug for each indication for which marketing approval is sought. Currently, European clinical trial authorization applications must be submitted to the competent authority in each EU Member State in which the trial will be conducted. Under the new European Regulation on Clinical Trials, which is expected to take effect in 2019, there will be a centralized application procedure where one national authority takes the lead in reviewing the application and the other national authorities have only a limited involvement. Satisfaction of FDA and European pre-market approval requirements typically takes many years and the actual time required may vary substantially based upon the type, complexity and novelty of the product or disease.

Preclinical tests include laboratory evaluation, as well as animal studies, to assess the characteristics and potential pharmacology, pharmacokinetics and toxicity of the product. The conduct of the preclinical tests must comply with FDA and/or EMA regulations and requirements, including good laboratory practices. The results of preclinical testing, along with other information, including information about product chemistry, manufacturing and controls and a proposed clinical trial protocol are submitted to the applicable regulatory agency as part of an IND or CTA. Long term preclinical tests, such as animal tests of reproductive toxicity and carcinogenicity, may continue after the IND or CTA is submitted. Until the CTA or IND is approved, or becomes effective following a waiting period, we may not start the clinical trial in the relevant jurisdiction.

Clinical trials involve the administration of the investigational new drug to healthy volunteers or patients under the supervision of a qualified investigator. Clinical trials must be conducted in compliance with applicable regulations, good clinical practices (GCP), as well as under protocols detailing the objectives of the trial and the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. Each protocol involving testing on patients and subsequent protocol amendments must be submitted to the FDA as part of the IND and to the relevant regulatory agency in the EU as part of a new CTA.

The regulatory agencies may order the temporary halt or permanent discontinuation of a clinical trial at any time or impose other sanctions if they believe that the clinical trial is not being conducted in accordance with applicable requirements or presents an unacceptable risk to the clinical trial patients. The study protocol and informed consent information for patients in clinical trials must also be submitted to an institutional review board (IRB) or ethics committee, for approval. An IRB/ethics committee may also require the clinical trial at the site to be halted, either temporarily or permanently, for failure to comply with the IRB/ethics committee's requirements, or may impose other conditions.

Clinical trials to support NDAs, BLAs or MAAs for marketing approval are typically conducted in three sequential phases, but the phases may overlap or be combined. In Phase 1, the initial introduction of the drug into healthy human subjects or patients, the drug is tested to assess metabolism, pharmacokinetics, pharmacological actions, side effects associated with increasing doses and, if possible, early evidence on effectiveness. Phase 2 usually involves trials in a limited patient population, to determine the effectiveness of the drug for a particular indication or indications, dosage tolerance and optimum dosage, and to identify common adverse effects and safety risks. If a compound demonstrates evidence of effectiveness and an acceptable safety profile in Phase 2 evaluations, Phase 3 trials are undertaken to obtain the additional information about clinical efficacy and safety in a larger number of patients, typically at geographically dispersed clinical trial sites. After completion of the required clinical testing, an application is prepared and submitted to the regulatory agency. Approval of the application by the applicable regulatory agency is required before marketing of the product may begin. In Europe, an MAA is prepared and, for all orphan designated products, is submitted to the EMA under the centralized application procedure. EC approval of the MAA under the centralized application procedure results in a single marketing authorization that is valid across the European Economic Area (i.e., the European Union as well as Iceland, Liechtenstein and Norway).The NDA, BLA or MAA must include the results of all preclinical, clinical and other testing, a compilation of data relating to the product's pharmacology, chemistry, manufacture and controls and proposed labeling, among other things. In the U.S., each NDA or BLA is subject to a significant user fee at the time of submission, unless a waiver is granted by the FDA.

The FDA and the EMA initially review the applications for a threshold determination that it is sufficiently complete to permit substantive review, typically within 30-60 days. The regulatory agency may request additional information rather than accepting an application for filing or validation. Once the submission is accepted, the applicable agency begins an in-depth review. For the FDA, the review period for standard review applications is typically an additional ten months and, for priority review of drugs, that is, drugs that the FDA determines address a significant unmet need and represent a significant improvement over existing therapy, the review period is typically an additional six months in duration. The review process may be extended by the FDA for three additional months to consider new information submitted during the review or clarification regarding information already provided in the submission. The FDA may also refer applications for novel products or products that present difficult questions of safety or efficacy to an advisory committee, typically a panel that includes clinicians and other experts, for review, evaluation and a recommendation as to whether the application should be approved. The FDA is not bound by the recommendation of an advisory committee, but it generally follows such recommendations. After the FDA evaluates the information provided in the NDA/BLA, it issues an approval letter, or a complete response letter. A complete response letter outlines the deficiencies in the submission and may require substantial additional testing or information in order for the FDA to reconsider the application. If and when those deficiencies have been addressed, the FDA will re-initiate review. If it is satisfied that the deficiencies have been addressed, the FDA will issue an approval letter.

Under the centralized procedure in the European Union, the maximum timeframe for the evaluation of an MAA by the EMA is 210 days. This excludes so-called clock stops, during which additional written or oral information is to be provided by the applicant in response to questions asked by the CHMP. At the end of the review period, the CHMP provides an opinion to the EC. If the opinion is favorable, the EC may then adopt a decision to grant marketing authorization. In the event of a negative opinion, the company may request a re-examination of the application within 15 days of receipt of the negative opinion. The company then has 60 days to provide the CHMP with detailed grounds for requesting the re-examination. Within 60 days of providing this information, the CHMP shall re-examine its opinion. The EC follows the recommendation of the CHMP in almost all cases. In exceptional cases, the CHMP might perform an accelerated review of an MAA in no more than 150 days. This is usually when the product is of major interest from the point of view of public health and, in particular, from the viewpoint of therapeutic innovation.

During the review period, the FDA and/or the EMA will typically inspect one or more clinical sites and/or the sponsor to assure compliance with GCP regulations and will inspect the facility or the facilities at which the drug is manufactured to ensure compliance with cGMPs regulations. Neither the FDA nor the EMA will approve the product unless compliance is satisfactory and the application contains data that provide substantial evidence that the drug is safe and effective in the indication studied.

A marketing approval authorizes commercial marketing of the drug with specific prescribing information for specific indications. As a condition of NDA or BLA approval, the FDA may require a risk evaluation and mitigation strategy (REMS), to help ensure that the benefits of the drug outweigh the potential risks. REMS can include medication guides, communication plans for healthcare professionals, and elements to assure safe use, such as special training or certification for prescribing or dispensing, dispensing only under certain circumstances, special monitoring and the use of patient registries. Moreover, product approval may require substantial post-approval testing and surveillance to monitor the drug's safety or efficacy. Once granted, product approvals may be withdrawn if compliance with regulatory standards is not maintained or problems are identified following initial marketing.

Combination Products

A combination product is a product comprising (i) two or more regulated components, i.e., drug/device, biologic/device, drug/biologic, or drug/device/biologic, that are physically, chemically, or otherwise combined or mixed and produced as a single entity; (ii) two or more separate products packaged together in a single package or as a unit and comprising drug and device products, device and biological products, or biological and drug products; (iii) a drug, device, or biological product packaged separately that according to its investigational plan or proposed labeling is intended for use only with an approved individually specified drug, device, or biological product where both are required to achieve the intended use, indication, or effect and where upon approval of the proposed product the labeling of the approved product would need to be changed, e.g., to reflect a change in intended use, dosage form, strength, route of administration, or significant change in dose; or (iv) any investigational drug, device, or biological product packaged separately that according to its proposed labeling is for use only with another individually specified investigational drug, device, or biological product where both are required to achieve the intended use, indication, or effect.

The FDA is divided into various branches, or Centers, by product type. Different Centers typically review drug, biologic, or device applications. In order to review an application for a combination product, the FDA must decide which Center should be responsible for the review. FDA regulations require that the FDA determine the combination product's primary mode of action, which is the single mode of a combination product that provides the most important therapeutic action of the combination product. The Center that regulates that portion of the product becomes the lead evaluator. When evaluating an application, a lead Center may consult other Centers but still retain complete reviewing authority, or it may collaborate with another Center, by which the Center assigns review of a specific section of the application to another Center, delegating its review authority for that section. Typically, the FDA requires a single marketing application submitted to the Center selected to be the lead evaluator, although the agency has the discretion to require separate applications to more than one Center. One reason to submit multiple evaluations is if the applicant wishes to receive some benefit that accrues only from approval under a particular type of application, like new drug product exclusivity. If multiple applications are submitted, each may be evaluated by a different lead Center.

Disclosure of Clinical Trial Information

Sponsors of clinical trials of FDA-regulated products, including drugs and biologics, are required to register and disclose certain clinical trial information. Information related to the product, patient population, phase of investigation, study sites and investigators, and other aspects of the clinical trial are then made public as part of the registration. Sponsors are also obligated to discuss the results of their clinical trials after completion. In certain circumstances, disclosure of the results of these trials can be delayed for up to two years after the date of completion of the trial. Competitors may use this publicly-available information to gain knowledge regarding the progress of development programs. Moreover, there is an increasing trend in the EU requiring public disclosure of development data, in particular clinical trial data. These data were traditionally regarded as confidential commercial information; however, under policies recently adopted in the EU, clinical study data submitted to the EMA in MAAs, including pre-clinical data, and patient level data, may be subject to public disclosure.

The Hatch-Waxman Act

Upon approval of a drug through an NDA, applicants are required to submit to the FDA each patent that covers the applicant's product or FDA approved method of using this product. Those patents are then published in the FDA's Orange Book. Drugs listed in the Orange Book can, in turn, be cited by potential competitors in support of approval of an ANDA. Generally, an ANDA provides for marketing of a drug product that has the same active ingredients in the same strength(s), route of administration, and dosage form as the listed drug and has been shown through bioequivalence testing to be therapeutically equivalent to the listed drug. ANDA applicants are not required to conduct or submit results of pre-clinical or clinical tests to prove the safety or effectiveness of their drug product, other than the requirement for bioequivalence testing. Drugs approved in this way are commonly referred to as "generic equivalents" to the listed drug, and can often be substituted by pharmacists under prescriptions written for the original listed drug.

The ANDA applicant is required to certify to the FDA concerning any patents listed for the approved product in the Orange Book. Specifically, the applicant must certify that: (i) the required patent information has not been filed; (ii) the listed patent has expired; (iii) the listed patent has not expired, but will expire on a particular date and approval is sought after patent expiration; or (iv) the listed patent is invalid or will not be infringed by the new product. A certification that the new product will not infringe the already approved product's listed patents or that such patents are invalid is called a paragraph IV certification. If the applicant does not challenge the listed patents, the ANDA application will not be approved until all the listed patents claiming the referenced product have expired. Alternatively, for a patent covering an approved method of use, an ANDA applicant may submit a statement to the FDA that the company is not seeking approval for the covered use.

If the ANDA applicant has submitted a paragraph IV certification to the FDA, the applicant must also send notice of the paragraph IV certification to the NDA and patent holders once the ANDA has been accepted for filing by the FDA. The NDA and patent holders may then initiate a patent infringement lawsuit in response to the notice of the paragraph IV certification. The filing of a patent infringement lawsuit within 45 days of the receipt of a paragraph IV certification automatically prevents the FDA from approving the ANDA until the earlier of 30 months, expiration of the patent, settlement of the lawsuit or a decision in the infringement case that is favorable to the ANDA applicant.

The ANDA application also will not be approved until any non-patent exclusivity, such as exclusivity for obtaining approval of a new chemical entity, listed in the Orange Book for the referenced product has expired. Federal law provides a period of five years following approval of a drug containing no previously approved active moiety, during which ANDAs for generic versions of those drugs cannot be submitted unless the submission contains a paragraph IV challenge to a listed patent, in which case the submission may be made four years

following the original product approval. Federal law provides for a period of three years of exclusivity following approval of a listed drug that contains previously approved active ingredients but is approved in a new dosage form, route of administration or combination, or for a new condition of use, the approval of which was required to be supported by new clinical trials conducted by or for the sponsor, during which the FDA cannot grant effective approval of an ANDA based on that listed drug. Both of the five-year and three-year exclusivity periods, as well as any unexpired patents listed in the Orange Book for the listed drug, can be extended by six months if the FDA grants the NDA sponsor a period of pediatric exclusivity based on studies submitted by the sponsor in response to a written request.

Orphan Drug Designation

Orphan drug designation is granted by the FDA and EMA to drugs intended to treat a rare disease or condition, which in the U.S. is defined as having a prevalence of less than 200,000 individuals in the U.S. In the EU, orphan drug designation is available if a sponsor can establish: that the medicine is intended for the diagnosis, prevention or treatment of (1) a life-threatening or chronically debilitating condition affecting no more than five in 10,000 people in the EU, which is equivalent to around 250,000 people or fewer, or (2) a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that the marketing of the medicinal product in the EU would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the EU or, if such method exists, the medicinal product will be of significant benefit to those affected by that condition. Orphan drug designation must be requested before submitting a marketing application.

Orphan drug designation does not shorten the regulatory review and approval process. However, if an orphan drug later receives approval for the indication for which it has designation, the relevant regulatory authority may not approve any other applications to market the same drug for the same indication, except in very limited circumstances, for seven years in the U.S. and ten years in the EU (extendable to twelve years for medicines that have complied with an agreed pediatric investigation plan pursuant to Regulation 1901/2006) and, in addition, a range of other benefits during the development and regulatory review process are available in the EU, including scientific assistance for study protocols, authorization through the centralized marketing authorization procedure covering all member countries and a reduction or elimination of registration and marketing authorization fees. Among the benefits of orphan drug designation in the U.S. are tax credits for certain research and a waiver of the NDA/BLA application user fee. Orphan drug exclusive marketing rights may be lost under certain conditions, such as if the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug. In the EU, marketing authorization may be granted to a similar medicinal product with the same orphan indication during the regulatory exclusivity period with the consent of the marketing authorization holder for the original orphan medicinal product 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 this medicinal product is safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity may, in addition, be reduced to six years if, at the end of the fifth year, it can be demonstrated on the basis of available evidence that the criteria for its designation as an orphan medicine are no longer satisfied, for example if the original orphan medicinal product has become sufficiently profitable not to justify maintenance of market exclusivity.

Breakthrough Therapy Designation

The FDA is also required to expedite the development and review of the application for approval of drugs that are intended to treat a serious or life-threatening disease or condition where preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints. Under the breakthrough therapy program, the sponsor of a new drug candidate may request that the FDA designate the drug candidate for a specific indication as a breakthrough therapy concurrent with, or after, the filing of the IND for the drug candidate. The FDA must determine if the drug candidate qualifies for breakthrough therapy designation within 60 days of receipt of the sponsor's request.

PRIME Designation

The EMA launched its PRIME regulatory initiative to enhance support for the development of therapies that target an unmet medical need. The initiative focuses on drugs that may offer a major therapeutic advantage over existing treatments, or benefit patients with no treatment options. These therapies are considered priority medicines within the EU. Through PRIME, the EMA offers early, proactive and enhanced support to drug developers to optimize the generation of robust data on a therapy's benefits and risks and enable accelerated assessment of drug applications.

Pediatric Information

Under the Pediatric Research Equity Act of 2007 (PREA), NDAs or BLAs or supplements to NDAs or BLAs must contain data to assess the safety and effectiveness of the drug for the claimed indication(s) in all relevant pediatric subpopulations and to support dosing and administration for each pediatric subpopulation for which the drug is safe and effective. The FDA may grant deferrals for submission of data or full or partial waivers. Unless otherwise required by regulation, PREA does not apply to any drug for an indication for which orphan drug designation has been granted. The Best Pharmaceuticals for Children Act (BPCA) provides sponsors of NDAs with an additional six-month period of market exclusivity for all unexpired patent or non-patent exclusivity on all forms of the drug containing the active moiety if the sponsor submits results of pediatric studies specifically requested by the FDA under BPCA within required timeframes. The Biologics Price Competition and Innovation Act of 2009 (BPCIA) provides sponsors of BLAs an additional six-month extension for all unexpired non-patent market exclusivity on all forms of the biological containing the active moiety pursuant to the BPCA if the conditions under the BPCA are met.

In the EU, companies developing a new medicinal product must agree to a Paediatric Investigation Plan (PIP) with the EMA and must conduct pediatric clinical trials in accordance with that PIP, unless a deferral or waiver applies, (e.g., because the relevant disease or condition occurs only in adults). The MAA for the product must include the results of pediatric clinical trials conducted in accordance with the PIP, unless a waiver applies, or a deferral has been granted, in which case the pediatric clinical trials must be completed at a later date. Products that are granted a marketing authorization on the basis of the pediatric clinical trials conducted in accordance with the PIP are eligible for a six month extension of the protection under a supplementary protection certificate (if any is in effect at the time of approval) or, in the case of orphan medicinal products, a two year extension of the orphan market exclusivity. This pediatric reward is subject to specific conditions and is not automatically available when data in compliance with the PIP are developed and submitted.

Fast Track Designation

The FDA is required to facilitate the development and expedite the review of drugs that are intended for the treatment of a serious or life-threatening condition for which there is no effective treatment and that demonstrate the potential to address unmet medical needs for the condition. Under the FDA's fast track program, the sponsor of a new drug candidate may request that the FDA designate the drug candidate for a specific indication as a fast track drug concurrent with or after the filing of the IND for the drug candidate. The FDA must determine if the drug candidate qualifies for fast track designation within 60 days of receipt of the sponsor's request.

In addition to other benefits, such as the ability to use surrogate endpoints and have greater interactions with the FDA, the FDA may initiate review of sections of a fast track drug's NDA or BLA before the application is complete. This rolling review is available if the applicant provides and the FDA approves a schedule for the submission of the remaining information and the applicant pays applicable user fees. However, the FDA's time period goal for reviewing an application does not begin until the last section of the NDA or BLA is submitted. Additionally, the fast track designation may be withdrawn by the FDA if the FDA believes that the designation is no longer supported by data emerging in the clinical trial process.

Post-Approval Regulatory Requirements

Following approval, the FDA and the EMA will impose certain post-approval requirements related to a product. For instance, the FDA closely regulates the post-approval marketing and promotion of approved products, including standards and regulations for direct-to-consumer advertising, off-label promotion, industry-sponsored scientific and educational activities and promotional activities involving the Internet. Moreover, if a company obtains original FDA approval for a product via the accelerated approval pathway, the company may be required to conduct a post-marketing confirmatory trial to verify and describe the clinical benefit in support of full

approval. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of the FDA's marketing approval for a product.

Approved products may be marketed only for the approved indications and in accordance with the provisions of the approved labeling. Changes to some of the conditions established in an approved application, including changes in indications, labeling, or manufacturing processes or facilities, may require a submission to and approval by the FDA or the EMA, as applicable, before the change can be implemented. An NDA/BLA or MAA supplement for a new indication typically requires clinical data similar to that in the original application, and similar procedures and actions in reviewing NDA/ BLA or MAA supplements as in reviewing NDAs/BLAs and MAAs.

Adverse event reporting and submission of periodic reports is required following marketing approval. Either the FDA or EMA may also require post-marketing testing, known as Phase 4 testing, REMS, and surveillance to monitor the effects of an approved product or place conditions on an approval that could restrict the distribution or use of the product. In addition, quality control as well as the manufacture, packaging, and labeling procedures must continue to conform to cGMPs after approval. Drug and biological product manufacturers and certain of their subcontractors are subject to periodic unannounced inspections by the FDA or the EMA during which the agency inspects manufacturing facilities to assess compliance with cGMPs. Accordingly, manufacturers must continue to expend time, money and effort in the areas of production and quality control to maintain compliance with cGMPs. Regulatory authorities may withdraw product approvals or request product recalls if a company fails to comply with regulatory standards, if it encounters problems following initial marketing, or if previously unrecognized problems are subsequently discovered. In addition, prescription drug manufacturers in the U.S. must comply with applicable provisions of the Drug Supply Chain Security Act and provide and receive product tracing information, maintain appropriate licenses, ensure they only work with other properly licensed entities and have procedures in place to identify and properly handle suspect and illegitimate products.

Healthcare Reform

The U.S. and some foreign jurisdictions are considering or have enacted a number of legislative and regulatory proposals to change the healthcare system in ways that could affect our ability to sell our products profitably. For example, in the U.S., the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010 (as amended, the PPACA), is a sweeping measure intended to improve quality of care, constrain healthcare spending, and expand healthcare coverage within the U.S., primarily through the imposition of health insurance mandates on employers and individuals and expansion of the Medicaid program.

The BPCIA, which was enacted as part of the PPACA, created an abbreviated approval pathway for biological products that are demonstrated to be "biosimilar" or "interchangeable" with an FDA-licensed reference biological product. Biosimilarity sufficient to reference a prior FDA-licensed product requires that there be no differences in conditions of use, route of administration, dosage form, and strength, and no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency. Biosimilarity must be shown through analytical studies, animal studies, and at least one clinical study, absent a waiver from the Secretary of the U.S. Department of Health and Human Services. In order to meet the higher hurdle of interchangeability, a sponsor must demonstrate that the biosimilar product can be expected to produce the same clinical result as the reference product, and for a product that is administered more than once, that the risk of switching between the reference product and biosimilar product is not greater than the risk of maintaining the patient on the reference product. The first biosimilar product was approved under the BPCIA in 2015, though no interchangeable products have been approved to date. Complexities associated with the larger, and often more complex, structures of biological products, as well as the process by which such products are manufactured, pose significant hurdles to implementation that are still being evaluated by the FDA. A reference biologic is granted 12 years of exclusivity from the time of first licensure of the reference product and no application for a biosimilar can be submitted for four years from the date of licensure of the reference product. The first biologic product submitted under the abbreviated approval pathway that is determined to be interchangeable with the reference product has exclusivity against a finding of interchangeability for other biologics for the same condition of use for the lesser of (i) one year after first commercial marketing of the first interchangeable biosimilar, (ii) eighteen months after the first interchangeable biosimilar is approved if there is not patent challenge, (iii) eighteen months after resolution of a lawsuit over the patents of the reference biologic in favor of the first interchangeable biosimilar applicant, or (iv) 42 months after the first interchangeable biosimilar's application has been approved if a patent lawsuit is ongoing within the 42-month period.

The PPACA also imposed a fee on certain manufacturers and importers of branded prescription drugs (excluding orphan drugs under certain conditions). The annual fee is apportioned among the participating companies based on each company's sales of qualifying products to, or use by, certain U.S. government

programs during the preceding year. Other provisions of the law have also affected us and have increased certain of our costs. For example, the Medicaid rebate rate was increased and the volume of rebated drugs has been expanded to include beneficiaries in Medicaid managed care organizations. Among other things, the PPACA also expanded the 340B drug discount program (excluding orphan drugs), including the creation of new penalties for non-compliance, and now includes a 70% discount on brand name drugs for Medicare Part D participants in the coverage gap, or "donut hole." The law also revised the definition of "average manufacturer price" for reporting purposes. In addition, drug manufacturers are required to collect and report annually information on payments or transfers of value to physicians and teaching hospitals, as well as investment interests held by physicians and their immediate family members during the preceding calendar year. Effective January 1, 2022, drug manufacturers will also be required to report on payments or transfers of value to physician assistants, nurse practitioners or clinical nurse specialists, certified registered nurse anesthetists, and certified nurse-midwives. The reported data are posted in searchable form on a public web site. Failure to submit required information may result in civil monetary penalties. It is still unclear the full impact that the PPACA will have on our business. There have been judicial and Congressional challenges to certain aspects of the PPACA, and we expect that there will be additional challenges and amendments in the future, especially with the current Presidential administration.

Since January 2017, the U.S. President has signed two Executive Orders designed to delay the implementation of any certain provisions of the PPACA or otherwise circumvent some of the requirements for health insurance mandated by the PPACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the PPACA. While Congress has not passed legislation repealing the PPACA in its entirety, it has enacted laws that modify certain provisions of the PPACA such as removing penalties, starting January 1, 2019, for not complying with the PPACA's individual mandate to carry health insurance, delaying the implementation of certain ACA-mandated fees, and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. Additionally, on December 14, 2018, a Texas U.S. District Court Judge ruled that the PPACA is unconstitutional in its entirety because the individual mandate was repealed by Congress as part of the Tax Cuts and Jobs Act. While the Texas U.S. District Court Judge, as well as the U.S. Presidential administration and the Centers for Medicare and Medicaid Services (CMS), have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the PPACA will impact the PPACA.

Other legislative changes have been proposed and adopted since the PPACA was enacted. These changes included the Budget Control Act of 2011, which caused aggregate reductions to Medicare payments to providers of up to 2% per fiscal year effective April 1, 2013 which, following passage of the Bipartisan Budget Act of 2015, will stay in effect through 2025 unless additional Congressional action is taken. Further, the American Taxpayer Relief Act of 2012, among other things, further reduced Medicare payments to several types of providers.

Additionally, there has been increasing legislative and enforcement interest in the U.S. with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted state and federal legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. For example, the U.S. Presidential administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. Although a number of these, and other potential, proposals will require authorization through additional legislation to become effective, Congress and the U.S. Presidential administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the state level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, to encourage importation from other countries and bulk purchasing.

Brexit and the Regulatory Framework in the United Kingdom

On June 23, 2016, the electorate in the United Kingdom voted in favor of leaving the EU (Brexit). Thereafter, on March 29, 2017, the country formally notified the EU of its intention to withdraw pursuant to Article 50 of the Lisbon Treaty. Although it is unclear when or if the United Kingdom will leave the EU if a withdrawal does occur, it is expected to take effect either on the effective date of the withdrawal agreement to be negotiated by the parties or, in the absence of agreement, on March 29, 2019, unless this is extended. Since the regulatory framework for pharmaceutical products in the United Kingdom covering quality, safety and efficacy of pharmaceutical products, clinical trials, marketing authorization, commercial sales and distribution of pharmaceutical products is derived from EU directives and regulations, immediately following Brexit, it is

expected that the United Kingdom's regulatory regime will remain aligned with EU regulations. It remains to be seen how, if at all, Brexit will impact regulatory requirements for product candidates and products in the United Kingdom. In the longer term, Brexit could materially impact the future regulatory regime which applies to products and the approval of product candidates in the United Kingdom.

Other U.S. Regulatory Requirements

In addition to FDA restrictions on marketing of pharmaceutical products, several other types of state and federal laws have been applied to restrict certain business and marketing practices in the pharmaceutical industry in recent years. These laws include anti-kickback, false claims, patient data privacy and security, and transparency statutes and regulations.

The federal Anti-Kickback Statute prohibits, among other things, knowingly and willfully offering, paying, soliciting or receiving remuneration to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any healthcare item or service reimbursable under Medicare, Medicaid or other federally financed healthcare programs. The PPACA amended the intent requirement of the federal Anti-Kickback and certain other criminal healthcare fraud statutes such that a person or entity no longer needs to have actual knowledge of these statutes or specific intent to violate them in order to commit a violation. This statute has been interpreted to apply to arrangements between pharmaceutical manufacturers on the one hand and prescribers, purchasers and formulary managers on the other. Although there are a number of statutory exceptions and regulatory safe harbors protecting certain common activities from prosecution or other regulatory sanctions, the exceptions and safe harbors are drawn narrowly, and practices that involve remuneration intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor.

Federal false claims laws prohibit any person from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid. The PPACA amended the statute so that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the false claims laws. Recently, several pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly inflating drug prices they report to pricing services, which in turn are used by the government to set Medicare and Medicaid reimbursement rates, and for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws.

The federal Health Insurance Portability and Accountability Act of 1996, or HIPAA, imposes criminal and civil liability for, among other things, executing a scheme to defraud any healthcare benefit program or making false statements relating to healthcare matters.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and their implementing regulations, also imposes obligations, including mandatory contractual terms, on certain types of individuals and entities, with respect to safeguarding the privacy, security and transmission of individually identifiable health information.

The federal Physician Payments Sunshine Act requires certain manufacturers of drugs, devices, biologics and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program, with specific exceptions, to report annually to the CMS information related to payments or other transfers of value made to physicians and teaching hospitals, and applicable manufacturers and applicable group purchasing organizations to report annually to CMS ownership and investment interests held by the physicians and their immediate family members.

The majority of states also have statutes or regulations similar to the federal Anti-Kickback Statute and false claims laws, which apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payer. Sanctions under these federal and state laws may include civil monetary penalties, damages, monetary fines, disgorgement, exclusion of a company from federal healthcare programs, integrity oversight and reporting obligations, criminal fines, contractual damages, reputational harm, diminished profits and future earnings, curtailment of operations and imprisonment. Several states now require pharmaceutical companies to report expenses relating to the marketing and promotion of pharmaceutical products and to report gifts and payments to individual physicians in these states. Other states prohibit providing various other marketing-related activities. Still other states require the posting of information relating to clinical studies and their outcomes. In addition, states including California, Connecticut, Nevada and Massachusetts require pharmaceutical companies to implement compliance programs or marketing codes. Currently, several additional states are considering similar proposals. Compliance with these laws is difficult and time consuming, and companies that do not comply with these state laws face civil penalties.

Approval Outside of the U.S./EU

For marketing outside the U.S. and the EU, we are subject to foreign regulatory requirements governing human clinical testing and marketing approval for our products. These requirements vary by jurisdiction, can differ from those in the U.S. and the EU and may require us to perform additional pre-clinical or clinical testing. The amount of time required to obtain necessary approvals may be longer or shorter than that required for FDA or EMA approval. In many countries outside of the U.S., approvals for pricing, coverage and reimbursement offered by third-party payers, including government payers and private insurance plans, are also required.

Anti-Corruption Legislation

The U.S. Foreign Corrupt Practices Act (FCPA), to which we are subject, prohibits corporations and individuals from engaging in certain activities to obtain or retain business or to influence a person working in an official capacity. It is illegal to pay, offer to pay or authorize the payment of anything of value to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business or to otherwise influence a person working in an official capacity. Similar laws exist in other countries, such as the United Kingdom, that restrict improper payments to public and private parties. Many countries have laws prohibiting these types of payments within the respective country. Historically, pharmaceutical companies have been the target of FCPA and other anti-corruption investigations and penalties.

Pricing and Reimbursement

Because the course of treatment for patients using our products is expensive, sales of our products depend, in significant part, on the availability and extent of coverage and reimbursement offered by third-party payers, including government payers and private insurance plans. Governments may regulate access to, prices of or reimbursement levels for our products to control costs or to affect levels of use of our products, and private insurers may be influenced by government reimbursement methodologies.

Third-party payers carefully review and increasingly challenge the prices charged for drugs, examine their medical necessity, and review their cost effectiveness. Reimbursement rates from private companies vary depending on the third-party payer, the insurance plan and other factors. One payer's determination to provide coverage for a product does not assure that other payers will also provide coverage for the product. Moreover, the process for determining whether a third-party payer will provide coverage for a product may be separate from the process for setting the price of a product or for establishing the reimbursement rate that such a payer will pay for the product. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. A payer's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Adequate third-party reimbursement may not be available to enable us to maintain high enough price levels to realize sufficient revenues from our investment in product development. In addition, emphasis on managed care in the U.S. has increased and we expect will continue to increase the pressure on pharmaceutical pricing. Coverage policies and third-party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we or our collaborators receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Outside of the U.S. our products are paid for by a variety of payers, with governments being the primary source of payment. Reimbursement in the EU and many other territories must be negotiated on a country-by-country basis and in many countries the product cannot be commercially launched until reimbursement is approved. In many countries the government closely regulates drug pricing and reimbursement and often has a significant discretion in determining whether a product will be reimbursed at all and, if it is, how much will be paid. Negotiating prices with governmental authorities can delay patient access to and commercialization of our products. Payers in many countries use a variety of cost-containment measures that can include referencing prices in other countries and using those reference prices to set their own price, mandatory price cuts and rebates. This international patchwork of price regulation has led to different prices across countries and some cross-border trade in our products from markets with lower prices. Even after a price is negotiated, countries frequently request or require adjustments to the price and other concessions over time.

Government Programs for Marketed Drugs in the U.S.

Medicaid, the 340B Drug Pricing Program, and Medicare

Federal law requires that a pharmaceutical manufacturer, as a condition of having its products receive federal reimbursement under Medicaid and Medicare Part B, must pay rebates to state Medicaid programs for all units of its covered outpatient drugs dispensed to Medicaid beneficiaries and paid for by a state Medicaid program under either a fee-for-service arrangement or through a managed care organization. This federal

requirement is effectuated through a Medicaid drug rebate agreement between the manufacturer and the Secretary of Health and Human Services. CMS administers the Medicaid drug rebate agreements, which provide, among other things, that the drug manufacturer will pay rebates to each state Medicaid agency on a quarterly basis and report certain price information on a monthly and quarterly basis. The rebates are based on prices reported to CMS by manufacturers for their covered outpatient drugs. For non-innovator products, generally generic drugs marketed under ANDAs, the rebate amount is 13% of the average manufacturer price (AMP) for the quarter. The AMP is the weighted average of prices paid to the manufacturer (1) directly by retail community pharmacies and (2) by wholesalers for drugs distributed to retail community pharmacies. For innovator products (i.e., drugs that are marketed under NDAs or BLAs), the rebate amount is the greater of 23.1% of the AMP for the quarter or the difference between such AMP and the best price for that same quarter. The best price is essentially the lowest price available to non-governmental entities. Innovator products may also be subject to an additional rebate that is based on the amount, if any, by which the product's AMP for a given quarter exceeds the inflation-adjusted baseline AMP, which for most drugs is the AMP for the first full quarter after launch. Since 2017, non-innovator products are also subject to an additional rebate.

The statutory definition of AMP was amended in 2010. CMS released the final rule pertaining to AMP and other aspects of the Medicaid drug rebate program, which was effective as of April 1, 2016.

The terms of participation in the Medicaid drug rebate program impose an obligation to correct the prices reported in previous quarters, as may be necessary. Any such corrections could result in additional or lesser rebate liability, depending on the direction of the correction. In addition to retroactive rebates, if a manufacturer were found to have knowingly submitted false information to the government, federal law provides for civil monetary penalties for failing to provide required information, late submission of required information, and false information.

A manufacturer must also participate in a federal program known as the 340B drug pricing program in order for federal funds to be available to pay for the manufacturer's drugs under Medicaid and Medicare Part B. Under this program, the participating manufacturer agrees to charge certain safety net healthcare providers no more than an established discounted price for its covered outpatient drugs. The formula for determining the discounted price is defined by statute and is based on the AMP and the unit rebate amount as calculated under the Medicaid drug rebate program, discussed above. Manufacturers are required to report pricing information to the Health Resources and Services Administration (HRSA) on a quarterly basis effective first quarter 2019. HRSA has also issued regulations relating to the calculation of the ceiling price as well as imposition of civil monetary penalties for each instance of knowingly and intentionally overcharging a 340B covered entity.

Federal law also requires that manufacturers report data on a quarterly basis to CMS regarding the pricing of drugs that are separately reimbursable under Medicare Part B. These are generally drugs, such as injectable products, that are administered "incident to" a physician service and are not generally self-administered. The pricing information submitted by manufacturers is the basis for reimbursement to physicians and suppliers for drugs covered under Medicare Part B. As with the Medicaid drug rebate program, federal law provides for civil monetary penalties for failing to provide required information, late submission of required information, and false information.

Medicare Part D provides prescription drug benefits for seniors and people with disabilities. Medicare Part D beneficiaries have a gap in their coverage (between the initial coverage limit and the point at which catastrophic coverage begins) where Medicare does not cover their prescription drug costs, known as the coverage gap. However, by 2020 Medicare Part D beneficiaries will pay 25% of drug costs after they reach the initial coverage limit - the same percentage they were responsible for before they reached that limit - thereby closing the coverage gap. The cost of closing the coverage gap is being borne by innovator companies and the government through subsidies. Beginning in 2011, each manufacturer of drugs approved under NDAs or BLAs was required to enter into a Medicare Part D coverage gap discount agreement and provide a 50%, now 70% since January 1, 2019, discount on those drugs dispensed to Medicare beneficiaries in the coverage gap, in order for its drugs to be reimbursed by Medicare Part D.

Federal Contracting/Pricing Requirements

Manufacturers are also required to make their covered drugs, which are generally drugs approved under NDAs or BLAs, available to authorized users of the Federal Supply Schedule (FSS) of the General Services Administration. The law also requires manufacturers to offer deeply discounted FSS contract pricing for purchases of their covered drugs by the Department of Veterans Affairs, the Department of Defense, the Coast Guard, and the Public Health Service (including the Indian Health Service) in order for federal funding to be available for reimbursement or purchase of the manufacturer's drugs under certain federal programs. FSS pricing to those four federal agencies for covered drugs must be no more than the Federal Ceiling Price (FCP), which is at least 24% below the Non-Federal Average Manufacturer Price (Non-FAMP) for the prior year. The

Non-FAMP is the average price for covered drugs sold to wholesalers or other middlemen, net of any price reductions.

The accuracy of a manufacturer's reported Non-FAMPs, FCPs, or FSS contract prices may be audited by the government. Among the remedies available to the government for inaccuracies is recoupment of any overcharges to the four specified federal agencies based on those inaccuracies. If a manufacturer were found to have knowingly reported false prices, in addition to other penalties available to the government, the law provides for significant civil monetary penalties per incorrect item. Finally, manufacturers are required to disclose in FSS contract proposals all commercial pricing that is equal to or less than the proposed FSS pricing, and subsequent to award of an FSS contract, manufacturers are required to monitor certain commercial price reductions and extend commensurate price reductions to the government, under the terms of the FSS contract Price Reductions Clause. Among the remedies available to the government for any failure to properly disclose commercial pricing and/or to extend FSS contract price reductions is recoupment of any FSS overcharges that may result from such omissions.

Employees

As of February 13, 2019, we had 2,849 full-time employees, 1,280 of whom were in operations, 713 of whom were in research and development, 419 of whom were in sales and marketing and 437 of whom were in administration.

We consider our employee relations to be good. Our employees are not covered by a collective bargaining agreement. We have not experienced employment related work stoppages.

Other Information

We were incorporated in Delaware in October 1996. Our principal executive offices are located at 770 Lindaro Street, San Rafael, California 94901 and our telephone number is (415) 506-6700. Our annual reports on Form 10-K, quarterly reports on Form 10-Q, proxy statements, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (the Exchange Act) are available free of charge at www.bmrn.com as soon as reasonably practicable after electronically filing such reports with the Security and Exchange Commission (the SEC). Such reports and other information may be accessed through the SEC's website at www.sec.gov. Information contained in our website is not part of this or any other report that we file with or furnish to the SEC.

Item 1A. Risk Factors

An investment in our securities involves a high degree of risk. We operate in a dynamic and rapidly changing industry that involves numerous risks and uncertainties. The risks and uncertainties described below are not the only ones we face. Other risks and uncertainties, including those that we do not currently consider material, may impair our business. If any of the risks discussed below actually occur, our business, financial condition, operating results or cash flows could be materially adversely affected. This could cause the value of our securities to decline, and you may lose all or part of your investment.

Risks Related to Our Business

If we fail to obtain regulatory approval to commercially market and sell our product candidates, or if approval of our product candidates is delayed, we will be unable to generate revenue from the sale of these product candidates, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will increase.

We must obtain and maintain regulatory approval to market and sell our product candidates. For example, in the U.S., we must obtain Food and Drug Administration (FDA) approval for each product candidate that we intend to commercialize, and in Europe we must obtain approval from the European Medicines Agency (EMA). The FDA and EMA approval processes are typically lengthy and expensive, and approval is never certain. Accordingly, there are no assurances that we will obtain regulatory approval for any of our product candidates. Furthermore, there can be no assurance that approval of one of our product candidates by one regulatory agency will mean that other agencies will also approve the same product candidate. For example, although the FDA approved Palynziq, there can be no assurance that the EMA will also approve Palynziq. Similarly, regulatory authorities may approve a product candidate for fewer or more limited indications than requested or may grant approval subject to the performance of post-marketing studies. In addition, regulatory authorities may not approve the labeling claims that are necessary or desirable for the successful commercialization of our product candidates.

We have had fewer interactions with regulatory authorities outside the U.S. and the EU as compared to our interactions with the FDA and EMA. The approval procedures vary among countries and can involve additional clinical testing, and the time required to obtain approval may differ from that required to obtain FDA or EMA approval. Moreover, clinical trials conducted in one country may not be accepted by regulatory authorities in other countries. Approval by the FDA or EMA does not ensure approval by regulatory authorities in other countries, and approval by one or more foreign regulatory authorities does not ensure approval by regulatory authorities in other foreign countries or by the FDA or EMA. However, a failure or delay in obtaining regulatory approval in one country may have a negative effect on the regulatory process in others. The foreign regulatory approval process may include all of the risks associated with obtaining FDA or EMA approval. We may not obtain foreign regulatory approvals on a timely basis, if at all. We may not be able to file for regulatory approvals and even if we file we may not receive necessary approvals to commercialize our product candidates in any market.

Although the FDA and the EMA have programs to facilitate accelerated approval processes, the timelines agreed under legislative goals or mandated by regulations are subject to the possibility of substantial delays. In addition, the FDA, the EMA and other international regulatory authorities have substantial discretion over the approval process for pharmaceutical products. These regulatory agencies may not agree that we have demonstrated the requisite level of product safety and efficacy to grant approval and may require additional data. If we fail to obtain regulatory approval for our product candidates, we will be unable to market and sell those product candidates. Because of the risks and uncertainties in pharmaceutical development, our product candidates could take a significantly longer time to gain regulatory approval than we expect or may never gain approval. We also rely on independent third-party contract research organizations (CROs) to file some of our foreign marketing applications and important aspects of the services performed for us by the CROs are out of our direct control. If we fail to adequately manage our CROs, if the CRO elects to prioritize work on our projects below other projects or if there is any dispute or disruption in our relationship with our CROs, the filing of our applications may be delayed.

In addition, some of our product candidates are intended to be used in combination with a delivery device, such as an injector or other delivery system. Medical products containing a combination of new drugs, biological products or medical devices may be regulated as “combination products” in the U.S. A combination product generally is defined as a product consisting of components from two or more regulatory categories (e.g., drug/device, device/biologic, drug/biologic). Each component of a combination product is subject to the requirements established by the FDA for that type of component, whether a new drug, biologic or device. In order to facilitate pre-market review of combination products, the FDA designates one of its centers to have primary jurisdiction for the pre-market review and regulation of the overall product based upon a determination by the FDA of the primary mode of action of the combination product. The determination whether a product is a combination product or two separately regulated products is made by the FDA on a case-by-case basis. Our product candidates intended for use with such devices, or expanded indications that we may seek for our products used with such devices, may not be approved or may be substantially delayed in receiving approval if the devices do not gain and/or maintain their own regulatory approvals or clearances. Where approval of the drug or biologic product and device is sought under a single application, the increased complexity of the review process may delay approval. The FDA review process and criteria are not well-established areas, which could also lead to delays in the approval process. In addition, because these delivery devices are provided by unaffiliated third-party companies, we are dependent on the sustained cooperation and effort of those third-party companies both to obtain regulatory approval and to maintain their own regulatory compliance. Failure of third-party companies to assist in the approval process or to maintain their own regulatory compliance could delay or prevent approval of our product candidates, or limit our ability to sell a product once it is approved.

From time to time during the regulatory approval process for our products and product candidates, we engage in discussions with the FDA and comparable international regulatory authorities regarding our development programs, including discussions about the regulatory requirements for approval. As part of these discussions, we sometimes seek advice in the design of our clinical programs from various regulatory agencies globally, but we do not always follow such guidance. This increases the chance of adverse regulatory actions, but we try to always provide appropriate scientific evidence to support approval. For example, although we designed our Phase 3 study of vosoritide in a manner that we believe can demonstrate efficacy and safety of the product candidate for the target patient population, the FDA may ultimately disagree. Moreover, sometimes different regulatory agencies provide different or conflicting advice. While we attempt to harmonize the advice we receive from multiple regulatory authorities, it is not always practical to do so. Also, we may choose not to harmonize conflicting advice when harmonization would significantly delay clinical trial data or is otherwise inappropriate. If we are unable to effectively and efficiently resolve and comply with the inquiries and requests of the FDA and other non-U.S. regulatory authorities, the approval of our product candidates may be delayed and their value may be reduced.

Any product for which we have obtained regulatory approval, or for which we obtain approval in the future, is subject to, or will be subject to, extensive ongoing regulatory requirements by the FDA, the

EMA and other comparable international regulatory authorities, and if we fail to comply with regulatory requirements or if we experience unanticipated problems with our products, we may be subject to penalties, we will be unable to generate revenue from the sale of such products, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will be increased.

Aldurazyme, Brineura, Kuvan, Naglazyme and Vimizim have received regulatory approval to be commercially marketed and sold in the U.S., the EU and certain other countries, Palynziq has received regulatory approval to be commercially marketed in the U.S., and Firdapse has received regulatory approval to be commercially marketed in the EU. Any product for which we have obtained regulatory approval, or for which we obtain regulatory approval in the future, along with the manufacturing processes and practices, post-approval clinical research, product labeling, advertising and promotional activities for such product, are subject to continual requirements of, and review by, the FDA, the EMA and other comparable international regulatory authorities. These requirements include submissions of safety and other post-marketing information and reports, registration and listing requirements, current good manufacturing practices (cGMP) requirements relating to manufacturing, quality control, quality assurance and corresponding maintenance of records and documents, import and export requirements and recordkeeping.

An example of the ongoing regulatory requirements our products are subject to is the Palynziq Risk Evaluation and Mitigation Strategy (REMS) program. In the U.S., Palynziq is only available through the REMS program, which is required by the FDA to mitigate the risk of anaphylaxis while using the product. Notable requirements of our REMS program include the following:

- prescribers must be certified by enrolling in the REMS program and completing training;
- prescribers must prescribe auto-injectable epinephrine with Palynziq;
- pharmacies must be certified with the REMS program and must dispense Palynziq only to patients who are authorized to receive it;
- patients must enroll in the REMS program and be educated about the risk of anaphylaxis by a certified prescriber to ensure they understand the risks and benefits of treatment with Palynziq; and
- patients must have auto-injectable epinephrine available at all times while taking Palynziq.

Failure of prescribers, pharmacies or patients to enroll in our REMS program or to successfully complete and comply with its requirements may result in regulatory action from the FDA or decreased sales of Palynziq. The restrictions and requirements under our REMS program, as well as potential changes to these restrictions and requirements in the future, subject us to increased risks and uncertainties, any of which could harm our business. The requirement for a REMS program can materially affect the potential market for and profitability of a drug. We cannot predict whether the FDA will request, seek to require or ultimately require modifications to, or impose additional requirements on, the Palynziq REMS program, or whether the FDA will permit modifications to the Palynziq REMS program that we consider warranted. Any modifications required or rejected by the FDA could make it more difficult or expensive for us to distribute Palynziq in the U.S., impair the safety profile of Palynziq, disrupt continuity of care for Palynziq patients and/or negatively affect sales of Palynziq.

Moreover, promotional communications with respect to prescription drugs, including biologics, are subject to a variety of legal and regulatory restrictions and must be consistent with the information in the product's approved labeling. In particular, a product may not be promoted for uses that are not approved by the FDA as reflected in the product’s approved labeling. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off-label uses, and a company that is found to have improperly promoted off-label uses may be subject to significant civil, criminal and administrative penalties. Thus, we will not be able to promote any products we develop for indications or uses for which they are not approved.

In addition, the FDA often requires post-marketing testing and surveillance to monitor the effects of products. The FDA, the EMA and other comparable international regulatory agencies may condition approval of our product candidates on the completion of such post-marketing clinical studies. These post-marketing studies may suggest that a product causes undesirable side effects or may present a risk to the patient.

Discovery after approval of previously unknown problems with any of our products, manufacturers or manufacturing processes, or failure to comply with regulatory requirements, may result in actions such as:

- restrictions on our ability to conduct clinical trials, including full or partial clinical holds on ongoing or planned trials;
- restrictions on product manufacturing processes;
- restrictions on the marketing of a product;

- restrictions on product distribution;
- requirements to conduct post-marketing clinical trials;
- untitled or warning letters or other adverse publicity;
- withdrawal of the products from the market;
- refusal to approve pending applications or supplements to approved applications that we submit;
- recall of products;
- refusal to permit the import or export of our products;
- product seizure;
- fines, restitution or disgorgement of profits or revenue;
- injunctions; or
- imposition of civil or criminal penalties.

If such regulatory actions are taken, our value and our operating results will be adversely affected. Additionally, if the FDA, the EMA or any other comparable international regulatory agency withdraws its approval of a product, we will be unable to generate revenue from the sale of that product in the relevant jurisdiction, our potential for generating positive cash flow will be diminished and the capital necessary to fund our operations will be increased. Accordingly, we continue to expend significant time, money and effort in all areas of regulatory compliance, including manufacturing, production, product surveillance, post-marketing studies and quality control.

If we fail to obtain or maintain orphan drug exclusivity for some of our products, our competitors may obtain approval to sell the same drugs to treat the same conditions and our revenues will be reduced.

As part of our business strategy, we have developed and may in the future develop some drugs that may be eligible for FDA and EU orphan drug designation. Under the Orphan Drug Act, the FDA may designate a product as an orphan drug if it is intended to treat a rare disease or condition, defined as a patient population of fewer than 200,000 in the U.S. In the EU, orphan drug designation is available if a sponsor can establish: that the medicine is intended for the diagnosis, prevention or treatment of (1) a life-threatening or chronically debilitating condition affecting no more than five in 10,000 people in the EU, which is equivalent to around 250,000 people or fewer or (2) a life-threatening, seriously debilitating or serious and chronic condition in the EU and that without incentives it is unlikely that the marketing of the medicinal product in the EU would generate sufficient return to justify the necessary investment. For either of these conditions, the applicant must demonstrate that there exists no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the EU or, if such method exists, the medicinal product will be of significant benefit to those affected by that condition. The company that first obtains FDA approval for a designated orphan drug for a given rare disease receives marketing exclusivity for use of that drug for the stated condition for a period of seven years. Orphan drug exclusive marketing rights may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantity of the drug. In addition, the FDA may approve another drug during a period of orphan drug exclusivity if the second drug is found to be clinically superior to the first drug. In the EU, a ten-year period of market exclusivity (extendable to twelve years for medicines that have complied with an agreed pediatric investigation plan pursuant to Regulation 1901/2006) is available. Orphan drug marketing exclusivity may be lost in the EU if a manufacturer is unable to supply sufficient quantities and marketing authorization may also be granted to a similar medicinal product with the same orphan indication if this medicinal product is safer, more effective or otherwise clinically superior to the original orphan medicinal product. The period of market exclusivity may, in addition, be reduced to six years if, at the end of the fifth year, it can be demonstrated on the basis of available evidence that the criteria for its designation as an orphan medicine are no longer satisfied, for example if the original orphan medicinal product has become sufficiently profitable not to justify maintenance of market exclusivity. Because the extent and scope of patent protection for some of our products is limited, orphan drug designation is especially important for our products that are eligible for orphan drug designation. For eligible products, we plan to rely on the exclusivity period under the Orphan Drug Act to maintain a competitive position. If we do not obtain orphan drug exclusivity for our products that do not have broad patent protection, our competitors may then sell the same drug to treat the same condition and our revenues will be reduced.

Even though we have obtained orphan drug designation for certain of our product candidates and even if we obtain orphan drug designation for our future product candidates, due to the uncertainties associated with

developing biopharmaceutical products, we may not be the first to obtain marketing approval for any particular orphan indication, which means that we may not obtain orphan drug exclusivity and could also potentially be blocked from approval of certain product candidates until the competitor product's orphan drug exclusivity period expires. Moreover, with respect to biologics and gene therapy, it is uncertain how similarity between product candidates designed to treat the same rare disease or condition may affect such product candidates' orphan drug exclusivities. Further, even if we obtain orphan drug exclusivity for a product, that exclusivity may not effectively protect the product from competition because different drugs can be approved for the same condition and the same drug can be approved for different conditions and potentially used off-label in the orphan indication. Even after an orphan drug is approved and granted orphan drug exclusivity, the FDA can subsequently approve the same drug for the same condition if the FDA concludes that the later drug is safer or more effective or makes a major contribution to patient care. Orphan drug designation neither shortens the development time or regulatory review time of a drug, nor gives the drug any advantage in the regulatory review or approval process.

We may face competition from biosimilars approved through an abbreviated regulatory pathway.

Our Aldurazyme, Brineura, Naglazyme, Palynziq and Vimizim products are regulated by the FDA as biologics under the Federal Food, Drug, and Cosmetic Act (the FDC Act) and the Public Health Service Act (the PHS Act). Biologics require the submission of a BLA and approval by the FDA prior to being marketed in the U.S. The Biologics Price Competition and Innovation Act of 2009 (BPCIA) created a regulatory pathway under the PHS Act for the abbreviated approval of biological products that are demonstrated to be "biosimilar" or "interchangeable" with an FDA-approved biological product. A similar abridged marketing authorization process is available to biosimilar products in the EU. In order to meet the standard of interchangeability, a sponsor must demonstrate that the biosimilar product can be expected to produce the same clinical result as the reference product, and for a product that is administered more than once, that the risk of switching between the reference product and biosimilar product is not greater than the risk of maintaining the patient on the reference product. The BPCIA establishes a period of 12 years of exclusivity for reference products. In Europe, a medicinal product containing a new active substance benefits from eight years of data exclusivity, during which biosimilar applications referring to the data of that product may not be accepted by the regulatory authorities, and a further two years of market exclusivity, during which such biosimilar products may not be placed on the market. The two-year period may be extended to three years if during the first eight years a new therapeutic indication with significant clinical benefit over existing therapies is approved. Our products approved under BLAs in the U.S. or MAAs in Europe, as well as products in development that may be approved under those regimes in the future, could be reference products for biosimilar marketing applications.

To obtain regulatory approval to market our products, preclinical studies and costly and lengthy clinical trials are required and the results of the studies and trials are highly uncertain.

As part of the drug development process we must conduct, at our own expense, preclinical studies in the laboratory, including studies in animals, and clinical trials on humans for each product candidate. The number of preclinical studies and clinical trials that regulatory authorities require varies depending on the product candidate, the disease or condition the drug is being developed to address and regulations applicable to the particular drug. Generally, new drugs for diseases or conditions that affect larger patient populations, are less severe, or are treatable by alternative strategies must be validated through additional preclinical and clinical trials and/or clinical trials with higher enrollments. With respect to our early stage product candidates, we may need to perform multiple preclinical studies using various doses and formulations before we can begin clinical trials, which could result in delays to our development timeline. Furthermore, even if we obtain favorable results in preclinical studies, the results in humans may be significantly different. After we have conducted preclinical studies, we must demonstrate that our product candidates are safe and efficacious for use in the targeted human patients in order to receive regulatory approval for commercial sale. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the clinical trial process. The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials, and favorable data from interim analyses do not ensure the final results of a trial will be favorable. Product candidates may fail to show the desired safety and efficacy traits despite having progressed through preclinical studies and initial clinical trials, or despite having favorable data in connection with an interim analysis. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of efficacy or adverse safety profiles, notwithstanding promising results in earlier trials. Also, as noted above, we do not always follow the advice of regulatory authorities or comply with all of their requests regarding the design of our clinical programs. In those cases, we may choose a development program that is inconsistent with the advice of regulatory authorities, which may limit the jurisdictions where we conduct clinical trials and/or adversely affect our ability to obtain approval in those jurisdictions where we do not follow the regulatory advice.

Adverse or inconclusive clinical results could stop us from obtaining regulatory approval of our product candidates. Additional factors that can cause delay or termination of our clinical trials include:

- slow or insufficient patient enrollment;
- slow recruitment of, and completion of necessary institutional approvals at, clinical sites;
- budgetary constraints or prohibitively high clinical trial costs;
- longer treatment time required to demonstrate efficacy;
- lack of sufficient supplies of the product candidate;
- adverse medical events or side effects in treated patients, including immune reactions;
- lack of effectiveness of the product candidate being tested;
- availability of competitive therapies to treat the same indication as our product candidates;
- regulatory requests for additional clinical trials or pre-clinical studies;
- deviations in standards for Good Clinical Practice (GCP); and
- disputes with or disruptions in our relationships with clinical trial partners, including CROs, clinical laboratories, clinical sites, and principal investigators.

Moreover, principal investigators for our clinical trials may serve as scientific advisors or consultants to us from time to time and receive compensation in connection with such services reportable to the FDA or other regulatory authority. If the FDA or other regulatory authority concludes that a financial relationship between us and a principal investigator has created a conflict of interest, the FDA or other regulatory authority may question the integrity of the data generated at the applicable clinical trial site and the utility of the clinical trial itself may be jeopardized.

Our valoctocogene roxaparvovec program is based on a gene therapy approach, which, as a novel technology, presents additional treatment, regulatory, manufacturing, and commercial risks in relation to our other, more traditional drug development programs.

In addition to the risks set forth in this Risk Factors section associated with developing and commercializing more traditional pharmaceutical drugs, there are additional, unique risks associated with gene therapy products like our product candidate valoctocogene roxaparvovec (formerly referred to as BMN 270). The goal of gene therapy is to be able to correct an inborn genetic defect through one-time administration of therapeutic genetic material containing non-defective gene copies. The gene copies are designed to reside permanently in a patient, allowing the patient to produce an essential protein or ribonucleic acid (RNA) molecule that a healthy person would normally produce. There is a risk, however, that the new gene copies will produce too little or too much of the desired protein or RNA. Although a one-time administration of a gene therapy product like our product candidate valoctocogene roxaparvovec is intended to correct an inborn genetic defect for the entire lifetime of a patient, there is a risk that the therapeutic effect will not be durable and production of the desired protein or RNA will decrease over time or cease entirely. Because the treatment is irreversible, there may be challenges in managing side effects, particularly those caused by potential overproduction of the desired protein. Adverse effects would not be able to be reversed or relieved by stopping dosing, and we may have to develop additional clinical safety procedures. Furthermore, because the new gene copies are designed to reside permanently in a patient, there is a risk that they will disrupt other normal biological molecules and processes, including other healthy genes, and we may not learn the nature and magnitude of these side effects until long after clinical trials have been completed.

We may experience development problems related to our gene therapy program that cause significant delays or unanticipated costs, or that cannot be solved. Although numerous companies are currently advancing gene therapy product candidates through clinical trials and the FDA has approved several cell-based gene therapy treatments to date, the FDA has only approved one vector-based gene therapy product thus far. Moreover, there are very few approved gene therapy products outside the U.S. As a result, it is difficult to determine how long it will take or how much it will cost to obtain regulatory approvals for our product candidate in any jurisdiction. Regulatory requirements governing gene and cell therapy products are still evolving and may continue to change in the future. Regulatory review agencies and the new requirements and guidelines they promulgate may lengthen the regulatory review process, require us to perform additional or larger studies, increase our development costs, lead to changes in regulatory positions and interpretations, delay or prevent approval and commercialization of our treatment candidate or lead to significant post-approval studies, limitations or restrictions. Delay or failure to obtain, or unexpected costs in obtaining, the regulatory approval necessary to bring valoctocogene roxaparvovec to market could have a negative effect on our business and financial

condition. Even if we do obtain regulatory approval, ethical, social and legal concerns about gene therapy arising in the future could result in additional regulations restricting or prohibiting sale of our product.

We may decide to submit a BLA for valoctocogene roxaparvovec through the FDA's accelerated approval pathway. If original FDA approval for valoctocogene roxaparvovec is obtained via the accelerated approval pathway, we may be required to conduct a post-marketing confirmatory trial to verify and describe the clinical benefit in support of full approval. An unsuccessful post-marketing study or failure to complete such a study could result in the withdrawal of the FDA's marketing approval for valoctocogene roxaparvovec, which could have a negative effect on our business and financial condition.

Even if we obtain and maintain regulatory approval for valoctocogene roxaparvovec, we may experience delays, and increased costs, in developing, optimizing and operating a sustainable, reproducible and large-scale manufacturing process. Gene therapy products are novel, complex and difficult to manufacture, and have only in limited cases been manufactured at scales sufficient for pivotal trials and commercialization. Few pharmaceutical contract manufacturers specialize in gene therapy products and those that do are still developing appropriate processes and facilities for large-scale production. We invested a considerable amount of capital building our own commercial gene therapy manufacturing facility, which may be subject to significant impairment if our gene therapy programs are unsuccessful. As we develop, seek to optimize and operate the valoctocogene roxaparvovec manufacturing process, we will likely face technical and scientific challenges, considerable capital costs, and potential difficulty in recruiting and hiring experienced, qualified personnel. There may also be unexpected technical or operational issues during clinical or commercial manufacturing campaigns. As a result, we could experience manufacturing delays that prevent us from completing our clinical studies or commercializing valoctocogene roxaparvovec in a timely, or on a profitable, basis, if at all.

Due to the relative novelty of gene therapy and the potential to provide extended duration therapeutic treatment with a one-time administration, we also face uncertainty with respect to the pricing, coverage and reimbursement of valoctocogene roxaparvovec, if approved. In order to recover our research and development costs and commercialize this one-time treatment on a profitable basis, we expect the cost of a single administration of valoctocogene roxaparvovec to be substantial. Therefore, we expect that coverage and reimbursement by governments and other third-party payers will be essential for the vast majority of patients to be able to afford valoctocogene roxaparvovec. Accordingly, sales of valoctocogene roxaparvovec, if approved, will depend substantially, both domestically and internationally, on the extent to which its cost will be paid by third-party payers. Even if coverage is provided, the reimbursement amounts approved by third-party payers may not be high enough to allow us to realize sufficient revenues from our investment in the development of valoctocogene roxaparvovec.

We also face uncertainty as to whether gene therapy will gain the acceptance of the public or the medical community. Even if we obtain regulatory approval for valoctocogene roxaparvovec, the commercial success of valoctocogene roxaparvovec will depend, in part, on the acceptance of physicians, patients and third-party payers of gene therapy products in general, and our product candidate in particular, as medically necessary, cost-effective and safe. In particular, our success will depend upon physicians prescribing our product candidate in lieu of existing treatments they are already familiar with and for which greater clinical data may be available. Even if valoctocogene roxaparvovec displays a favorable efficacy and safety profile in clinical trials and is ultimately approved, market acceptance of valoctocogene roxaparvovec will not be fully known until after it is launched. Negative public opinion or more restrictive government regulations could have a negative effect on our business and financial condition and may delay or impair the development and commercialization of, and demand for, valoctocogene roxaparvovec.

If we continue to incur operating losses and experience net cash outflows for a period longer than anticipated, we may be unable to continue our operations at planned levels and be forced to reduce our operations.

Since we began operations in March 1997, we have been engaged in substantial research and development and capital investments, and we have operated at a net loss for each year since our inception, with the exception of 2008 and 2010. Our future profitability and cash flows depend on our marketing and selling of our products, the receipt of regulatory approval of our product candidates, our ability to successfully manufacture and market any products, either by ourselves or jointly with others, our spending on our development programs, the impact of any possible future business development transactions and other risks set forth in this Risk Factors section. The extent of our future losses and the timing of profitability and positive cash flows are highly uncertain. If we fail to become profitable and cash flow positive or are unable to sustain profitability and positive cash flows on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce our operations.

If we fail to obtain the capital necessary to fund our operations, our financial results and financial condition will be adversely affected and we will have to delay or terminate some or all of our product development programs.

As of December 31, 2018, we had cash, cash equivalents and investments totaling $1.3 billion and long-term debt obligations of $870.0 million (undiscounted), which consisted of our 1.50% senior subordinated convertible notes due in 2020 (the 2020 Notes) and our 0.599% senior subordinated convertible notes due in 2024 (the 2024 Notes and, together with the 2020 Notes, the Notes), which, if not converted, will be required to be repaid in cash at maturity in 2020 and 2024, respectively. We will need cash not only to pay the ongoing interest due on the Notes during their term, but also to repay the principal amount of the Notes if not converted.

In January 2016 we terminated our License and Commercialization Agreement with Ares Trading, S.A. (Merck Serono). Pursuant to the Termination and Transition Agreement related to Kuvan and the Termination Agreement related to Palynziq, we are obligated to make certain payments to Merck Serono if sales and development milestones are achieved. The remaining milestone payments that may become payable include up to a maximum of €60 million, in cash, if future sales milestones are met with respect to Kuvan and Palynziq, and up to a maximum of €75 million, in cash, if future development milestones are met with respect to Palynziq.

We may require additional financing to fund the repayment of our Notes, future milestone payments and our future operations, including the commercialization of our products and product candidates currently under development, preclinical studies and clinical trials, and potential licenses and acquisitions. We may be unable to raise additional financing due to a variety of factors, including our financial condition, the status of our product programs, and the general condition of the financial markets. If we fail to raise any necessary additional financing we may have to delay or terminate some or all of our product development programs and our financial condition and operating results will be adversely affected.

We expect to continue to spend substantial amounts of capital for our operations for the foreseeable future. The amount of capital we will need depends on many factors, including:

- our ability to successfully market and sell our products;
- the time and cost necessary to develop commercial manufacturing processes, including quality systems, and to build or acquire manufacturing capabilities;
- the progress and success of our preclinical studies and clinical trials (including studies and the manufacture of materials);
- the timing, number, size and scope of our preclinical studies and clinical trials;
- the time and cost necessary to obtain regulatory approvals and the costs of post-marketing studies which may be required by regulatory authorities;
- the progress of research programs carried out by us;
- our possible achievement of development and commercial milestones under agreements with third parties, such as the termination agreements with Merck Serono related to Kuvan and Palynziq milestones;
- any changes made to, or new developments in, our existing collaborative, licensing and other commercial relationships or any new collaborative, licensing and other commercial relationships that we may establish;
- Genzyme Corporation’s (Genzyme) ability to continue to successfully commercialize Aldurazyme; and
- whether our convertible debt is converted to common stock in the future.

Moreover, our fixed expenses such as rent, license payments, interest expense and other contractual commitments are substantial and may increase in the future. These fixed expenses may increase because we may enter into:

- additional licenses and collaborative agreements;
- additional contracts for product manufacturing; and
- additional financing facilities or arrangements.

We will need to raise additional funds from equity or debt securities, loans or collaborative agreements if we are unable to satisfy our liquidity requirements. The sale of additional securities will result in additional dilution

to our stockholders. Furthermore, additional financing may not be available in amounts or on terms satisfactory to us or at all. This could result in the delay, reduction or termination of our research, which could harm our business.

We have incurred substantial indebtedness that may decrease our business flexibility, access to capital, and/or increase our borrowing costs, which may adversely affect our operations and financial results.

As of December 31, 2018, we had $870.0 million (undiscounted) principal amount of indebtedness, including $375.0 million (undiscounted) principal amount of indebtedness under the 2020 Notes and $495.0 million (undiscounted) principal amount of indebtedness under the 2024 Notes. In October 2018, we also entered into an unsecured credit agreement (the 2018 Credit Facility) with Bank of America, N.A., as the administrative agent, swingline lender and a lender, Citibank N.A. as letter of credit issuer and each of Merrill Lynch, Pierce, Fenner & Smith Incorporated, Citibank, N.A. and Wells Fargo Securities, LLC as joint lead arrangers and joint bookrunners, providing up to $200.0 million in revolving loan commitments and terminated the credit facility that we entered into in November 2016, which had provided for up to $100.0 million in revolving loans (the 2016 Credit Facility). The 2018 Credit Facility replaced the 2016 Credit Facility. Our 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 future working capital, capital expenditures, acquisitions 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;
- 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.

In addition, the 2018 Credit Facility contains, and any future indebtedness that we may incur may contain, financial and other restrictive covenants that limit our ability to operate our business, raise capital or make payments under our other indebtedness. If we fail to comply with these covenants or to make payments under our indebtedness when due, then we would be in default under that indebtedness, which could, in turn, result in that and our other indebtedness becoming immediately payable in full. If we default under the 2018 Credit Facility, the outstanding borrowings thereunder could become immediately due and payable, the 2018 Credit Facility lenders could refuse to permit additional borrowings under the facility, or it could lead to defaults under agreements governing our current or future indebtedness, including the indentures governing our Notes. If we default under any of the Notes, such Notes could become immediately due and payable and it could lead to defaults under the other Notes and/or the 2018 Credit Facility.

In addition, our ability to refinance our indebtedness will depend on the capital markets and our financial condition at such time.

Our outstanding indebtedness consists primarily of the 2020 Notes and 2024 Notes, which, if not converted, will be required to be repaid in cash at maturity in 2020 and 2024, respectively. In addition, in the event the conditional conversion feature of the 2020 Notes is triggered, holders of the 2020 Notes will be entitled to convert the 2020 Notes at any time during specified periods at their option, and the 2020 Notes will be freely convertible on or after July 15, 2020. We may elect to settle conversions of the 2020 Notes in cash, in whole or in part, which could further affect our liquidity. While we could seek to obtain additional third-party financing to pay for any amounts due in cash upon such events, we cannot be sure that such third-party financing will be available on commercially reasonable terms, if at all.

We could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of the 2020 Notes as a current rather than long-term liability (for example, if there are 12 months or less remaining until maturity), which would result in a material reduction of our net working capital. While we could seek to obtain third-party financing to pay for any amounts due in cash upon such events, we cannot be sure that such third-party financing will be available on commercially reasonable terms, if at all. Furthermore, if we are required to share settle any conversions of Notes, due to lack of requisite liquidity or otherwise, we may cease to be eligible to account for the Notes using the treasury stock method, which may adversely impact our diluted earnings per share. In addition, we also may borrow up to $200.0 million in revolving loans under the 2018 Credit Facility, which would be required to be repaid in cash at maturity on October 19, 2021, except that if at least $100.0 million aggregate principal amount of the 2020 Notes remains outstanding on August 1, 2020 and certain

other conditions have not been met, we may be required to repay all amounts borrowed under the 2018 Credit Facility on August 1, 2020.

If we fail to comply with manufacturing regulations, our financial results and financial condition will be adversely affected.

Before we can begin commercial manufacture of our products, regulatory authorities must approve marketing applications that identify manufacturing facilities operated by us or our contract manufacturers that have passed regulatory inspection and manufacturing processes that are acceptable to the regulatory authorities. In addition, our pharmaceutical manufacturing facilities are continuously subject to scheduled and unannounced inspection by the FDA and international regulatory authorities, before and after product approval, to monitor and ensure compliance with cGMP and other regulations. Our manufacturing facility in the U.S. has been approved by the FDA for the manufacture of Palynziq, and it has been approved by the FDA, the European Commission (EC), and health agencies in other countries for the manufacture of Aldurazyme, Brineura, Naglazyme and Vimizim. Our manufacturing facility in Shanbally, Cork, Ireland has been approved by the FDA, the EC, and health agencies in other countries for the manufacture of Vimizim, and it has been approved by the FDA and the EMA as a formulated bulk drug substance manufacturing and quality control facility for Brineura. In addition, our third-party manufacturers' facilities involved with the manufacture of our products have also been inspected and approved by various regulatory authorities. Although we are not involved in the day-to-day operations of our contract manufacturers, we are ultimately responsible for ensuring that our products are manufactured in accordance with cGMP regulations.

Due to the complexity of the processes used to manufacture our products and product candidates, we may be unable to continue to pass or initially pass federal or international regulatory inspections in a cost-effective manner. For the same reason, any potential third-party manufacturer of our products or our product candidates may be unable to comply with cGMP regulations in a cost-effective manner and may be unable to initially or continue to pass a federal or international regulatory inspection.

If we, or third-party manufacturers with whom we contract, are unable to comply with manufacturing regulations, we may be subject to delay of approval of our product candidates, warning or untitled letters, fines, unanticipated compliance expenses, recall or seizure of our products, total or partial suspension of production and/or enforcement actions, including injunctions, and criminal or civil prosecution. These possible sanctions would adversely affect our financial results and financial condition.

If we are unable to successfully develop and maintain manufacturing processes for our products to produce sufficient quantities at acceptable costs, we may be unable to meet demand for our products and lose potential revenue, have reduced margins or be forced to terminate a program.

Due to the complexity of manufacturing our products, we may not be able to manufacture products successfully with a commercially viable process or at a scale large enough to support their respective commercial markets or at acceptable margins.

The development of commercially viable manufacturing processes typically is very difficult to achieve and is often very expensive and may require extended periods of time. Changes in manufacturing processes (including manufacturing cell lines), equipment or facilities (including moving manufacturing from one of our facilities to another one of our facilities or a third-party facility, or from a third-party facility to one of our facilities) may require us to complete clinical trials to receive regulatory approval of any manufacturing modifications.

Also, we may be required to demonstrate product comparability between a biological product made after a manufacturing change and the product made before implementation of the change through additional types of analytical and functional testing or may have to complete additional clinical studies. If we contract for manufacturing services with an unproven process, our contractor is subject to the same uncertainties, high standards and regulatory controls, and may therefore experience difficulty if further process development is necessary.

Even a developed manufacturing process can encounter difficulties. Problems may arise during manufacturing for a variety of reasons, including human error, mechanical breakdowns, problems with raw materials and cell banks, malfunctions of internal information technology systems, and other events that cannot always be prevented or anticipated. Many of the processes include biological systems, which add significant complexity, as compared to chemical synthesis. We expect that, from time to time, consistent with biotechnology industry expectations, certain production lots will fail to produce product that meets our quality control release acceptance criteria. To date, our historical failure rates for all of our product programs, including Aldurazyme, Brineura, Naglazyme, Palynziq and Vimizim, have been within our expectations, which are based on industry norms. If the failure rate increased substantially, we could experience increased costs, lost revenue, damage to customer relations, time and expense investigating the cause and, depending upon the cause, similar losses with

respect to other lots or products. If problems are not discovered before the product is released to the market, recall and product liability costs may also be incurred.

In order to produce product within our time and cost parameters, we must continue to produce product within our expected success rate and yield expectations. Because of the complexity of our manufacturing processes, it may be difficult or impossible for us to determine the cause of any particular lot failure and we must effectively take corrective action in response to any failure in a timely manner.

We have entered into contractual relationships with third-party manufacturers to produce active ingredients in Firdapse, Kuvan and Palynziq. If those manufacturers are unwilling or unable to fulfill their contractual obligations, we may be unable to meet demand for Firdapse, Kuvan and Palynziq, or sell these products at all, we may lose potential revenue, and we may be forced to terminate a program. We have contracts for the production of final product for Firdapse, Kuvan and Palynziq. We also currently rely on third parties for portions of the manufacture of Aldurazyme, Brineura, Naglazyme, Palynziq and Vimizim. If those manufacturers are unwilling or unable to fulfill their contractual obligations or satisfy demand outside of or in excess of the contractual obligations, we may be unable to meet demand for these products or sell these products at all and we may lose potential revenue. Further, the availability of suitable contract manufacturing capacity at scheduled or optimum times is not certain.

In addition, our manufacturing processes subject us to a variety of federal, state and local laws and regulations governing the use, generation, manufacture, storage, handling and disposal of hazardous materials and wastes resulting from their use. We incur significant costs in complying with these laws and regulations.

Supply interruptions may disrupt our inventory levels and the availability of our products and product candidates and cause delays in obtaining regulatory approval for our product candidates, or harm our business by reducing our revenues.

We depend on single-source suppliers for critical raw materials and a limited number of manufacturing facilities to manufacture our finished products and product candidates. Numerous factors could cause interruptions in the supply or manufacture of our products and product candidates, including:

- timing, scheduling and prioritization of production by our contract manufacturers or a breach of our agreements by our contract manufacturers;
- labor interruptions;
- changes in our sources for manufacturing;
- the timing and delivery of shipments;
- our failure to locate and obtain replacement suppliers and manufacturers as needed on a timely basis; and
- conditions affecting the cost and availability of raw materials.

If one of our suppliers or manufacturers fails or refuses to supply us with necessary raw materials or finished products or product candidates on a timely basis or at all, it would take a significant amount of time and expense to qualify a new supplier or manufacturer. We may not be able to obtain active ingredients or finished products from new suppliers or manufacturers on acceptable terms and at reasonable prices, or at all.

Any interruption in the supply of finished products could hinder our ability to distribute finished products to meet commercial demand and adversely affect our financial results and financial condition.

With respect to our product candidates, production of product is necessary to perform clinical trials and successful registration batches are necessary to file for approval to commercially market and sell product candidates. Delays in obtaining clinical material or registration batches could adversely impact our clinical trials and delay regulatory approval for our product candidates.

Because the target patient populations for our products are small, we must achieve significant market share and maintain high per-patient prices for our products to achieve profitability.

All of our products target diseases with small patient populations. As a result, our per-patient prices must be relatively high in order to recover our development and manufacturing costs and achieve profitability. For Brineura, Naglazyme and Vimizim in particular, we must market worldwide to achieve significant market penetration of the product. In addition, because the number of potential patients in each disease population is small, it is not only important to find patients who begin therapy to achieve significant market penetration of the product, but we also need to be able to maintain these patients on therapy for an extended period of time. Due to

the expected costs of treatment for our products, we may be unable to maintain or obtain sufficient market share at a price high enough to justify our product development efforts and manufacturing expenses.

If we fail to obtain an adequate level of coverage and reimbursement for our products by third-party payers, the sales of our products would be adversely affected or there may be no commercially viable markets for our products.

The course of treatment for patients using our products is expensive. We expect patients to need treatment for extended periods, and for some products throughout the lifetimes of the patients. We expect that most families of patients will not be capable of paying for this treatment themselves. There will be no commercially viable market for our products without coverage and reimbursement from third-party payers. Additionally, even if there is a commercially viable market, if the level of reimbursement is below our expectations, our revenue and gross margins will be adversely affected.

Third-party payers, such as government or private healthcare insurers, carefully review and increasingly challenge the prices charged for drugs. Reimbursement rates from private companies vary depending on the third-party payer, the insurance plan and other factors. Obtaining coverage and adequate reimbursement for our products may be particularly difficult because of the higher prices often associated with drugs administered under the supervision of a physician. Reimbursement systems in international markets vary significantly by country and by region, and reimbursement approvals must be obtained on a country-by-country basis.

Government authorities and other third-party payers are developing increasingly sophisticated methods of controlling healthcare costs, such as by limiting coverage and the amount of reimbursement for particular medications. Increasingly, third-party payers are requiring that drug companies provide them with predetermined discounts from list prices as a condition of coverage, are using restrictive formularies and preferred drug lists to leverage greater discounts in competitive classes, and are challenging the prices charged for medical products. Further, no uniform policy requirement for coverage and reimbursement for drug products exists among third-party payers in the U.S. Therefore, coverage and reimbursement for drug products can differ significantly from payer to payer. As a result, the coverage determination process is often a time-consuming and costly process that will require us to provide scientific and clinical support for the use of our products to each payer separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance.

We cannot be sure that coverage and reimbursement will be available for any product that we commercialize or will continue to be available for any product that we have commercialized and, if reimbursement is available, what the level of reimbursement will be. Coverage and reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. If coverage and reimbursement are not available or reimbursement is available only to limited levels, we may not successfully commercialize any product candidate for which we obtain marketing approval or continue to market any product that has already been commercialized.

Reimbursement in the EU and many other territories must be negotiated on a country-by-country basis and in many countries the product cannot be commercially launched until reimbursement is approved. The timing to complete the negotiation process in each country is highly uncertain, and in some countries we expect that it will exceed 12 months. Even after a price is negotiated, countries frequently request or require reductions to the price and other concessions over time.

For our future products, we will not know what the reimbursement rates will be until we are ready to market the product and we actually negotiate the rates. If we are unable to obtain sufficiently high reimbursement rates for our products, they may not be commercially viable or our future revenues and gross margins may be adversely affected.

A significant portion of our international sales are made based on special access programs, and changes to these programs could adversely affect our product sales and revenue in these countries.

We make a significant portion of our international sales of Naglazyme and Vimizim through special access or “named patient” programs, which do not require full product approval, and we expect a significant portion of our international sales of Brineura will also be through such programs. The specifics of the programs vary from country to country. Generally, special approval must be obtained for each patient. The approval normally requires an application or a lawsuit accompanied by evidence of medical need. Generally, the approvals for each patient must be renewed from time to time.

These programs are not well defined in some countries and are subject to changes in requirements and funding levels. Any change to these programs could adversely affect our ability to sell our products in those countries and delay sales. If the programs are not funded by the respective government, there could be insufficient funds to pay for all patients. Further, governments have and may continue to undertake unofficial

measures to limit purchases of our products, including initially denying coverage for purchasers, delaying orders and denying or taking excessively long to approve customs clearance. Any such actions could materially delay or reduce our revenues from such countries.

Without the special access programs, we would need to seek full product approval to commercially market and sell our products in certain jurisdictions. This can be an expensive and time-consuming process and may subject our products to additional price controls. Because the number of patients is so small in some countries, it may not be economically feasible to seek and maintain a full product approval, and therefore the sales in such country would be permanently reduced or eliminated. For all of these reasons, if the special access programs that we are currently using are eliminated or restricted, our revenues could be adversely affected.

If we fail to compete successfully with respect to product sales, we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product and our revenue could be adversely affected.

Our competitors may develop, manufacture and market products that are more effective or less expensive than ours. They may also obtain regulatory approvals for their products faster than we can obtain them (including those products with orphan drug designation, which may prevent us from marketing our product entirely) or commercialize their products before we do. If we do not compete successfully, our revenue would be adversely affected, and we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product.

Government price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our current and future products, which would adversely affect our revenue and results of operations.

We expect that coverage and reimbursement may be increasingly restricted in all the markets in which we sell our products. The escalating cost of healthcare has led to increased pressure on the healthcare industry to reduce costs. In particular, drug pricing by pharmaceutical companies has recently come under increased scrutiny and continues to be subject to intense political and public debate in the U.S. and abroad. Governmental and private third-party payers have proposed healthcare reforms and cost reductions. A number of federal and state proposals to control the cost of healthcare, including the cost of drug treatments, have been made in the U.S. Specifically, there have been several recent U.S. Congressional inquiries and proposed bills and enacted legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. Further, Congress and the executive branch have each indicated that they will continue to seek new legislative and/or administrative measures to control drug costs. In some international markets, the government controls the pricing, which can affect the profitability of drugs. Current government regulations and possible future legislation regarding healthcare may affect coverage and reimbursement for medical treatment by third-party payers, which may render our products not commercially viable or may adversely affect our future revenues and gross margins.

International operations are also generally subject to extensive price and market regulations, and there are many proposals for additional cost-containment measures, including proposals that would directly or indirectly impose additional price controls or mandatory price cuts or reduce the value of our intellectual property portfolio. As part of these cost containment measures, some countries have imposed and continue to propose revenue caps limiting the annual volume of sales of our products. Some of these caps are significantly below the actual demand in certain countries, and if the trend regarding revenue caps continues, our future revenues and gross margins may be adversely affected.

We cannot predict the extent to which our business may be affected by these or other potential future legislative or regulatory developments. However, future price controls or other changes in pricing regulation or negative publicity related to our product pricing or the pricing of pharmaceutical drugs generally could restrict the amount that we are able to charge for our current and future products or our sales volume, which would adversely affect our revenue and results of operations.

Government healthcare reform could increase our costs and adversely affect our revenue and results of operations.

Our industry is highly regulated and changes in law may adversely impact our business, operations or financial results. In the U.S., the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Reconciliation Act of 2010 (the PPACA) is a sweeping measure intended to, among other things, expand healthcare coverage within the U.S., primarily through the imposition of health insurance mandates on employers and individuals and expansion of the Medicaid program. Several provisions of the law have affected us and increased certain of our costs. Since its enactment, there have been judicial and Congressional challenges to certain aspects of the PPACA, as well as recent efforts by the U.S. Presidential administration to repeal or replace certain aspects of the PPACA, and we expect there will be additional

challenges and amendments to the PPACA in the future. Since January 2017, the U.S. President has signed two Executive Orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the PPACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the PPACA. While Congress has not passed legislation repealing the PPACA in its entirety, it has enacted laws that modify certain provisions of the PPACA such as removing penalties, starting January 1, 2019, for not complying with the PPACA's individual mandate to carry health insurance, delaying the implementation of certain ACA-mandated fees, and increasing the point-of-sale discount that is owed by pharmaceutical manufacturers who participate in Medicare Part D. Additionally, on December 14, 2018, a Texas U.S. District Court Judge ruled that the PPACA is unconstitutional in its entirety because the individual mandate was repealed by Congress as part of the Tax Cuts & Jobs Act. While the Texas U.S. District Court Judge, as well as the current U.S. Presidential administration and the Centers for Medicare and Medicaid Services (CMS), have stated that the ruling will have no immediate effect pending appeal of the decision, it is unclear how this decision, subsequent appeals, and other efforts to repeal and replace the PPACA will impact the PPACA and our business. In addition, other legislative changes have been adopted since the PPACA was enacted. Some of these changes have resulted in additional reductions in Medicare and other healthcare funding, which could have a material adverse effect on our customers and, accordingly, our financial operations.

We anticipate that the PPACA, as well as other healthcare reform measures that may be adopted in the future in the U.S. or abroad, may result in more rigorous coverage criteria and an additional downward pressure on the reimbursement our customers may receive for our products. Recently there has been heightened governmental scrutiny in countries worldwide over the manner in which manufacturers set prices for their marketed products.

In the U.S., there have been several recent Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, review the relationship between pricing and manufacturer patient programs, reduce the cost of drugs under Medicare, and reform government program reimbursement methodologies for drug products. Moreover, the U.S. Presidential administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. Although a number of these, and other potential, proposals will require authorization through additional legislation to become effective, Congress and the U.S. Presidential administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. Any reduction in reimbursement from Medicare and other government programs may result in a similar reduction in payments from private payers. In addition, individual states in the United States have also increasingly passed legislation and implemented regulations designed to control pharmaceutical product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures, and, in some cases, designed to encourage importation from other countries and bulk purchasing. Moreover, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs.

Likewise, in many EU countries, legislators and other policymakers continue to propose and implement healthcare cost-containing measures in response to the increased attention being paid to healthcare costs in the EU. Certain of these changes could impose limitations on the prices we will be able to charge for our products and any approved product candidates or the amounts of reimbursement available for these products from governmental and private third-party payers, may increase the tax obligations on pharmaceutical companies or may facilitate the introduction of generic competition with respect to our products. Further, an increasing number of EU countries 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. Moreover, in order to obtain reimbursement for our products in some countries, we may be required to conduct clinical trials that compare the cost-effectiveness of our products to other available therapies.

Legally mandated price controls on payment amounts by governmental and private third-party payers or other restrictions could harm our business, results of operations, financial condition and prospects. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our products.

For more information regarding government healthcare reform, see "Government Regulation - Health Reform" in Part I, Item 1 of this Annual Report on Form 10-K for the year ended December 31, 2018.

We face credit risks from government-owned or sponsored customers outside of the U.S. that may adversely affect our results of operations.

Our product sales to government-owned or supported customers in various countries outside of the U.S. are subject to significant payment delays due to government funding and reimbursement practices. This has resulted and may continue to result in an increase in days sales outstanding due to the average length of time that we have accounts receivable outstanding. If significant changes were to occur in the reimbursement practices of these governments or if government funding becomes unavailable, we may not be able to collect on amounts due to us from these customers and our results of operations would be adversely affected.

If we are found in violation of healthcare laws or privacy and data protection laws, we may be required to pay penalties, be subjected to scrutiny by regulators or governmental entities, or be suspended from participation in government healthcare programs, which may adversely affect our business, financial condition and results of operations.

We are subject to various healthcare laws and regulations in the U.S. and internationally, including anti-kickback laws, false claims laws, data privacy and security laws, and laws related to ensuring compliance. In the U.S., the federal Anti-Kickback Statute makes it illegal for any person or entity, including a pharmaceutical company, to knowingly and willfully offer, solicit, pay or receive any remuneration, directly or indirectly, in exchange for or to induce the referral of business, including the purchase, order or prescription of a particular drug, for which payment may be made under federal healthcare programs, such as Medicare and Medicaid. Under the federal Anti-Kickback Statute and related regulations, certain arrangements are deemed not to violate the federal Anti-Kickback Statute if they fit within a statutory exception or regulatory safe harbor. However, the exceptions and safe harbors are drawn narrowly, and practices that involve remuneration not intended to induce prescribing, purchases or recommendations may be subject to scrutiny if they do not qualify for an exception or safe harbor. Our practices may not in all cases meet all of the criteria for safe harbor protection from Anti-Kickback liability, although we seek to comply with these safe harbors. Many states have adopted laws similar to the federal Anti-Kickback Statute, some of which apply to referral of patients for healthcare services reimbursed by any source, not just governmental payers.

Federal and state false claims laws, including the civil False Claims Act, prohibit any person or entity from knowingly presenting, or causing to be presented, a false claim for payment to the federal government, or knowingly making, or causing to be made, a false statement to have a false claim paid, or knowingly making, using, or causing to be made or used, a false record or statement to avoid, decrease or conceal an obligation to pay money to the federal government. In addition, certain marketing practices, including off-label promotion, may also violate false claims laws. Under the Health Insurance Portability and Accountability Act of 1996 (HIPAA), we also are prohibited from knowingly and willfully executing a scheme to defraud any healthcare benefit program, including private payers, or knowingly and willfully falsifying, concealing or covering up a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services.

In addition, recent healthcare reform legislation has strengthened these laws in the U.S. For example, the PPACA, among other things, amends the intent requirement of the federal Anti-Kickback Statute and criminal healthcare fraud statutes. A person or entity no longer needs to have actual knowledge of these statutes or specific intent to violate them in order to commit a violation. Moreover, the PPACA provides that the government may assert that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the civil False Claims Act.

HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act and its implementing regulations, also imposes obligations, including mandatory contractual terms, on certain types of individuals and entities, with respect to safeguarding the privacy, integrity, availability, security and transmission of individually identifiable health information. Many state and foreign laws also govern the privacy and security of health information. They often differ from each other in significant ways and often are not preempted by HIPAA, thus complicating compliance efforts. The global data protection landscape is rapidly evolving, and implementation standards and enforcement practices are likely to remain uncertain for the foreseeable future. In the United States, California recently enacted the California Consumer Privacy Act (CCPA), which takes effect on January 1, 2020. The CCPA gives California residents expanded rights to access and delete their personal information, opt out of certain personal information sharing, and receive detailed information about how their personal information is used. The CCPA provides for civil penalties for violations, as well as a private right of action for data breaches that is expected to increase data breach litigation. The CCPA may increase our compliance costs and potential liability. Some observers have noted that the CCPA could mark the beginning of a trend toward more stringent privacy legislation in the U.S., which could increase our potential liability and adversely affect our business.

The European Regulation 2016/679, known as the General Data Protection Regulation (GDPR), as well as EU Member State implementing legislations, apply to the collection and processing of personal data, including health-related information, by companies located in the EU, or in certain circumstances, by companies located outside of the EU and processing personal information of individuals located in the EU. These laws impose strict obligations on the ability to process personal data, including health-related information, in particular in relation to their collection, use, disclosure and transfer. These include several requirements relating to (i) obtaining, in some situations, the consent of the individuals to whom the personal data relates, (ii) the information provided to the individuals about how their personal information is used, (iii) ensuring the security and confidentiality of the personal data, (iv) the obligation to notify regulatory authorities and affected individuals of personal data breaches, (v) extensive internal privacy governance obligations, and (vi) obligations to honor rights of individuals in relation to their personal data (for example, the right to access, correct and delete their data). The GDPR prohibits the transfer of personal data to countries outside of the European Economic Area (EEA), such as the United States, which are not considered by the European Commission to provide an adequate level of data protection. Switzerland has adopted similar restrictions. Although there are legal mechanisms to allow for the transfer of personal data from the EEA and Switzerland to the United States, they are subject to legal challenges and uncertainty about compliance with EU data protection laws remains.

Potential pecuniary fines for noncompliant companies may be up to the greater of €20 million or 4% of annual global revenue. The GDPR has increased our responsibility and liability in relation to personal data that we process, and we may be required to put in place additional potential mechanisms to ensure compliance with the new EU data protection rules.

Substantial new provisions affecting compliance have also been adopted in the U.S. and certain foreign countries, which may require us to modify our business practices with healthcare practitioners. For example, in the U.S., the PPACA, through the Physician Payments Sunshine Act, requires certain drug, biologicals and medical supply manufacturers to collect and report to CMS information on payments or transfers of value to physicians and teaching hospitals, as well as investment and ownership interests held by physicians and their immediate family members during the preceding calendar year. Effective January 1, 2022, manufacturers will also be required to report on payments or transfers of value to physician assistants, nurse practitioners or clinical nurse specialists, certified registered nurse anesthetists, and certified nurse-midwives. In addition, there has been a recent trend of increased state regulation of payments made to physicians. Certain states and/or local jurisdictions mandate implementation of compliance programs, compliance with the Office of Inspector General Compliance Program Guidance for Pharmaceutical Manufacturers and the Pharmaceutical Research and Manufacturers of America (PhRMA) Code on Interactions with Healthcare Professionals, the registration of pharmaceutical sales representatives and/or the tracking and reporting of gifts, compensation and other remuneration to physicians. Likewise, in many foreign countries there is an increasing focus on the relationship between drug companies and healthcare practitioners. Recently enacted legislation creates reporting obligations on payments, gifts and benefits made to these professionals; however, implementing regulations enacting such laws are still pending and subject to varying interpretations by courts and government agencies. The shifting regulatory environment and the need to implement systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the costs of maintaining compliance and the possibility that we may violate one or more of the requirements and be subject to fines or sanctions.

Due to the breadth of the healthcare and privacy and data protection laws described above, the narrowness of available statutory and regulatory exceptions and safe harbors and the increased focus by law enforcement agencies in enforcing such laws, our business activities could be subject to challenge under one or more of such laws. If we are found in violation of one of these laws, we may be subject to criminal, civil or administrative sanctions, including damages, fines, disgorgement, imprisonment, contractual damages, reputational harm, diminished profits and future earnings, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, curtailment of our operations, and debarment, suspension or exclusion from participation in government healthcare programs, any of which could adversely affect our business, financial condition and results of operations.

We conduct a significant amount of our sales and operations outside of the U.S., which subjects us to additional business risks that could adversely affect our revenue and results of operations.

A significant portion of the sales of Aldurazyme, Kuvan, Naglazyme and Vimizim, and all of the sales of Firdapse are generated from countries other than the U.S. Similarly, we expect a significant portion of the sales of Brineura to be generated from countries other than the U.S. We have operations in Canada and in several European, Middle Eastern, Asian, and Latin American countries. We expect that we will continue to expand our

international operations in the future. International operations inherently subject us to a number of risks and uncertainties, including:

- the increased complexity and costs inherent in managing international operations;
- diverse regulatory and compliance requirements, and changes in those requirements that could restrict our ability to manufacture, market and sell our products;
- political and economic instability;
- diminished protection of intellectual property in some countries outside of the U.S.;
- trade protection measures and import or export licensing requirements;
- difficulty in staffing and managing international operations;
- differing labor regulations and business practices;
- potentially negative consequences from changes in or interpretations of tax laws;
- changes in international medical reimbursement policies and programs;
- financial risks such as longer payment cycles, difficulty collecting accounts receivable, exposure to fluctuations in foreign currency exchange rates and potential currency controls imposed by foreign governments;
- regulatory and compliance risks that relate to maintaining accurate information and control over sales and distributors' and service providers' activities that may fall within the purview of the Foreign Corrupt Practices Act (the FCPA); and
- rapidly evolving global laws and regulations relating to data protection and the privacy and security of commercial and personal information.

Any of these factors may, individually or as a group, have a material adverse effect on our business and results of operations.

As we continue to expand our existing international operations, we may encounter new risks. For example, as we focus on building our international sales and distribution networks in new geographic regions, we must continue to develop relationships with qualified local distributors and trading companies. If we are not successful in developing and maintaining these relationships, we may not be able to grow sales in these geographic regions. These or other similar risks could adversely affect our revenue and profitability.

The United Kingdom's withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business, which could adversely affect our revenue and results of operations.

In June 2016, a majority of the eligible members of the electorate in the United Kingdom voted to withdraw from the EU in a national referendum (Brexit). The withdrawal of the United Kingdom from the EU will take effect either on the effective date of the withdrawal agreement or, in the absence of agreement, two years after the United Kingdom provides a notice of withdrawal pursuant to Article 50 of the European Union Treaty, unless the European Council, in agreement with the United Kingdom, unanimously decides to extend this period, or if the United Kingdom opts to remain in the EU. On March 29, 2017, the United Kingdom's Prime Minister formally delivered the notice of withdrawal. It appears likely that this withdrawal will continue to involve lengthy negotiations between the United Kingdom and European Union Member States to determine the future terms of the United Kingdom's relationship with the EU, and the wider EEA.

These developments, or the perception that any of them could occur, have had and may continue to have a significant adverse effect on global economic conditions and the stability of global financial markets, and could significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. In particular, it could also lead to a period of considerable uncertainty in relation to global financial and banking markets, as well as on regulatory processes in Europe and the EEA. As a result of this uncertainty, global financial markets could experience significant volatility, which could adversely affect the market price of our shares. Asset valuations, currency exchange rates and credit ratings may also be subject to increased market volatility. Lack of clarity about future United Kingdom laws and regulations as the United Kingdom determines which EU rules and regulations to replace or replicate in the event of a withdrawal, including financial laws and regulations, tax and free trade agreements, intellectual property rights, supply chain logistics, environmental, health and safety laws and regulations, immigration laws and employment laws, could decrease foreign direct investment in all markets, increase costs, depress economic activity and restrict access to capital.

If the United Kingdom and the EU are unable to negotiate acceptable withdrawal terms or if other EU countries pursue withdrawal, barrier-free access between the United Kingdom and other EU or EEA countries could be diminished or eliminated, which could make our doing business in the EU more difficult. As a result of Brexit, we may face disruptions in our supply chain, inventory management, manufacturing process and product distribution network, which could adversely affect our business and results of operations. Moreover, Brexit may also lead to new regulatory costs and challenges that could have a material adverse effect on our operations. The EMA has issued guidance to marketing authorization holders of centrally authorized medicinal products regarding certain requirements that need to be considered as part of Brexit, such as the requirement for the marketing authorization holder of a product centrally approved by the EC to be established in the EU, and the requirement for some activities relating to centrally approved products, such as batch release and pharmacovigilance, be performed in the EU. Furthermore, there are few indications of the effect Brexit will have on the pathway to obtaining marketing approval for any of our product candidates in the United Kingdom.

If we fail to comply with U.S. export control and economic sanctions, our business, financial condition and operating results may be adversely affected.

Our products are subject to U.S. export control laws and regulations, including the U.S. Export Administration Regulations and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Control (OFAC). Exports of our products and solutions must be made in compliance with these laws and regulations. Changes to these laws and regulations, or to the countries, governments, persons or activities targeted by such laws, could result in decreased use of our products, or in our decreased ability to export or sell our products to existing or potential customers, which would likely adversely affect our results of operations, financial condition or strategic objectives. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges, fines, which may be imposed on us and responsible employees or officers and, in extreme cases, the incarceration of responsible employees or officers.

We rely on a general license from OFAC to sell our medicines for eventual use by hospital and clinic end-users in Iran. The use of this OFAC general license requires us to observe strict conditions with respect to products sold, end-user limitations and payment requirements. Although we believe we have maintained compliance with the general license requirements, there can be no assurance that the general license will not be revoked, be renewed in the future or that we will remain in compliance. A violation of the OFAC general license could result in substantial fines, sanctions, civil or criminal penalties, competitive or reputational harm, litigation or regulatory action and other consequences that might adversely affect our results of operations, financial condition or strategic objectives.

Failure to comply with applicable anti-corruption legislation could result in fines, criminal penalties and materially adversely affect our business, financial condition and results of operations.

We are required to comply with anti-corruption and anti-bribery laws in the jurisdictions in which we operate, including the FCPA in the United States, the UK Bribery Act and other similar laws in other countries in which we do business. We operate in a number of countries that are recognized to have a reputation for corruption and pose an increased risk of corrupt practices. We also regularly interact with government regulators in many countries, including those that are considered higher risk for corruption, in order to secure regulatory approval to manufacture and distribute our products. The anti-corruption and anti-bribery laws to which we are subject generally prohibit companies and their intermediaries from making improper payments to foreign officials or other persons for the purposes of influencing official decisions or obtaining or retaining business and/or other benefits. These laws also require us to make and keep books and records that accurately and fairly reflect our transactions and to devise and maintain an adequate system of internal accounting controls. As part of our business, we deal with state-owned business enterprises, the employees and representatives of which may be considered foreign officials for purposes of applicable anti-corruption laws.

Although we have adopted policies and procedures designed to ensure that we, our employees and third-party agents will comply with such laws, there can be no assurance that such policies or procedures will work effectively at all times or protect us against liability under these or other laws for actions taken by our employees, partners and other third parties with respect to our business. If we are not in compliance with anti-corruption laws and other laws governing the conduct of business with government entities and/or officials (including local laws), we may be subject to criminal and civil penalties and other remedial measures, which could harm our business, financial condition, results of operations, cash flows and prospects. Investigations of any actual or alleged violations of such laws or policies related to us could harm our business, financial condition, results of operations, cash flows and prospects.

Moreover, 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. There has also been enhanced scrutiny by governments on reimbursement support offerings,

clinical education programs and promotional speaker programs. If we, our third-party agents or donation recipients are deemed to have failed to comply with laws, regulations or government guidance in any of these areas, we could be subject to criminal or civil sanctions. Any similar violations by our competitors could also negatively impact our industry reputation and increase scrutiny over our business and our products

Changes in funding for the FDA, the EMA and other government agencies or government shutdowns could hinder the ability of such agencies to hire and retain key leadership and other personnel or otherwise prevent those agencies from performing normal functions on which the operation of our business may rely, which could negatively impact our business.

Changes in funding levels of government agencies can affect their ability to hire and retain key personnel and carry out their normal functions that support our business. For example, the ability of the FDA to timely review and approve INDs or marketing authorizations for our product candidates may be hindered by a lack of resources and qualified personnel. In addition, funding of other government agencies on which our operations rely, including those that fund research and development activities, is subject to the political budget process, which is inherently fluid and unpredictable.

Government shutdowns could also impact the ability of government agencies to function normally and support our operations. For example, the U.S. federal government has shut down repeatedly since 1980, including for a period of 35 days beginning on December 22, 2018. During a shutdown, certain regulatory agencies, such as the FDA, have had to furlough key personnel and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Our international operations pose currency risks, which may adversely affect our operating results and net income.

A significant and growing portion of our revenues and earnings, as well as our substantial international net assets, are exposed to changes in foreign exchange rates. As we operate in multiple foreign currencies, including the Euro, the Brazilian Real, the United Kingdom Pound, the Canadian Dollar and several other currencies, changes in those currencies relative to the U.S. Dollar will impact our revenues and expenses. If the U.S. Dollar were to weaken against another currency, assuming all other variables remained constant, our revenues would increase, having a positive impact on earnings, and our overall expenses would increase, having a negative impact on earnings. Conversely, if the U.S. Dollar were to strengthen against another currency, assuming all other variables remained constant, our revenues would decrease, having a negative impact on earnings, and our overall expenses would decrease, having a positive impact on earnings. In addition, because our financial statements are reported in U.S. Dollars, changes in currency exchange rates between the U.S. Dollar and other currencies have had, and will continue to have, an impact on our results of operations. Therefore, significant changes in foreign exchange rates can impact our results and our financial guidance.

We implement currency hedges intended to reduce our exposure to changes in certain foreign currency exchange rates. However, our hedging strategies may not be successful, and any of our unhedged foreign exchange exposures will continue to be subject to market fluctuations. These risks could cause a material adverse effect on our business, financial position and results of operations and could cause the market value of our common stock to decline.

If we are unable to protect our intellectual property, we may not be able to compete effectively.

Where appropriate, we seek patent protection for certain aspects of our technology. Patent protection may not be available for some of the products we are developing. If we must spend significant time and money protecting or enforcing our patents, designing around patents held by others or licensing, potentially for large fees, patents or other proprietary rights held by others, our business and financial prospects may be harmed.

The patent positions of biopharmaceutical products are complex and uncertain. The scope and extent of patent protection for some of our products and product candidates are particularly uncertain because key information on some of our product candidates has existed in the public domain for many years. The composition and genetic sequences of animal and/or human versions of Aldurazyme, Naglazyme and many of our product candidates have been published and are believed to be in the public domain. The chemical structure of 6R-BH4 (the active ingredient in Kuvan) and 3,4-DAP (the active ingredient in Firdapse) have also been published. Publication of this information may prevent us from obtaining or enforcing patents relating to our products and product candidates, including without limitation composition-of-matter patents, which are generally believed to offer the strongest patent protection.

We own or have licensed patents and patent applications related to our products. However, these patents and patent applications do not ensure the protection of our intellectual property for a number of reasons, including without limitation the following:

- With respect to pending patent applications, unless and until actually issued, the protective value of these applications is impossible to determine. We do not know whether our patent applications will result in issued patents.
- Patents have limited duration and expire. For example, our patents related to Aldurazyme expire in November 2019 and in 2020.
- Competitors may interfere with our patent process in a variety of ways. Competitors may claim that they invented the claimed invention prior to us or that they filed their application for a patent on a claimed invention before we did. Competitors may also claim that we are infringing on their patents and therefore we cannot practice our technology. Competitors may also contest our patents by showing the patent examiner or a court that the invention was not original, was not novel or was obvious, for example. In litigation, a competitor could claim that our issued patents are not valid or are unenforceable for a number of reasons. If a court agrees, we would not be able to enforce that patent.
- Generic manufacturers may use litigation and regulatory means to obtain approval for generic versions of our products notwithstanding our filed patents or patent applications.
- Enforcing patents is expensive and may absorb significant time of our management. Management would spend less time and resources on developing products, which could increase our operating expenses and delay product programs.
- Receipt of a patent may not provide much, if any, practical protection. For example, if we receive a patent with a narrow scope, then it will be easier for competitors to design products that do not infringe on our patent.
- The Leahy-Smith America Invents Act of 2011, which reformed certain patent laws in the U.S., may create additional uncertainty. Among the significant changes are switching from a “first-to-invent” system to a “first-to-file” system, and the implementation of new procedures that permit competitors to challenge our patents in the U.S. Patent and Trademark Office after grant.

It is also unclear whether our trade secrets are adequately protected. Our current and former employees, consultants or contractors may unintentionally or willfully disclose trade secrets to competitors. Enforcing a claim that someone else illegally obtained and is using our trade secrets, as with patent litigation, is expensive and time consuming, requires significant resources and has an unpredictable outcome. In addition, courts outside of the U.S. are sometimes less willing to protect trade secrets. Furthermore, our competitors may independently develop equivalent knowledge, methods and know-how, in which case we would not be able to enforce our trade secret rights against such competitors.

Under policies recently adopted in the EU, clinical trial data submitted to the EMA in MAAs that were traditionally regarded as confidential commercial information are now subject to public disclosure. Subject to our ability to review and redact a narrow sub-set of confidential commercial information, the new EU policies will result in the EMA’s public disclosure of certain of our clinical study reports, clinical trial data summaries and clinical overviews for recently completed and future MAA submissions. The move toward public disclosure of development data could adversely affect our business in many ways, including, for example, resulting in the disclosure of our confidential methodologies for development of our products, preventing us from obtaining intellectual property right protection for innovations, requiring us to allocate significant resources to prevent other companies from violating our intellectual property rights, adding even more complexity to processing health data from clinical trials consistent with applicable data privacy regulations, and enabling competitors to use our data to gain approvals for their own products.

If we are unable to protect our intellectual property, third parties could develop competing products, which could adversely affect our revenue and financial results generally.

Competitors and other third parties may have developed intellectual property that could limit our ability to market and commercialize our products and product candidates, if approved.

Similar to us, competitors continually seek intellectual property protection for their technology. Several of our development programs, such as valoctocogene roxaparvovec, focus on therapeutic areas that have been the subject of extensive research and development by third parties for many years. Due to the amount of intellectual property in our field of technology, we cannot be certain that we do not infringe intellectual property rights of competitors or that we will not infringe intellectual property rights of competitors granted or created in the future.

For example, if a patent holder believes our product infringes its patent, the patent holder may sue us even if we have received patent protection for our technology. If someone else claims we infringe its intellectual property, we would face a number of issues, including the following:

- Defending a lawsuit takes significant executive resources and can be very expensive.
- If a court decides that our product infringes a competitor's intellectual property, we may have to pay substantial damages.
- With respect to patents, in addition to requiring us to pay substantial damages, a court may prohibit us from making, selling, offering to sell, importing or using our product unless the patent holder licenses the patent to us. The patent holder is not required to grant us a license. If a license is available, it may not be available on commercially reasonable terms. For example, we may have to pay substantial royalties or grant cross licenses to our patents and patent applications.
- We may need to redesign our product so it does not infringe the intellectual property rights of others.
- Redesigning our product so it does not infringe the intellectual property rights of competitors may not be possible or could require substantial funds and time.

We may also support and collaborate in research conducted by government organizations, hospitals, universities or other educational institutions. These research partners may be unwilling to grant us any exclusive rights to technology or products derived from these collaborations.

If we do not obtain required licenses or rights, we could encounter delays in our product development efforts while we attempt to design around other patents or may be prohibited from making, using, importing, offering to sell or selling products requiring these licenses or rights. There is also a risk that disputes may arise as to the rights to technology or products developed in collaboration with other parties. If we are not able to resolve such disputes and obtain the licenses or rights we need, we may not be able to develop or market our products.

If our Manufacturing, Marketing and Sales Agreement with Genzyme were terminated, we could be prevented from continuing to commercialize Aldurazyme or our ability to successfully commercialize Aldurazyme would be delayed or diminished.

Either party may terminate the Manufacturing, Marketing and Sales Agreement (the MMS Agreement) between Genzyme and us related to Aldurazyme for specified reasons, including if the other party is in material breach of the MMS Agreement, has experienced a change of control, as such term is defined in the MMS Agreement, or has declared bankruptcy and also is in breach of the MMS Agreement. Although we are not currently in breach of the MMS Agreement, there is a risk that either party could breach the MMS Agreement in the future. Either party may also terminate the MMS Agreement upon one-year prior written notice for any reason.

If the MMS Agreement is terminated for breach, the breaching party will transfer its interest in the BioMarin/Genzyme LLC to the non-breaching party, and the non-breaching party will pay a specified buyout amount for the breaching party's interest in Aldurazyme and in the BioMarin/Genzyme LLC. If we are the breaching party, we would lose our rights to Aldurazyme and the related intellectual property and regulatory approvals. If the MMS Agreement is terminated without cause, the non-terminating party would have the option, exercisable for one year, to buy out the terminating party's interest in Aldurazyme and in the BioMarin/Genzyme LLC at a specified buyout amount. If such option is not exercised, all rights to Aldurazyme will be sold and the BioMarin/Genzyme LLC will be dissolved. In the event of termination of the buyout option without exercise by the non-terminating party as described above, all right and title to Aldurazyme is to be sold to the highest bidder, with the proceeds to be split between Genzyme and us in accordance with our percentage interest in the BioMarin/Genzyme LLC.

If the MMS Agreement is terminated by either party because the other party declared bankruptcy, the terminating party would be obligated to buy out the other party and would obtain all rights to Aldurazyme exclusively. If the MMS Agreement is terminated by a party because the other party experienced a change of control, the terminating party shall notify the other party, the offeree, of its intent to buy out the offeree's interest in Aldurazyme and the BioMarin/Genzyme LLC for a stated amount set by the terminating party at its discretion. The offeree must then either accept this offer or agree to buy the terminating party's interest in Aldurazyme and the BioMarin/Genzyme LLC on those same terms. The party who buys out the other party would then have exclusive worldwide rights to Aldurazyme. The Amended and Restated Collaboration Agreement between us and Genzyme will automatically terminate upon the effective date of the termination of the MMS Agreement and may not be terminated independently from the MMS Agreement.

If we were obligated or given the option to buy out Genzyme's interest in Aldurazyme and the BioMarin/Genzyme LLC, and thereby gain exclusive rights to Aldurazyme, we may not have sufficient funds to do so and we may not be able to obtain the financing to do so. If we fail to buy out Genzyme's interest, we may be held in breach of the agreement and may lose any claim to the rights to Aldurazyme and the related intellectual property and regulatory approvals. We would then effectively be prohibited from developing and commercializing Aldurazyme. If this happened, not only would our product revenues decrease, but our share price would also decline.

If we fail to develop new products and product candidates or compete successfully with respect to acquisitions, joint ventures, licenses or other collaboration opportunities, our ability to continue to expand our product pipeline and our growth and development would be impaired.

Our future growth and development depend in part on our ability to successfully develop new products from our research and development activities. The development of biopharmaceutical products is very expensive and time intensive and involves a great degree of risk. The outcomes of research and development programs, especially for innovative biopharmaceuticals, are inherently uncertain and may not result in the commercialization of any products.

Our competitors compete with us to attract organizations for acquisitions, joint ventures, licensing arrangements or other collaborations. To date, several of our former and current product programs have been acquired through acquisitions and several of our former and current product programs have been developed through licensing or collaborative arrangements, such as Aldurazyme, Firdapse, Kuvan and Naglazyme. These collaborations include licensing proprietary technology from, and other relationships with, academic research institutions. Our future success will depend, in part, on our ability to identify additional opportunities and to successfully enter into partnering or acquisition agreements for those opportunities. If our competitors successfully enter into partnering arrangements or license agreements with academic research institutions, we will then be precluded from pursuing those specific opportunities. Because each of these opportunities is unique, we may not be able to find a substitute. Several pharmaceutical and biotechnology companies have already established themselves in the field of genetic diseases. These companies have already begun many drug development programs, some of which may target diseases that we are also targeting, and have already entered into partnering and licensing arrangements with academic research institutions, reducing the pool of available opportunities.

Universities and public and private research institutions also compete with us. While these organizations primarily have educational or basic research objectives, they may develop proprietary technology and acquire patents that we may need for the development of our product candidates. We will attempt to license this proprietary technology, if available. These licenses may not be available to us on acceptable terms, if at all. If we are unable to compete successfully with respect to acquisitions, joint venture and other collaboration opportunities, we may be limited in our ability to develop new products and to continue to expand our product pipeline.

If generic manufacturers are successful in their use of litigation or regulatory means to obtain approval for generic versions of Kuvan, our revenue and results of operations would be adversely affected.

The Drug Price Competition and Patent Term Restoration Act of 1984, known as the Hatch-Waxman Act, permits the FDA to approve abbreviated new drug applications (ANDAs) for generic versions of branded drugs. We refer to this process as the ANDA process. The ANDA process permits competitor companies to obtain marketing approval for a drug with the same active ingredient as a branded drug, but does not generally require the conduct and submission of clinical efficacy studies for the generic product. In place of such clinical studies, an ANDA applicant usually needs only to submit data demonstrating that its product is bioequivalent to the branded product.

Pursuant to the Hatch-Waxman Act, companies were permitted to file ANDA applications for proposed generic versions of Kuvan at any time after December 2011. We own several patents that cover Kuvan, and we have listed those patents in conjunction with that product in the FDA's Approved Drug Products with Therapeutic Equivalence Evaluations (the Orange Book). The Hatch-Waxman Act requires an ANDA applicant seeking FDA approval of its proposed generic product prior to the expiration of our Orange Book-listed patents to certify that the applicant believes that our patents are invalid or will not be infringed by the manufacture, use or sale of the drug for which the application has been submitted (a paragraph IV certification) and notify us of such certification (a paragraph IV notice). Upon receipt of a paragraph IV notice, the Hatch-Waxman Act allows us, with proper basis, to bring an action for patent infringement against the ANDA filer, asking that the proposed generic product not be approved until after our patents expire. If we commence a lawsuit within 45 days from receipt of the paragraph IV notice, the Hatch-Waxman Act provides a 30-month stay, during which time the FDA cannot finally approve the generic's application. If the litigation is resolved in favor of the ANDA applicant during the 30-month

stay period, the stay is lifted and the FDA may approve the ANDA if it is otherwise ready for approval. The discovery, trial and appeals process in such a lawsuit is costly, time consuming, and may result in generic competition if the ANDA applicant prevails.

We received separate paragraph IV notice letters in 2016, 2015 and 2014 from Dr. Reddy's Laboratories, Inc. and Dr. Reddy's Laboratories, Ltd. (collectively, DRL) and Par Pharmaceutical, Inc. (Par) notifying us that each of DRL and Par had filed ANDAs seeking approval of proposed generic versions of Kuvan (sapropterin dihydrochloride) 100 mg oral powder and Kuvan 100 mg oral tablets prior to the expiration of our Kuvan-related patents listed in the Orange Book. We filed lawsuits alleging patent infringement against DRL and Par, and in 2017, 2016 and 2015 we entered into separate settlement agreements with DRL (the DRL Settlement Agreement) and Par (the Par Settlement Agreement) that resolved the patent litigation in the U.S. Under the terms of the DRL Settlement Agreement, we granted DRL a non-exclusive license to our Kuvan-related patents to allow DRL to market a generic version of sapropterin dihydrochloride in 100 mg oral tablets and oral powder in 100 mg and 500 mg packet formulations in the U.S. for the indications approved for Kuvan beginning on October 1, 2020, or earlier under certain circumstances. Under the Par Settlement Agreement, we granted Par a non-exclusive license to our Kuvan-related patents to allow Par to market a generic version of sapropterin dihydrochloride in 100 mg oral tablets and oral powder in 100 mg and 500 mg packet formulations in the U.S. for the indications approved for Kuvan beginning on: April 1, 2021 if Par is not entitled to the statutory 180-day first filer exclusivity period; October 1, 2020 if Par is entitled to the statutory 180-day first filer exclusivity period; or earlier under certain circumstances.

We expect generic versions of Kuvan to first become available in the U.S. in the fourth quarter of 2020.The DRL Settlement Agreement and the Par Settlement Agreement, as well as any future ANDA or related legal proceeding, could have an adverse impact on our stock price, and litigation to enforce our patents has, and is likely to continue to, cost a substantial amount and require significant management attention. If the patents covering Kuvan and its use are not upheld in litigation, or if any ANDA filer we bring suit against is found to not infringe our asserted patents, the resulting generic competition following the expiration of regulatory exclusivity would have a material adverse effect on our revenue and results of operations. Moreover, generic competition from DRL and Par following the settlements described above could have a material adverse effect on our revenue and results of operations.

We also face potential generic competition for Kuvan in certain foreign countries, and there is a process equivalent to the ANDA process under Article 10 of Directive 2001/83/EC in the EU. Our ability to successfully market and sell Kuvan in many countries in which we operate is based upon patent rights or certain regulatory forms of exclusivity, or both. The scope of our patent rights and regulatory exclusivity for Kuvan vary from country to country and are dependent on the availability of meaningful legal remedies in each country. If our patent rights and regulatory exclusivity for Kuvan are successfully challenged, expire, or otherwise terminate in a particular country, the resulting generic competition could have a material adverse effect on our revenue and results of operations.

If we do not achieve our projected development goals in the timeframes we announce and expect, the commercialization of our product candidates may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.

For planning purposes, we estimate the timing of the accomplishment of various scientific, clinical, regulatory and other product development goals, which we sometimes refer to as milestones. These milestones may include the commencement or completion of scientific studies and clinical trials and the submission of regulatory filings. From time to time, we publicly announce the expected timing of some of these milestones. All of these milestones are based on a variety of assumptions. The actual timing of these milestones can vary dramatically compared to our estimates, in many cases for reasons beyond our control. If we do not meet these milestones as publicly announced, the commercialization of our products may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.

We depend upon our key personnel and our ability to attract and retain employees.

Our future growth and success will depend in large part on our continued ability to attract, retain, manage and motivate our employees. The loss of the services of any member of our senior management or the inability to hire or retain experienced management personnel could adversely affect our ability to execute our business plan and harm our operating results.

Because of the specialized scientific and managerial nature of our business, we rely heavily on our ability to attract and retain qualified scientific, technical and managerial personnel. In particular, the loss of one or more of our senior executive officers could be detrimental to us if we do not have an adequate succession plan or if we cannot recruit suitable replacements in a timely manner. While our senior executive officers are parties to employment agreements with us, these agreements do not guarantee that they will remain employed with us in

the future. In addition, in many cases, these agreements do not restrict our senior executive officers' ability to compete with us after their employment is terminated. The competition for qualified personnel in the pharmaceutical field is intense, and there is a limited pool of qualified potential employees to recruit. Due to this intense competition, we may be unable to continue to attract and retain qualified personnel necessary for the development of our business or to recruit suitable replacement personnel. If we are unsuccessful in our recruitment and retention efforts, our business may be harmed.

Our success depends on our ability to manage our growth.

Product candidates that we are currently developing or may license or acquire in the future may be intended for patient populations that are significantly larger than any of the patient populations we currently target. In order to continue development and marketing of these products, if approved, we will need to significantly expand our operations. To manage expansion effectively, we need to continue to develop and improve our research and development capabilities, manufacturing and quality capacities, sales and marketing capabilities, financial and administrative systems and standard processes for global operations. Our staff, financial resources, systems, procedures or controls may be inadequate to support our operations and may increase our exposure to regulatory and corruption risks and our management may be unable to manage successfully future market opportunities or our relationships with customers and other third parties.

Changes in methods of treatment of disease could reduce demand for our products and adversely affect revenues.

Even if our product candidates are approved, if doctors elect a course of treatment which does not include our products, this decision would reduce demand for our products and adversely affect revenues. For example, if gene therapy becomes widely used as a treatment of genetic diseases, the use of enzyme replacement therapy, such as Aldurazyme, Naglazyme, and Vimizim in MPS diseases, could be greatly reduced. Moreover, if we obtain regulatory approval for valoctocogene roxaparvovec, the commercial success of valoctocogene roxaparvovec will still depend, in part, on the acceptance of physicians, patients and healthcare payers of gene therapy products in general, and our product candidate in particular, as medically necessary, cost-effective and safe. Changes in treatment method can be caused by the introduction of other companies' products or the development of new technologies or surgical procedures which may not directly compete with ours, but which have the effect of changing how doctors decide to treat a disease.

If product liability lawsuits are successfully brought against us, we may incur substantial liabilities.

We are exposed to the potential product liability risks inherent in the testing, manufacturing and marketing of human pharmaceuticals. We currently maintain insurance against product liability lawsuits for the commercial sale of our products and for the clinical trials of our product candidates. Pharmaceutical companies must balance the cost of insurance with the level of coverage based on estimates of potential liability. Historically, the potential liability associated with product liability lawsuits for pharmaceutical products has been unpredictable. Although we believe that our current insurance is a reasonable estimate of our potential liability and represents a commercially reasonable balancing of the level of coverage as compared to the cost of the insurance, we may be subject to claims in connection with our clinical trials and commercial use of our products and product candidates for which our insurance coverage may not be adequate and we may be unable to avoid significant liability if any product liability lawsuit is brought against us. If we are the subject of a successful product liability claim that exceeds the limits of any insurance coverage we obtain, we may incur substantial charges that would adversely affect our earnings and require the commitment of capital resources that might otherwise be available for the development and commercialization of our product programs.

We rely significantly on information technology and any failure, inadequacy, interruption or security lapse of that technology, including any cybersecurity incidents, could harm our ability to operate our business effectively.

We rely significantly on our information technology and manufacturing infrastructure to effectively manage and maintain our operations, inventory and internal reports, to manufacture and ship products to customers and to timely invoice them. Any failure, inadequacy or interruption of that infrastructure or security lapse of that technology, including cybersecurity incidents or attacks, could harm our ability to operate our business effectively. Our ability to manage and maintain our operations, inventory and internal reports, to manufacture and ship our products to customers and timely invoice them depends significantly on our enterprise resource planning, production management and other information systems. Cybersecurity incidents and attacks in particular are evolving and include, but are not limited to, malicious software, attempts to gain unauthorized access to data, business email compromise and other cyber attacks or cyber incidents that could lead to disruptions in or unavailability of systems, misappropriation of confidential or otherwise protected information, corruption or loss of data, data security breaches and other harm to our business or competitive position. Cybersecurity incidents resulting in the failure of our enterprise resource planning system, production

management or other systems to operate effectively or to integrate with other systems, or a breach in security or other unauthorized access of these systems, may affect our ability to manage and maintain our operations, inventory and internal reports, and result in delays in product fulfillment and reduced efficiency of our operations. Moreover, if such an incident or computer security breach were to result in damage or unauthorized access to, or loss, corruption or unauthorized disclosure of, personally identifiable information, such a breach may require notification to governmental agencies, supervisory bodies, credit reporting agencies, the media or individuals pursuant to various federal, state and foreign data protection, privacy and security laws, regulations and guidelines, if applicable. It could also cause a loss in the confidence of our customers, employees, and partners and other third parties with respect to our business. A breach in security, unauthorized access resulting in misappropriation, theft, or sabotage with respect to our proprietary, personal and confidential information, including research or clinical data and information about patients, employees, contractors and others, could require significant capital investments to remediate and could adversely affect our business, financial condition and results of operations. We would also be exposed to a risk of loss, enforcement measures, penalties, fines, indemnification claims or litigation and potential civil or criminal liability, which could materially adversely affect our business, financial condition and results of operations.

If a natural disaster or terrorist or criminal activity caused significant damage to our facilities or the facilities of our third-party manufacturers and suppliers, we may be unable to meet demand for our products and lose potential revenue, have reduced margins, or be forced to terminate a program.

We currently manufacture Aldurazyme, Brineura, Naglazyme, Palynziq and a portion of Vimizim in a manufacturing facility located near known earthquake fault zones, and the occurrence of an earthquake or other catastrophic disaster could cause damage to our facility and equipment, or that of our third-party manufacturers or single-source suppliers, which could materially impair our ability to manufacture Aldurazyme, Brineura, Naglazyme and Vimizim or our third-party manufacturers' ability to manufacture Firdapse and Kuvan.

Our Galli Drive facility, located in Novato, California, is currently our only manufacturing facility for Aldurazyme, Naglazyme and Palynziq and is one of two manufacturing facilities for Brineura and Vimizim. Our gene therapy manufacturing facility is also located in Novato, California, and it is currently our only manufacturing facility to support valoctocogene roxaparvovec clinical development activities and the anticipated commercial demand for valoctocogene roxaparvovec, if approved. These facilities are located in the San Francisco Bay Area near known earthquake fault zones and are vulnerable to significant damage from earthquakes. We, the third-party manufacturers with whom we contract and our single-source suppliers of raw materials, which include many of our critical raw materials, are also vulnerable to damage from other types of disasters, including fires, explosions, floods, power loss and similar events. If any disaster were to occur, or any terrorist or criminal activity caused significant damage to our facilities or the facilities of our third-party manufacturers and suppliers, our ability to manufacture our products, or to have our products manufactured, could be seriously, or potentially completely, impaired, and our commercialization efforts and revenue could be seriously impaired. The insurance that we carry, the inventory that we maintain and our risk mitigation plans may not be adequate to cover our losses resulting from disasters or other business interruptions.

The impact of the recently passed U.S. comprehensive tax reform bill on us is uncertain and could have a material adverse effect on our business and financial condition.

On December 22, 2017, the U.S. President signed into law new legislation, known as the Tax Cuts & Jobs Act, which significantly revises the Internal Revenue Code of 1986, as amended. The newly enacted federal income tax law, among other things, contains significant changes to corporate taxation, including reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, limitation of the deduction for net operating losses to 80% of current year taxable income and elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time, creation of a base erosion and anti-abuse tax and modification or repeal of many business deductions and credits (including reduction of tax credits under the Orphan Drug Act). Many aspects of the new federal tax law are unclear and may not be clarified for some time. Notwithstanding the reduction in the corporate income tax rate, it is possible that the Tax Cuts & Jobs Act, or regulations or interpretations under it, could adversely affect our business and financial condition, and such effect could be material. In addition, it is uncertain if and to what extent various U.S. states will conform to the newly enacted federal tax law.

Our business is affected by macroeconomic conditions.

Various macroeconomic factors could adversely affect our business and the results of our operations and financial condition, including changes in inflation, interest rates and foreign currency exchange rates and overall economic conditions and uncertainties, including those resulting from the current and future conditions in the global financial markets. For instance, if inflation or other factors were to significantly increase our business

costs, it may not be feasible to pass price increases on to our customers due to the process by which healthcare providers are reimbursed for our products by the government. Interest rates, the liquidity of the credit markets and the volatility of the capital markets could also affect the value of our investments and our ability to liquidate our investments in order to fund our operations. We purchase or enter into a variety of financial instruments and transactions, including investments in commercial paper, the extension of credit to corporations, institutions and governments and hedging contracts. If any of the issuers or counter parties to these instruments were to default on their obligations, it could materially reduce the value of the transaction and adversely affect our cash flows.

We sell our products in countries that face economic volatility and weakness. Although we have historically collected receivables from customers in those countries, sustained weakness or further deterioration of the local economies and currencies may cause customers in those countries to be unable to pay for our products. Additionally, if one or more of these countries were unable to purchase our products, our revenue would be adversely affected.

Interest rates and the ability to access credit markets could also adversely affect the ability of our customers/distributors to purchase, pay for and effectively distribute our products. Similarly, these macroeconomic factors could affect the ability of our contract manufacturers, sole-source or single-source suppliers to remain in business or otherwise manufacture or supply product. Failure by any of them to remain a going concern could affect our ability to manufacture products.

Risks Related to Ownership of Our Securities

Our stock price may be volatile, and an investment in our stock could suffer a decline in value.

Our valuation and stock price have no meaningful relationship to current or historical earnings, asset values, book value or many other criteria based on conventional measures of stock value. The market price of our common stock will fluctuate due to factors including:

- product sales and profitability of our products;
- manufacturing, supply or distribution of our product candidates and commercial products;
- progress of our product candidates through the regulatory process and our ability to successfully commercialize any such products that receive regulatory approval;
- results of clinical trials, announcements of technological innovations or new products by us or our competitors;
- generic competition to Kuvan tablets and powder relating to our settlements with DRL and Par or potential generic competition from future competitors;
- government regulatory action affecting our product candidates, our products or our competitors' product candidates and products in both the U.S. and non-U.S. countries;
- developments or disputes concerning patent or proprietary rights;
- general market conditions and fluctuations for the emerging growth and pharmaceutical market sectors;
- economic conditions in the U.S. or abroad;
- negative publicity about us or the pharmaceutical industry;
- changes in the structure of healthcare payment systems
- cybersecurity incidents experienced by us or others in our industry
- broad market fluctuations in the U.S., the EU or in other parts of the world;
- actual or anticipated fluctuations in our operating results, including due to timing of large order for our products, in particular in Latin America, where governments place large periodic orders for Naglazyme and Vimizim;
- changes in company assessments or financial estimates by securities analysts;
- acquisitions of products, businesses, or other assets; and
- sales of our shares of stock by us, our significant stockholders, or members of our management or Board of Directors.

In the past, following periods of large price declines in the public market price of a company's securities, securities class action litigation has often been initiated against that company. Litigation of this type could result in substantial costs and diversion of management's attention and resources, which would hurt our business. Any adverse determination in litigation could also subject us to significant liabilities. In addition, our stock price can be materially adversely affected by factors beyond our control, such as disruptions in global financial markets or negative trends in the biotechnology sector of the economy, even if our business is operating well.

Conversion of the Notes will dilute the ownership interest of existing stockholders, including holders who had previously converted their Notes, or may otherwise depress the price of our common stock.

The conversion of some or all of the Notes will dilute the ownership interests of existing stockholders to the extent we deliver shares upon conversion of any of the Notes. The Notes may in the future become convertible at the option of their holders prior to their scheduled terms under certain circumstances. Any sales in the public market of the common stock issuable upon such conversion could adversely affect prevailing market prices of our common stock. In addition, the existence of the Notes may encourage short selling by market participants because the conversion of the Notes could be used to satisfy short positions, or anticipated conversion of the Notes into shares of our common stock could depress the price of our common stock.

The capped call transactions may affect the value of the Notes and our common stock.

In connection with the issuance of the 2020 Notes, we entered into capped call transactions with respect to 50% of the principal amount of the 2020 Notes with certain hedge counterparties. The capped call transactions will cover, subject to customary anti-dilution adjustments, the aggregate number of shares of common stock underlying 50% of the principal amount of the 2020 Notes and are expected generally to reduce potential dilution to the common stock upon conversion of the 2020 Notes in excess of the principal amount of such converted 2020 Notes. In connection with establishing their initial hedges of the capped call transactions, the hedge counterparties (or their affiliates) entered into various derivative transactions with respect to the common stock concurrently with, and/or purchased the common stock shortly after, the pricing of the 2020 Notes. The hedge counterparties (or their affiliates) are likely to modify their hedge positions by entering into or unwinding various derivative transactions with respect to the common stock and/or by purchasing or selling the common stock or other securities of ours in secondary market transactions prior to the maturity of the 2020 Notes (and are likely to do so during the settlement averaging period under the capped call transactions, which precedes the maturity date of the 2020 Notes, and on or around any earlier conversion date related to a conversion of the 2020 Notes).

The effect, if any, of any of these transactions and activities on the market price of our common stock or the 2020 Notes will depend in part on market conditions and cannot be ascertained at this time, but any of these activities could adversely affect the value of our common stock, which could affect the value of the 2020 Notes and the value of our common stock, if any, that 2020 Note holders receive upon any conversion of the 2020 Notes.

Anti-takeover provisions in our charter documents and under Delaware law may make an acquisition of us, which may be beneficial to our stockholders, more difficult.

We are incorporated in Delaware. Certain anti-takeover provisions of Delaware law and our charter documents as currently in effect may make a change in control of us more difficult, even if a change in control would be beneficial to the stockholders. Our anti-takeover provisions include provisions in our restated certificate of incorporation and amended and restated bylaws providing that stockholders' meetings may only be called by our Chairman, the lead independent director or the majority of our Board of Directors and that the stockholders may not take action by written consent and requiring that stockholders that desire to nominate any person for election to our Board of Directors or to make any proposal with respect to business to be conducted at a meeting of our stockholders be submitted in appropriate form to our Secretary within a specified period of time in advance of any such meeting. Additionally, our Board of Directors has the authority to issue shares of preferred stock and to determine the terms of those shares of stock without any further action by our stockholders. The rights of holders of our common stock are subject to the rights of the holders of any preferred stock that may be issued. The issuance of preferred stock could make it more difficult for a third party to acquire a majority of our outstanding voting stock. Delaware law also prohibits corporations from engaging in a business combination with any holders of 15% or more of their capital stock until the holder has held the stock for three years unless, among other possibilities, our Board of Directors approves the transaction. Our Board of Directors may use these provisions to prevent changes in the management and control of us. Also, under applicable Delaware law, our Board of Directors may adopt additional anti-takeover measures in the future.

The fundamental change repurchase feature of the Notes may delay or prevent an otherwise beneficial attempt to take us over.

The terms of the Notes require us to repurchase the Notes in the event of a fundamental change. A takeover of us would trigger options by the respective holders of the applicable Notes to require us to repurchase such Notes. This may have the effect of delaying or preventing a takeover of us that would otherwise be beneficial to our stockholders or investors in the Notes.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware will be the exclusive forum for the adjudication of certain disputes, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, or employees.

Our amended and restated bylaws provide that the Court of Chancery of the State of Delaware is the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any director, officer or other employee of BioMarin to us or our stockholders;
- any action asserting a claim against us or any of our directors, officers or other employees arising pursuant to any provision of the General Corporation Law of the State of Delaware, our restated certificate of incorporation or our amended and restated bylaws; and
- any action asserting a claim against us or any of our directors, officers or other employees that is governed by the internal affairs doctrine.

This provision would not apply to suits brought to enforce a duty or liability created by the Exchange Act or any other claim for which the U.S. federal courts have exclusive jurisdiction.

This exclusive-forum provision further provides that any person or entity that acquires any interest in shares of our capital stock will be deemed to have notice of and consented to the provisions of such provision, including consent to the personal jurisdiction of the Court of Chancery of the State of Delaware related to any action covered by such provision.

This exclusive-forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers, and other employees. If a court were to find this exclusive-forum provision to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could seriously harm our business.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The following table contains information about our current significant owned and leased properties as of December 31, 2018:

Location	Approximate Square Feet	Use	Lease Expiration Date
San Rafael facility, San Rafael, California	407,300	Corporate headquarters, laboratory and office	Owned property
Several facilities in Novato, California	275,600	Clinical and commercial manufacturing, laboratory and office	Owned property
Several leased facilities in Novato, California	226,200	Office and warehouse	2020-2023
Shanbally facility, Cork, Ireland	209,600	Manufacturing, laboratory and office	Owned property
Dublin, Ireland	43,500	Office	2030
Brisbane, California	38,300	Office	2029
London, England	22,600	Office	2025

We expect that these properties, together with our other smaller leased office facilities in various countries, will be adequate for our operations for the foreseeable future.

Item 3. Legal Proceedings

None.

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

Our common stock is listed under the symbol "BMRN" on the Nasdaq Global Select Market.

We have never paid any cash dividends on our common stock and we do not anticipate paying cash dividends in the foreseeable future.

Recent Sales of Unregistered Securities

We did not sell any unregistered securities during the year ended December 31, 2018.

Issuer Purchases of Equity Securities

We did not make any purchases of our common stock during the year ended December 31, 2018.

Holders

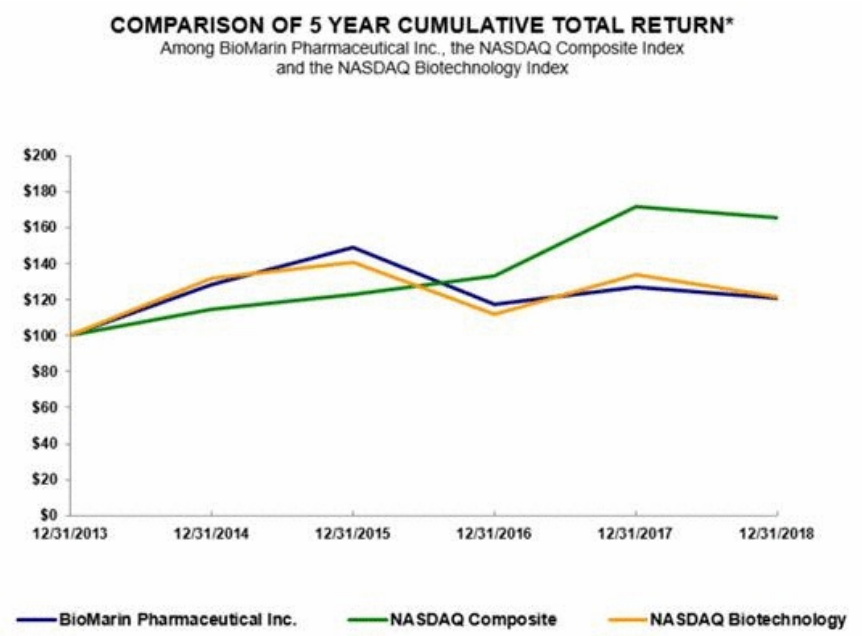
As of February 13, 2019, there were 44 holders of record of 178,372,202 outstanding shares of our common stock.

Performance Graph

The following is not deemed "filed" with the Securities and Exchange Commission and is not to be incorporated by reference into any filing we make under the Securities Act of 1933, as amended, whether made before or after the date hereof and irrespective of any general incorporation by reference language in such filing.

The following graph shows the value of an investment in BioMarin common stock, the Nasdaq Composite Index (U.S.) and the Nasdaq Biotechnology Index, assuming the investment of $100.00 at the beginning of the period and the reinvestment of dividends, if any. Our common stock is traded on the Nasdaq Global Select Market and is a component of both the Nasdaq Composite Index and the Nasdaq Biotechnology Index. The

comparisons shown in the graph are based upon historical data and we caution that the stock price performance shown in the graph is not indicative of, nor intended to forecast, the potential future performance of our stock.



* $100 invested on December 31, 2013 in stock or index, including reinvestment of dividends.

	Fiscal Year Ending December 31,					
	2013	2014	2015	2016	2017	2018
BioMarin Pharmaceutical Inc.	$ 100.00	$ 128.50	$ 148.91	$ 117.75	$ 126.75	$ 121.04
Nasdaq Composite	100.00	114.62	122.81	133.19	172.11	165.84
Nasdaq Biotechnology	100.00	131.71	140.56	112.25	133.67	121.24

Item 6. Selected Consolidated Financial Data

We derived the selected consolidated statements of operations data for the years ended December 31, 2018, 2017 and 2016 and the selected consolidated balance sheet data as of December 31, 2018 and 2017 from the audited Consolidated Financial Statements appearing elsewhere in this Annual Report on Form 10-K. We derived the selected consolidated statements of operations data for the years ended December 31, 2015 and 2014 and the selected consolidated balance sheet data as of December 31, 2016, 2015 and 2014 from audited Consolidated Financial Statements not included in this Annual Report on Form 10-K. The information set forth below is not necessarily indicative of results of future operations, and should be read in conjunction with Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and the Consolidated Financial Statements and related notes thereto included in Item 15 of this Annual Report on Form 10-K to fully understand factors that may affect the comparability of the information presented below:

	Years Ended December 31, (In millions, except for per share data)				
	2018 (1)	2017 (1)	2016 (1)	2015	2014
Consolidated Statements of Operations data:					
Total revenues	$ 1,491.2	$ 1,313.6	$ 1,116.9	$ 889.9	$ 749.3
Total costs and expenses	$ 1,614.7	$ 1,328.3	$ 1,920.3	$ 1,000.6	$ 842.2
Loss from operations	$ (123.5)	$ (14.7)	$ (803.4)	$ (110.7)	$ (92.9)
Provision for (benefit from) income taxes	$ (65.5)	$ 81.2	$ (200.8)	$ 17.1	$ 9.1
Net loss	$ (77.2)	$ (117.0)	$ (630.2)	$ (171.8)	$ (134.0)
Net loss per share, basic	$ (0.44)	$ (0.67)	$ (3.80)	$ (1.07)	$ (0.92)
Net loss per share, diluted	$ (0.44)	$ (0.67)	$ (3.81)	$ (1.07)	$ (0.92)
Weighted average common shares outstanding, basic	177.1	174.4	166.0	160.0	146.3
Weighted average common shares outstanding, diluted	177.3	174.4	166.2	160.0	146.3

	December 31, (In millions)				
	2018	2017	2016	2015	2014
Consolidated Balance Sheets data:					
Cash, cash equivalents and investments (2)	$ 1,320.2	$ 1,781.7	$ 1,362.4	$ 1,018.3	$ 1,043.0
Total assets (1)	$ 4,427.1	$ 4,633.1	$ 4,023.7	$ 3,729.4	$ 2,475.4
Convertible senior notes, net (2)	$ 830.4	$ 813.5	$ 660.8	$ 662.3	$ 642.9
Other long-term obligations	$ 105.5	$ 194.4	$ 157.3	$ 220.8	$ 68.8
Total stockholders' equity	$ 2,967.9	$ 2,808.7	$ 2,766.3	$ 2,400.8	$ 1,527.9

(1) See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations" in Part II, Item 7 of this Annual Report on Form 10-K for additional discussion of our operating results, including gains on sales of intangible assets in 2018 and 2017 and impairment of intangible assets in 2016. Also, refer to the Consolidated Financial Statements and related notes thereto included in Item 15 of this Annual Report on Form 10-K for additional discussion of the impact of adoption of new accounting pronouncements in 2018 and 2016 and new tax legislation in 2017.

(2) See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Financial Position, Liquidity and Capital Resources" in Part II, Item 7 of this Annual Report on Form 10-K for additional discussion of our debt.

Quarterly Financial Data (unaudited)

You should read the following tables presenting our unaudited quarterly results of operations in conjunction with the Consolidated Financial Statements and related notes contained elsewhere in this Annual Report on Form 10-K. We have prepared this unaudited information on the same basis as our audited Consolidated Financial Statements. Our quarterly operating results have fluctuated in the past and may continue to do so in the future as a result of a number of factors, including, but not limited to, the timing and nature of research and development activities.

	Three Months Ended (In millions, except per share data, unaudited)			
	March 31,	June 30,	September 30,	December 31,
2018:				
Total revenues	$ 373.4	$ 372.8	$ 391.7	$ 353.2
Net loss (1)	$ (44.1)	$ (16.8)	$ (12.6)	$ (3.7)
Net loss per share, basic (1)	$ (0.25)	$ (0.09)	$ (0.07)	$ (0.02)
Net loss per share, diluted (1)	$ (0.26)	$ (0.09)	$ (0.07)	$ (0.03)
2017:				
Total revenues	$ 303.7	$ 317.4	$ 334.1	$ 358.3
Net loss (1)	$ (16.3)	$ (36.8)	$ (12.5)	$ (51.4)
Net loss per share, basic (1)	$ (0.09)	$ (0.21)	$ (0.07)	$ (0.29)
Net loss per share, diluted (1)	$ (0.09)	$ (0.21)	$ (0.07)	$ (0.30)

(1) Refer to “Management's Discussion and Analysis of Financial Condition and Results of Operations — Results of Operations” in Part II, Item 7 of this Annual Report on Form 10-K for additional discussion of gains on the sale of intangible assets, which impacted the second quarter of 2018 and fourth quarters of 2018 and 2017, and discussion of the incremental income tax expense related to the Tax Cuts and Jobs Act of 2017, which impacted the fourth quarter of 2017.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to help the reader understand our results of operations and financial condition. MD&A is provided as a supplement to, and should be read in conjunction with, our audited Consolidated Financial Statements and the accompanying notes to the Consolidated Financial Statements and other disclosures included in this Annual Report on Form 10-K, including the disclosures under "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K. These risks and uncertainties could cause actual results to differ significantly from those projected in forward-looking statements contained in this report or implied by past results and trends. Forward-looking statements are statements that attempt to forecast or anticipate future developments in our business, financial condition or results of operations. See the section titled "Forward-Looking Statements" that appears at the beginning of this Annual Report on Form 10-K. These statements, like all statements in this report, speak only as of the date of this Annual Report on Form 10-K (unless another date is indicated), and, except as required by law, we undertake no obligation to update or revise these statements in light of future developments. Our Consolidated Financial Statements have been prepared in accordance with United States (U.S.) generally accepted accounting principles (GAAP) and are presented in U.S. Dollars (USD).

Overview

We are a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. We select product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an opportunity to be first-to-market or offer a significant benefit over existing products.

Our portfolio consists of several commercial therapies and multiple clinical and pre-clinical product candidates. A summary of our major commercial products, including key metrics, as of December 31, 2018, is provided below:

Major Commercial Products	Indication	United States Orphan Drug Exclusivity Expiration (1)	United States Biologic Exclusivity Expiration (2)	European Union Orphan Drug Exclusivity Expiration (1)
Aldurazyme (laronidase)	MPS I (3)	Expired	Expired	Expired
Brineura (cerliponase alfa)	CLN2 (4)	2024	2029	2027
Kuvan (sapropterin dihydrochloride)	PKU (5)	Expired	Not Applicable (5)	2020 (5)
Naglazyme (galsulfase)	MPS VI (6)	Expired	Expired	Expired
Palynziq (pegvaliase-pqpz)	PKU (7)	2025	2030	TBD (7)
Vimizim (elosulfase alpha)	MPS IVA (8)	2021	2026	2024

(1) See "Government Regulation—Orphan Drug Designation" below for further discussion
(2) See "Government Regulation— Healthcare Reform" below for further discussion
(3) For the treatment of Mucopolysaccharidosis I (MPS I)
(4) For the treatment of late infantile neuronal ceroid lipofuscinosis type 2 (CLN2)
(5) For the treatment of phenylketonuria (PKU). Kuvan, a small molecule therapy, has been granted orphan drug status in the European Union (EU), which together with pediatric exclusivity, confers 12 years of market exclusivity in the EU that expires in 2020.
(6) For the treatment of Mucopolysaccharidosis VI (MPS VI)
(7) For adult patients with PKU. Palynziq (formerly referred to as pegvaliase) was approved by the U.S. Food and Drug Administration (FDA) in May 2018 and our European Marketing Authorization Application (MAA) submission for Palynziq was accepted by the European Medicines Agency (EMA) in March 2018. We expect to learn the status of this MAA during the first half of 2019.
(8) For the treatment of Mucopolysaccharidosis IV Type A (MPS IVA)

(In millions of U.S. Dollars, except as otherwise disclosed)

A summary of our ongoing major development programs, including key metrics as of December 31, 2018, is provided below:

Major Product Candidates in Development	Target Indication	U.S. Orphan Designation	EU Orphan Designation	Stage
Palynziq in Europe	PKU	Yes	Yes	EU MAA regulatory review (1)
Valoctocogene roxaparvovec	Hemophilia A (2)	Yes	Yes	Clinical Phase 3
Vosoritide	Achondroplasia	Yes	Yes	Clinical Phase 3

(1) In May 2018, the FDA granted marketing approval for Palynziq in the U.S., and our European MAA submission for Palynziq was accepted by the EMA in March 2018. We expect to learn the status of the MAA during the first half of 2019.
(2) Hemophilia A is also called factor VIII deficiency or classic hemophilia.

Business Developments

We continued to grow our commercial business and advance our product candidate pipeline during 2018. We believe that the combination of our internal research programs, acquisitions and partnerships will allow us to continue to develop and commercialize innovative therapies for people with serious and life-threatening rare diseases and medical conditions. Below is a summary of key business developments:

Product Approval

- Palynziq – In May 2018, the FDA approved Palynziq, a PEGylated recombinant phenylalanine ammonia lyase enzyme product, for the treatment of adults with PKU who have inadequate blood phenylalanine control despite prior management with available treatment options including sapropterin. Palynziq was first made available in the U.S. in July 2018. We anticipate an opinion from the Committee for Medicinal Products for Human Use (CHMP), the scientific committee of the EMA, on Palynziq Injection for the treatment of patients 16 and older with PKU in the first quarter of 2019. If the CHMP provides a positive opinion in the first quarter of 2019, then in the second quarter of 2019 it is possible that the European Commission (EC) could provide marketing authorization in the EU.

Continued Emphasis on Research and Development

- Valoctocogene roxaparvovec – We provided an update on our development of valoctocogene roxaparvovec, a gene therapy program for severe hemophilia A, that we completed enrollment of the initial cohort of patients in our Phase 3 study. Based on the FDA's Draft Guidance for Human Gene Therapy for Hemophilia issued in July 2018, we expect that Phase 3 data from this cohort available in 2019 could support submission of a Biologics License Application (BLA) for valoctocogene roxaparvovec through an accelerated approval pathway. We plan to decide in the second half of 2019 whether we will submit a BLA through an accelerated approval pathway. The complete Phase 3 study is targeting enrollment of 130 patients by mid-year 2019.
- Vosoritide – We announced that enrollment of the Phase 2 study, a randomized, placebo-controlled study of vosoritide in approximately 70 infants and young children with achondroplasia ages zero to less than 60 months for 52 weeks, is on track, and in the early part of the study, vosoritide has been generally well-tolerated. We provided data from the children in the ongoing Phase 2 study, which demonstrated 5.7 centimeters of cumulative additional height gained at 42 months. We expect to have over 5 years of clinical data from this study to corroborate maintenance of effect at the time of possibly filing for marketing authorization. The global Phase 3 study, which is fully enrolled, is a randomized, placebo-controlled study of vosoritide in approximately 110 children with achondroplasia between the ages of 5-14 years. We expect top line results from the 52-week Phase 3 study by the end of 2019.

(In millions of U.S. Dollars, except as otherwise disclosed)

Other Developments

- Brineura – We announced in February 2019 that twenty-three patients in the ongoing open-label extension study treated with Brineura continued to show a reduced rate of decline compared to a natural history cohort of CLN2 disease for three years as measured by the CLN2 Clinical Rating Scale.

Outlook 2019

In 2019, we will continue to focus on our key operating objectives which include continued progression of our product pipeline and continued uptake of our commercial products. From a research and development (R&D) perspective, we expect to continue to invest in our various ongoing clinical studies, which support both our commercial products and pipeline of new product candidates. We expect to move forward on a number of late-stage clinical studies for new product candidates and plan to file marketing applications for various therapeutic areas.

From a commercial perspective, we expect to continue to build-out our commercial organization to support the commercialization of Brineura and Palynziq and the international expansion of Kuvan.

We continue to monitor conditions in the macroeconomic environment that could affect our ability to achieve our goals, such as changes in the reimbursement and payer landscape, a worsening of economic conditions in certain key markets, particularly in Europe and Latin America, patent expirations of competitive products and the launch of generic competitors, government pricing pressures internationally and the potential volatility in foreign currency exchange rates. We will adjust our business processes, as appropriate, to attempt to mitigate these risks to our business.

We expect that our product pipeline investments and expanding commercial infrastructure will enable us to execute on our 2019 operating objectives.

2018 Financial Highlights

Key components of our results of operations include the following:

	Years Ended December 31,		
	2018	2017	2016
Net product revenues	$ 1,470.4	$ 1,270.4	$ 1,110.4
Cost of sales	$ 315.3	$ 241.8	$ 209.6
R&D expense	$ 696.3	$ 610.8	$ 661.9
Selling, general and administrative (SG&A) expense	$ 604.4	$ 554.3	$ 476.6
Intangible asset amortization and contingent consideration expense	$ 48.8	$ 46.5	$ (27.0)
Impairment of intangible assets	$ —	$ —	$ 599.1
Gain on sale of intangible assets	$ (50.0)	$ (125.0)	$ —
Provision for (benefit from) income taxes	$ (65.5)	$ 81.2	$ (200.8)
Net loss	$ (77.2)	$ (117.0)	$ (630.2)

The decrease in Net Loss for the year ended December 31, 2018 as compared to 2017 was primarily attributed to increased sales across all of our products and the U.S. commercial launch of Palynziq, increased benefit from income taxes, partially offset by increased R&D expense for the expansion of our clinical programs and increased SG&A expense primarily due to the Palynziq U.S. commercial launch and European pre-launch activities, market preparation related to valoctocogene roxaparvovec and the continued expansion of marketing activities related to Brineura, which launched commercially in mid-2017. See "Results of Operations" below for additional information related to the Net Loss fluctuations presented above.

On January 1, 2018, we adopted Accounting Standards Codification (ASC) 606, Revenue from Contracts with Customers (ASC Topic 606) using the modified retrospective method applied to those contracts which were not completed as of January 1, 2018. Results for reporting periods beginning after January 1, 2018 are presented under ASC Topic 606, while prior period amounts are not adjusted and continue to be reported in accordance with our historic accounting under ASC 605, *Revenue Recognition*. See Note 4 to our accompanying Consolidated Financial Statements for additional information.

Our cash, cash equivalents and investments totaled $1.3 billion as of December 31, 2018, compared to $1.8 billion as of December 31, 2017. We have historically financed our operations primarily through our cash flows from operating activities and the issuance of common stock and convertible debt. We will be highly dependent on our net product revenues to supplement our current liquidity and fund our operations for the foreseeable future. We may in the future elect to supplement this with further debt or equity offerings or commercial borrowing. Further, depending on market conditions, our financial position and performance and other factors, we may in the future choose to use a portion of our cash, cash equivalents or investments to repurchase our convertible debt or other securities. See "Financial Position, Liquidity and Capital Resources" below for a further discussion of our liquidity and capital resources.

Critical Accounting Policies, Estimates and Judgments

In preparing our Consolidated Financial Statements in accordance with U.S. GAAP and pursuant to the rules and regulations promulgated by the Securities and Exchange Commission (the SEC), we make assumptions, judgments and estimates that can have a significant impact on our net income/loss and affect the reported amounts of certain assets, liabilities, revenue and expenses, and related disclosures. On an ongoing basis, we evaluate our estimates and discuss our critical accounting policies and estimates with the Audit Committee of our Board of Directors. We base our estimates on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ materially from these estimates under different assumptions or conditions.

While our significant accounting policies are more fully described in Note 3 to our accompanying Consolidated Financial Statements included in this Annual Report on Form 10-K, we believe the critical accounting policies below reflect the more significant judgments and estimates used in the preparation of our Consolidated Financial Statements.

- Revenue Recognition and Related Allowances
- Inventory
- Valuation of Goodwill and Acquired Intangible Assets
- Valuation of Contingent Consideration
- Income Taxes

Historically, our assumptions, judgments and estimates relative to our critical accounting policies have not differed materially from actual results.

Revenue Recognition and Related Allowances

Net Product Revenues – Upon adoption of ASC Topic 606, we recognize revenue when the customer obtains control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services. For Aldurazyme revenues, we receive a payment ranging from 39.5% to 50% on worldwide net Aldurazyme sales by Genzyme Corporation (Genzyme) depending on sales volume, which is included in Net Product Revenues in our Consolidated Statements of Operations. Under ASC Topic 606, we recognize our best estimate of the entire revenue that it expects to receive when the product is released and control is transferred to Genzyme. We record Aldurazyme net product revenues based on the estimated variable consideration payable when the product is sold through by Genzyme. Actual amounts of consideration ultimately received may differ from our estimates. Differences between the estimated variable consideration to be received from Genzyme and actual payments received are not expected to be material. If actual results vary from our estimates, we will make adjustments, which would affect Net Product Revenues and earnings in the period such variances become known.

Prior to adoption of ASC Topic 606, for Aldurazyme revenues, we only recognized a portion of the tiered payment as product transfer revenue when the product was released to Genzyme because all of our performance obligations were fulfilled at that point, the prices were substantially fixed or determinable and title to, and risk of loss for, the product had transferred to Genzyme. The product transfer revenue only represented the fixed amount per unit of Aldurazyme that Genzyme was required to pay us if the product was unsold by Genzyme. The amount of product transfer revenue was eventually deducted from the calculated royalty recognized when the product was subsequently sold by Genzyme. We recorded the Aldurazyme revenues based on net sales information provided by Genzyme and recorded product transfer revenues based on the fulfillment of Genzyme purchase orders in accordance with the terms of the related agreements with Genzyme.

(In millions of U.S. Dollars, except as otherwise disclosed)

Revenue Related Allowances – We record product sales net of estimated mandatory and supplemental discounts to government payers, in addition to discounts to private payers, and other related charges. Rebates, cash discounts, and distributor fees represent the majority of our gross to net deductions and are recorded in the same period the related sales occur. Rebates include amounts paid to Medicaid, other government programs, certain managed care providers, as well as foreign government rebates. Rebates, cash discounts and distributor fees are estimates based on contractual arrangements or statutory obligations, which may vary by product and payer. Estimation requires evaluation of our historical experience, customer mix, current contractual and statutory obligations, specific known market events and trends and industry data. We evaluate our customer mix to estimate which sales will be subject to rebates and consider changes to government program guidelines that would impact the actual rebates and/or our estimates of which sales qualify for such rebates.

We update our estimates and assumptions each quarter based on actual historical experience and record any necessary adjustments to our reserves to reflect current information. We believe the methodologies that we use to estimate allowances are reasonable and appropriate given the facts and circumstances. However, actual results may differ significantly from our estimates.

The following table summarizes the consolidated activities and ending balances in our revenue related allowances:

Accrued rebates, cash discounts and distributor fees	Balance at Beginning of Year	Provision for Current Period Sales	Payments	Balance at End of Year
Year ended December 31, 2018	$ 51.8	$ 132.6	$ (123.4)	$ 61.0
Year ended December 31, 2017	43.4	108.5	(100.1)	51.8
Year ended December 31, 2016	$ 39.2	$ 81.2	$ (77.0)	$ 43.4

Inventory Produced Prior to Regulatory Approval

When future commercialization for a product candidate is probable and management expects to realize economic benefit in the future, we capitalize pre-launch inventory costs prior to regulatory approval. For inventories that are capitalized in preparation of product launch, management considers a number of factors, including the product candidate's current status in the regulatory approval process, results from the related pivotal clinical trial, results from meetings with relevant regulatory agencies prior to the filing of regulatory applications, historical experience, as well as potential impediments to the approval process such as product safety or efficacy, commercialization and market trends.

In applying the lower of cost or net realizable value to pre-launch inventory, we estimate a range of likely commercial prices based on our comparable commercial products and consider the product candidate's stability data for all of the pre-approval production to date to determine whether there is adequate expected shelf life for the capitalized pre-launch production costs. If the criteria for capitalizing inventory produced prior to regulatory approval are not met, we recognize such costs as R&D expense in the period incurred. As of December 31, 2018, there was no pre-launch inventory on our Consolidated Balance Sheets.

Valuation of Goodwill and Acquired Intangible Assets

We have recorded goodwill and acquired intangible assets primarily related to in-process research and development (IPR&D) projects through acquisitions accounted for as business combinations. When identifiable intangible assets, including IPR&D, are acquired, we determine the fair value of these assets as of the acquisition date. Discounted cash flow models are typically used in these valuations if quoted market prices are not available, and the models require significant estimates and assumptions including but not limited to:

- estimating the time and resources needed to complete the development and approval of product candidate;
- estimating future cash flows from product sales;
- developing appropriate probability of success rates for unapproved product candidates considering their stages of development;
- projecting timing of regulatory approval; and
- risks related to the viability of and potential alternative treatments in any future target markets.

Goodwill represents the excess of purchase price over fair value of net assets acquired in a business combination accounted for by the acquisition method of accounting and is not amortized, but subject to impairment testing. We review our goodwill and indefinite lived intangible assets for impairment annually in the fourth quarter, or more frequently if warranted by events or changes in circumstances indicate that the carrying amount may not be recoverable.

We assess goodwill impairment by comparing the fair value of our single reporting unit with its carrying amount. If the carrying value of the reporting unit exceeds its fair value, an impairment loss equal to the difference will be recorded.

We assess impairment of indefinite-lived intangible assets first by performing a qualitative assessment. If the qualitative assessment indicates that it is more likely than not that the fair value of our indefinite-lived intangible assets is less than its carrying amount, then we will perform a quantitative assessment and record an impairment loss. We assess definite-lived intangible assets for recoverability when there is an indication of impairment by comparing the estimated undiscounted future cash flows expected to result from the use of the asset or asset group and its eventual disposition to the carrying amount of the asset or asset group. Any excess of the carrying value of the asset or asset group over its estimated fair value is recognized as an impairment loss.

Valuation of Contingent Consideration

Significant estimates and judgments are required in determining the acquisition fair value of any contingent obligations incurred in connection with an acquisition. We estimate the fair value of contingent consideration utilizing a probability-based income approach inclusive of an estimated discount rate. Each period we reassess the fair value of the contingent consideration associated with certain acquisitions and record increases in the fair value as contingent consideration expense and record decreases in the fair value as a reduction of contingent consideration expense. Changes in the fair value of the contingent consideration can result from changes to one or multiple inputs including the estimated probability with respect to regulatory approval, changes in the assumed timing of when milestones are likely to be achieved and changes in assumed discount periods and rates. Accordingly, subsequent changes in the underlying facts and circumstances could result in changes to our estimates and assumptions, which could have a material impact on the estimated future fair values of contingent consideration.

We believe the fair value used to record contingent consideration incurred in connection with business combinations is based on reasonable estimates and assumptions given the facts and circumstances as of the related valuation date.

Income Taxes

We calculate and provide for income taxes in each of the tax jurisdictions in which we operate. Our Consolidated Balance Sheets reflect net deferred tax assets and liabilities, which are measured using enacted tax rates. The net deferred tax assets primarily represent the tax benefit of tax credits and timing differences between book and tax recognition of certain revenue and expense items, net of a valuation allowance. When it is more likely than not that all or some portion of deferred tax assets may not be realized, we establish a valuation allowance for the amount that may not be realized. We utilize financial projections to support our net deferred tax assets, which contain significant assumptions and estimates of future operations. If such assumptions were to differ significantly, it may have a material impact on our ability to realize our deferred tax assets. Changes in our valuation allowance will result in a change to tax expense.

We establish liabilities or reduce assets for certain tax position when we believe certain tax position are not more likely than not to be sustained if challenged. Each quarter, we evaluate these uncertain tax position and adjust the related tax assets and liabilities in light of changing facts and circumstances.

We are subject to income taxes in the U.S. and various foreign jurisdictions, including Ireland. Due to economic and political conditions, various countries are actively considering changes to existing tax laws. We cannot predict the form or timing of potential legislative changes that could have a material adverse impact on our results of operations. In addition, significant judgment is required in determining our worldwide provision for income taxes. Management is not aware of any potential changes that would have a material effect on our Consolidated Financial Statements.

(In millions of U.S. Dollars, except as otherwise disclosed)

Recent Accounting Pronouncements

See Note 4 to our accompanying Consolidated Financial Statements for a full description of recent accounting pronouncements and our expectation of their impact, if any, on our results of operations and financial condition.

Results of Operations

Net Loss

Our net loss for the year ended December 31, 2018 was $77.2 million, compared to net losses of $117.0 million and $630.2 million for the years ended December 31, 2017 and 2016, respectively. The changes in Net Loss were primarily a result of the following:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Total revenues	$ 1,491.2	$ 1,313.6	$ 1,116.9	$ 177.6	$ 196.7
Cost of sales	315.3	241.8	209.6	73.5	32.2
R&D expense	696.3	610.8	661.9	85.5	(51.1)
SG&A expense	604.4	554.3	476.6	50.1	77.7
Intangible asset amortization and contingent consideration	48.8	46.5	(27.0)	2.3	73.5
Impairment of intangible assets	—	—	599.1	—	(599.1)
Gain on sale of intangible asset	(50.0)	(125.0)	—	75.0	(125.0)
Other, net	(19.1)	(21.0)	(27.7)	1.9	6.7
Provision for (benefit from) income taxes	(65.5)	81.2	(200.8)	(146.7)	282.0
Net loss	$ (77.2)	$ (117.0)	$ (630.2)	$ 39.8	$ 513.2

Net Product Revenues

Net Product Revenues consisted of the following:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Aldurazyme	$ 135.1	$ 90.0	$ 93.8	$ 45.1	$ (3.8)
Brineura	39.9	8.6	—	31.3	8.6
Firdapse	21.7	18.8	18.0	2.9	0.8
Kuvan	433.6	407.5	348.0	26.1	59.5
Naglazyme	345.9	332.2	296.5	13.7	35.7
Palynziq	12.2	—	—	12.2	—
Vimizim	482.0	413.3	354.1	68.7	59.2
Total net product revenues	$ 1,470.4	$ 1,270.4	$ 1,110.4	$ 200.0	$ 160.0

The following is additional discussion of our Net Product Revenue results for our major products:

- *Aldurazyme* – The increase in 2018 compared to 2017 is attributable to an increase in sales volume and the adoption of ASC Topic 606, which contributed $20.2 million to the increase. Although Genzyme sells Aldurazyme worldwide, the net product revenues earned by us on Genzyme's net sales are denominated in USD.

  The decrease in 2017 compared to 2016 was primarily attributable to the decreases in shipments to Genzyme, offset in part by the increase in Aldurazyme revenue reported by Genzyme. Aldurazyme revenues reported by Genzyme totaled $233.8 million and $223.3 million in 2017 and 2016, respectively.

  See Note 4 to our accompanying Consolidated Financial Statements for additional information on the impact of ASC Topic 606 on our 2018 results.

- *Brineura* – The increase in 2018 compared to 2017 was primarily attributable to new patients initiating therapy as the product was commercially launched in mid-2017.

(In millions of U.S. Dollars, except as otherwise disclosed)

- *Kuvan* – The increase in 2018 compared to 2017 was primarily attributable to an increase in patients initiating therapy in North America. The increase in 2017 compared to 2016 was due to an increase in patients initiating therapy in the U.S. and new patients in the ex-North American territories to which we acquired in 2016.
- *Naglazyme* – The increase in 2018 compared to 2017 was primarily attributable to new patients initiating therapy in Turkey and North America and government ordering patterns in the Middle East, partially offset by a decrease due to the impact of government ordering patterns from certain Latin American countries. The increase in 2017 compared to 2016 was due to new patients initiating therapy, the positive impact of foreign currency exchange rates and the ordering patterns of central government orders from Latin America and Europe.
- *Palynziq* – The increase in 2018 compared to 2017 was primarily attributable to the conversion of clinical patients to commercial Palynziq in the U.S. in 2018 following the commercial launch of Palynziq in July 2018.
- *Vimizim* – The increase in 2018 compared to 2017 and in 2017 compared to 2016 was primarily attributable to new patients initiating therapy and government ordering patterns.

In certain countries, such as in Latin America, governments place large periodic orders for Naglazyme and Vimizim. The ordering patterns of these large government orders can be inconsistent and can create significant quarter to quarter variation in our revenues.

We face exposure to movements in foreign currency exchange rates, primarily the Euro. We use foreign currency exchange contracts to hedge a percentage of our foreign currency exposure. The following table shows our Net Product Revenues denominated in USD and foreign currencies:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Sales denominated in USD	$ 891.7	$ 748.5	$ 643.2	$ 143.2	$ 105.3
Sales denominated in foreign currencies	578.7	521.9	467.2	56.8	54.7
Total net product revenues	$ 1,470.4	$ 1,270.4	$ 1,110.4	$ 200.0	$ 160.0

The net impact of foreign currency exchange rates on product sales denominated in currencies other than USD during 2018 was negative by $0.7 million, which was primarily driven by the Brazilian Real. During 2017, the net impact of foreign currency exchange rates was positive by $5.5 million, which was primarily driven by the Brazilian Real and the Euro. During 2016, the net impact of foreign currency exchange rates was negative by $3.6 million, which was primarily driven by the British Pound. See "Quantitative and Qualitative Disclosures about Market Risk" in Part II, Item 7A of this Annual Report on Form 10-K for information on currency exchange rate risk related to our revenues.

Royalty and Other Revenues

Royalty and Other Revenues include royalties on net sales of products to licensees or sublicensees, collaborative agreement revenues and rental income associated with the tenants in our San Rafael, California facility.

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Royalty and other revenues	$ 20.9	$ 43.2	$ 6.5	$ (22.3)	$ 36.7

In 2017 we recognized $31.5 million net upfront license revenue from Sarepta Therapeutics (Sarepta) and $3.8 million in royalty revenue earned on Sarepta net sales during 2017. We expect to continue to earn royalties from third parties in the future.

Cost of Sales and Product Gross Margin

Cost of Sales includes raw materials, personnel and facility and other costs associated with manufacturing our commercial products. These costs include production materials, production costs at our manufacturing

(In millions of U.S. Dollars, except as otherwise disclosed)

facilities, third-party manufacturing costs, and internal and external final formulation and packaging costs. Cost of Sales also includes royalties payable to third parties based on sales of our products.

The following table summarizes our cost of sales and product gross margin:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Total net product revenues	$ 1,470.4	$ 1,270.4	$ 1,110.4	$ 200.0	$ 160.0
Cost of sales	315.3	241.8	209.6	73.5	32.2
Product gross margin	79%	81%	81%	(2%)	0%

The 2018 increase in Cost of Sales was primarily attributable to increased Vimizim manufacturing costs and increased sales volume for Aldurazyme. Gross margin decreased in 2018 compared to 2017 primarily due to the impact of adopting ASC Topic 606 on Aldurazyme net product revenues and increased Vimizim and Naglazyme manufacturing costs. Under ASC 606, which we adopted on January 1, 2018, we recognize the full amount of expected Aldurazyme revenue in the same period as related cost of sales. Prior to adoption Aldurazyme gross margins fluctuated depending on the mix of product transfer revenue and variable consideration recognized in the period. Our product gross margin for the year ended December 31, 2017 remained flat compared to 2016. We expect total product gross margin to remain near 80 percent over the next twelve months.

Research and Development

R&D expense includes costs associated with the research and development of product candidates and post-marketing research commitments related to our approved products. R&D expense primarily includes preclinical and clinical studies, personnel and raw materials costs associated with manufacturing clinical product, quality control and assurance, other R&D activities, facilities and regulatory costs.

We manage our R&D expense by identifying the R&D activities we anticipate will be performed during a given period and then prioritizing efforts based on scientific data, probability of successful development, market potential, available human and capital resources and other similar considerations. We continually review our product pipeline and the development status of product candidates and, as necessary, reallocate resources among the research and development portfolio that we believe will best support the future growth of our business.

We continuously evaluate the recoverability of costs associated with pre-launch or pre-qualification manufacturing activities, and if it is determined that recoverability is highly likely and therefore future revenues are expected, the costs subsequently incurred related to pre-launch or pre-qualification manufacturing activities for purposes of commercial sales will likely be capitalized. When regulatory approval and the likelihood of future revenues for a product candidate are less certain, the related manufacturing costs are expensed as R&D expenses.

R&D expense increased to $696.3 million for the year ended December 31, 2018, compared to $610.8 million and $661.9 million for the years ended December 31, 2017 and 2016, respectively. R&D expense consisted of the following:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Palynziq	$ 94.8	$ 122.1	$ 88.6	$ (27.3)	$ 33.5
Valoctocogene roxaparvovec	161.7	118.2	58.9	43.5	59.3
Vosoritide	89.3	55.1	55.8	34.2	(0.7)
Tralesinidase alfa	82.2	56.0	46.1	26.2	9.9
Brineura	46.9	52.0	77.2	(5.1)	(25.2)
Other approved products	70.6	72.1	65.0	(1.5)	7.1
Early stage programs	68.2	65.4	55.9	2.8	9.5
Other	82.6	69.9	214.4	12.7	(144.5)
Total	$ 696.3	$ 610.8	$ 661.9	$ 85.5	$ (51.1)

2018 compared to 2017

The increase in R&D expense primarily comprised the following:

(In millions of U.S. Dollars, except as otherwise disclosed)

- an increase in costs for clinical studies related to our valoctocogene roxaparvovec and vosoritide product candidates;
- an increase in costs of the manufacturing of our tralesinidase alfa clinical product; and
- an increase in costs related to other R&D expenses primarily related to activity for our preclinical programs;
- partially offset by a decrease in costs related to Palynziq, for which capitalization of manufacturing costs began in the second quarter of 2018 following FDA approval; and
- a decrease in clinical manufacturing costs related to Brineura.

During 2019, we expect our R&D spending to increase over 2018 levels primarily due to our valoctocogene roxaparvovec, vosoritide and other programs progressing in their development. We also expect increased spending on preclinical activities for our early development stage programs and we expect to continue incurring R&D expense for the foreseeable future due to long-term clinical activities related to post-approval regulatory commitments for our approved products.

2017 compared to 2016

The decrease in R&D expense primarily comprised the following:

- a decrease in costs related to other R&D expense primarily related to R&D spending in 2016 on the Kyndrisa, other exon-skipping, and reveglucosidase alfa development programs, all of which were terminated in 2016; and
- a decrease in costs related to Brineura, which was approved for marketing in the U.S. and EU in June 2017 and July 2017, respectively. During the second quarter of 2016, we evaluated the facts and circumstances supporting recoverability of pre-launch manufacturing costs related to Brineura and concluded that recoverability was probable, resulting in the decrease in R&D costs as pre-launch manufacturing costs began to be capitalized during 2016. Prior to the second quarter of 2016, Brineura pre-launch manufacturing costs incurred were expensed to R&D expense as significant uncertainty existed over the recoverability of the costs at the time;
- partially offset by an increase in clinical trial activities related to tralesinidase alfa, Palynziq and valoctocogene roxaparvovec product candidates; and
- an increase in pre-clinical activity for our early stage programs.

Selling, General and Administrative

Sales and Marketing (S&M) expense primarily consisted of employee-related expenses for our sales group, brand marketing, patient support groups and pre-commercialization expenses related to our product candidates. General and administrative (G&A) expense primarily consisted of corporate support and other administrative expenses, including employee-related expenses.

SG&A expense increased to $604.4 million for the year ended December 31, 2018, compared to $554.3 million and $476.6 million for the years ended December 31, 2017 and 2016, respectively. SG&A expenses consisted of the following:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
S&M expense	$ 324.2	$ 291.5	$ 252.9	$ 32.7	$ 38.6
G&A expense	280.2	262.8	223.7	17.4	39.1
Total SG&A expense	$ 604.4	$ 554.3	$ 476.6	$ 50.1	$ 77.7

(In millions of U.S. Dollars, except as otherwise disclosed)

Components of S&M expense were as follows:

	Years Ended December 31,				
S&M expense by product:	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Brineura	$ 44.2	$ 31.6	$ 15.4	$ 12.6	$ 16.2
Palynziq	29.4	11.5	3.3	17.9	8.2
Other approved products	208.8	220.8	185.5	(12.0)	35.3
Other	41.8	27.6	48.7	14.2	(21.1)
Total S&M expense	$ 324.2	$ 291.5	$ 252.9	$ 32.7	$ 38.6

2018 compared to 2017

The increase in S&M expense was primarily a result of the following:

- the Palynziq U.S. commercial launch and European pre-launch activities;
- the continued expansion of marketing activities related to Brineura; and
- pre-launch activities related to our valoctocogene roxaparvovec product candidate;
- partially offset by a decrease in marketing activities related to our mature products as resources were shifted toward activities noted above.

The increase in G&A expense was primarily due to increased personnel-related costs mainly due to increased headcount to support our growth and other administrative-related costs.

We expect SG&A expense to increase in future periods as a result of the continued commercial launch of Palynziq, pre-commercialization efforts related to product candidates, and the continued international expansion of Vimizim and the PKU franchise.

2017 compared to 2016

The increase in S&M expense was primarily a result of the following:

- an increase in costs related to Kuvan and Vimizim due to continued worldwide expansion of commercial activities; and
- an increase in costs related to Brineura primarily due to marketing expense related to the commercial launch of Brineura in 2017;
- partially offset by a decrease in other S&M expenses primarily due to the decrease in S&M activities related to Kyndrisa and other terminated programs.

The increase in G&A expense was primarily due to increased personnel-related costs mainly due to increased headcount.

Intangible Asset Amortization and Contingent Consideration, Impairment of Intangible Assets and Gain on Sale of Intangible Assets

Changes during the periods presented for Intangible Asset Amortization and Contingent Consideration, Impairment of Intangible Assets, and Gain on Sale of Intangible Assets were as follows:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Increases (decreases) in the fair value of contingent consideration	$ 18.5	$ 10.3	$ (57.2)	$ 8.2	$ 67.5
Amortization of intangible assets	30.3	36.2	30.2	(5.9)	6.0
Total intangible asset amortization and contingent consideration	$ 48.8	$ 46.5	$ (27.0)	$ 2.3	$ 73.5
Impairment of intangible assets	$ —	$ —	$ 599.1	$ —	$ (599.1)
Gain on sale of intangible assets	$ (50.0)	$ (125.0)	$ —	$ 75.0	$ (125.0)

(In millions of U.S. Dollars, except as otherwise disclosed)

2018 compared to 2017

Fair value of contingent consideration – the changes in the fair value of the contingent consideration in 2018 were attributable to changes in the estimated probability of achieving development milestones based on the current status of the related development programs, which was primarily related to the continued progress of the Palynziq program to support the filing and progress toward approval of the European MAA.

Amortization of intangible assets – the decrease in 2018 was due to a 2017 impairment of IPR&D assets that we had acquired from Zacharon Pharmaceuticals, Inc. (Zacharon), as the related development program was terminated. It is our policy to report impairment charges that are not material as a component of Intangible Asset Amortization and Contingent Consideration on our Consolidated Statements of Operations.

Impairment of Intangible Assets –no material impairment charges were recorded in 2018 or 2017. See Note 6 to our accompanying Consolidated Financial Statements for additional information regarding our Intangible Assets.

Gain on Sale of Intangible Assets – we recognized a gain of $50.0 million in the year ended December 31, 2018 due to a third party's achievement of development and regulatory approval milestones related to a previously sold intangible asset. See Note 6 to the accompanying Consolidated Financial Statements for additional information.

2017 compared to 2016

Fair value of contingent consideration – The changes in fair value of contingent consideration in 2017 was primarily attributed to the following:

- the continued progress of the Palynziq developmental program; and
- the progress of the talazoparib program being developed by Pfizer Inc.;
- partially offset by the reversal in 2017 of the fair value of the Firdapse FDA approval milestone due to the reduction of the estimated probability of achieving such milestone prior to its expiration date; and
- the termination of the Kyndrisa and reveglucosidase alfa development programs in 2016 resulted in the reversal of the fair value of the remaining contingent consideration related to the Prosensa Holding N.V. and Zystor Therapeutics, Inc. acquisitions, respectively.

Amortization of intangible assets – the increase in amortization of intangible assets during 2017 was primarily attributable to the impairment of IPR&D assets we acquired from Zacharon

Impairment of Intangible Assets – no material impairment charges were recorded in 2017. In 2016, we recorded an impairment charge of $599.1 million related to the Kyndrisa and other exon and reveglucosidase alfa IPR&D assets based on the termination of the internal development of the respective programs.

Gain on Sale of Intangible Assets – In December 2017, we sold the Priority Review Voucher (PRV) that we received in connection with the FDA approval of Brineura. In exchange for the PRV, we received lump sum payment of $125.0 million, which was recognized as a gain on the sale of intangible assets.

Interest Expense

We incur interest expense on our convertible debt. Interest expense consisted of the following:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Coupon interest	$ 12.5	$ 10.4	$ 9.6	$ 2.1	$ 0.8
Amortization of debt issuance costs	3.6	3.7	3.4	(0.1)	0.3
Accretion of discount on convertible notes	27.6	28.6	26.5	(1.0)	2.1
Total interest expense	$ 43.7	$ 42.7	$ 39.5	$ 1.0	$ 3.2

The increased interest expense in 2018 compared to 2017 was primarily due to the issuance of our 0.599% senior subordinated convertible notes due in 2024 (the 2024 Notes) in August 2017, partially offset by the maturity of our 0.75% senior subordinated convertible notes, which matured on October 15, 2018 (the 2018 Notes) in October 2018. The increased interest expense in 2017 compared to 2016 was attributable to the

(In millions of U.S. Dollars, except as otherwise disclosed)

issuance of the 2024 Notes. We expect Interest Expense to decrease moderately over the next 12 months due to the maturity of the 2018 Notes. See Note 12 to our accompanying Consolidated Financial Statements for additional information regarding our debt.

Interest Income

We invest our cash equivalents and investments in U.S. government securities and other high credit quality debt securities in order to limit default and market risk. Changes during the periods presented for impairment of intangible assets, gain on sale of intangible assets and interest income were as follows:

	Years Ended December 31,				
	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Interest income	$ 22.8	$ 14.9	$ 7.5	$ 7.9	$ 7.4

The increase in interest income during 2018 compared to 2017 was primarily due to a higher investment balance during the period and higher average interest rate on investments. The increase in interest income during 2017 compared to 2016 was primarily due to a higher investment balance, which increased due to the investment of the net proceeds of $481.7 million from our August 2017 issuance of the 2024 Notes and higher average interest rate on investments. We expect Interest Income to decrease moderately over the next 12 months due to the repayment of the 2018 Notes.

Provision for (Benefit from) Income Taxes

On December 22, 2017, the 2017 Tax Act was signed into law. The new law has resulted in significant changes to the U.S. corporate income tax system. These changes include a federal statutory rate reduction from 35% to 21% and the elimination or reduction of certain domestic deductions and credits, including a 50% reduction in the orphan drug credit. The 2017 Tax Act changed U.S. international taxation from a worldwide basis to a modified territorial system that includes base erosion prevention measures on foreign earnings. This resulted in our foreign subsidiaries being subject to U.S. taxation in the future. These changes were effective in 2018.

We recognized an income tax benefit of $65.5 million, an income tax expense of $81.2 million and an income tax benefit of $200.8 million in the years ended December 31, 2018, 2017 and 2016, respectively. Changes to tax laws and tax rates are required to be accounted for in the period of the enactment, therefore our 2017 tax provision included the impact of the 2017 Tax Act. Provision for (benefit from) income taxes for 2018, 2017 and 2016 consisted of state, federal and foreign current tax expense which was offset by tax benefits related to stock option exercises and deferred tax benefits from federal orphan drug credits, federal R&D credits and California R&D credits. The provision for (benefit from) income taxes for the years ended December 31, 2018, 2017 and 2016 were further impacted by the following items:

- 2017 included a provisional expense of $42.3 million related to the 2017 Tax Act primarily consisting of $33.1 million for the re-measurement of the net deferred tax assets at the lower enacted corporate tax rate and $9.2 million related to the new limitations on tax deductible compensation. Our deferred tax assets and liabilities are measured at the enacted tax rate expected to apply when these temporary differences are expected to be realized or settled. Additionally, we established a $41.4 million valuation allowance on state tax credits as management assessed the impact of the 2017 Tax Act on our financial projections and concluded that it is more likely than not that these state tax credits will not be utilized in the foreseeable future because these credits do not expire and we project that we will be generating more credits than we will utilize on an annual basis. The 2017 Tax Act also includes a one-time mandatory deemed repatriation toll tax on accumulated earnings of our foreign subsidiaries that did not impact us due to a net deficit in these foreign subsidiaries.

  In December 2017, the Securities and Exchange Commission staff issued Staff Accounting Bulletin No. 118, *Income Tax Accounting Implications of the Tax Cuts and Jobs Act* (SAB 118), which allowed us to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. As a result, we previously provided a provisional estimate of the effect of the 2017 Tax Act in our financial statements. In the fourth quarter of 2018, we completed our analysis to determine the effect of the 2017 Tax Act and recorded immaterial adjustments as of December 31, 2018. We have elected to account for Global Intangible Low-taxed Income (GILTI) as a current period expense when incurred.
- 2016 included a deferred tax benefit of $143.5 million associated with the GAAP impairment of the Kyndrisa IPR&D.

(In millions of U.S. Dollars, except as otherwise disclosed)

The consolidated GAAP net loss includes all of our foreign subsidiaries. In accordance with Accounting Standards Codification Topic 740, *Income Taxes*, we calculate our provision for (benefit from) income taxes on an entity-by-entity and jurisdiction-by-jurisdiction basis as adjusted for differences between book-basis income and tax-basis income, which results in certain foreign entities being profitable and incurring foreign current income tax expense. Certain foreign entities incur significant amounts of R&D expense that results in significant losses that more than offset the income reported by the profitable foreign entities on a consolidated basis. The majority of these material R&D losses are in foreign jurisdictions that do not have net operating loss carryforward provisions that result in deferred tax assets, which results in an effective tax rate of 0% on approximately $142.0 million of foreign net losses during 2018. For the year ended December 31, 2018, our Dutch operations had GAAP income of $36.9 million. For the year ended December 31, 2018, other foreign operations generated GAAP income of approximately $91.1 million with an effective tax rate of approximately 10.6%.

Financial Position, Liquidity and Capital Resources

As of December 31, 2018, we had $1.3 billion in cash, cash equivalents, and investments. We expect to fund our operations with our net product revenues from our commercial products, cash, cash equivalents and investments, supplemented as may become necessary by proceeds from equity or debt financings and loans, or collaborative agreements with corporate partners. We may require additional financing to fund the repayment of our convertible debt, future milestone payments and our future operations, including the commercialization of our products and product candidates currently under development, preclinical studies and clinical trials, and potential licenses and acquisitions. We will need to raise additional funds from equity or debt securities, loans or collaborative agreements if we are unable to satisfy our liquidity requirements. The timing and mix of our funding options could change depending on many factors, including how much we elect to spend on our development programs, potential licenses and acquisitions of complementary technologies, products and companies or if we elect to settle all or a portion of our convertible debt in cash.

In managing our liquidity needs in the U.S., we do not rely on unrepatriated earnings as a source of funds and we have not provided for U.S. federal or state income taxes on these undistributed foreign earnings. We do not record U.S. tax expense on the undistributed earnings of our controlled foreign subsidiaries as these earnings are intended to be indefinitely reinvested offshore. Currently, we are not subject to the repatriation tax on foreign earnings due to the net deficit in these foreign jurisdictions.

As of December 31, 2018, $156.4 million of our $1.3 billion balance of cash, cash equivalents and investments was held in foreign subsidiaries, a significant portion of which is required to fund the liquidity needs of these foreign subsidiaries. See Note 14 to our accompanying Consolidated Financial Statements for additional discussion regarding income taxes.

We are mindful that conditions in the current macroeconomic environment could affect our ability to achieve our goals. We sell our products in countries that face economic volatility and weakness. Although we have historically collected receivables from customers in such countries, sustained weakness or further deterioration of the local economies and currencies may cause customers in those countries to be unable to pay for our products. We will continue to monitor these conditions and will attempt to adjust our business processes, as appropriate, to mitigate macroeconomic risks to our business.

Our liquidity and capital resources as of December 31 were as follows:

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Cash and cash equivalents	$ 494.0	$ 598.0	$ 408.3	$ (104.0)	$ 189.7
Short-term investments	590.3	797.9	381.3	(207.6)	416.6
Long-term investments	235.9	385.8	572.8	(149.9)	(187.0)
Cash, cash equivalents and investments	$ 1,320.2	$ 1,781.7	$ 1,362.4	$ (461.5)	$ 419.3
Convertible debt, net	$ 830.4	$ 1,174.5	$ 683.2	$ (344.1)	$ 491.3

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)
(In millions of U.S. Dollars, except as otherwise disclosed)

Our cash flows for each of the years ended December 31 are summarized as follows:

	2018	2017	2016	2018 vs. 2017	2017 vs. 2016
Cash & cash equivalents at the beginning of the period	$ 598.0	$ 408.3	$ 397.0	$ 189.7	$ 11.3
Net cash provided by (used in) operating activities	20.2	(8.8)	(227.8)	29.0	219.0
Net cash provided by (used in) investing activities	264.4	(305.5)	(484.0)	569.9	178.5
Net cash (used in) provided by financing activities	(388.0)	507.1	727.1	(895.1)	(220.0)
Foreign exchange impact	(0.6)	(3.1)	(4.0)	2.5	0.9
Cash & cash equivalents at the end of the period	$ 494.0	$ 598.0	$ 408.3	$ (104.0)	$ 189.7
Short-term and long-term investments	826.2	1,183.7	954.1	(357.5)	229.6
Cash, cash equivalents and investments	$ 1,320.2	$ 1,781.7	$ 1,362.4	$ (461.5)	$ 419.3

Cash Provided by (Used in) Operating Activities

Cash provided by operating activities for the year ended December 31, 2018 was $20.2 million, compared to cash used in operating activities of $8.8 million for the year ended December 31, 2017. Cash provided by operating activities was primarily attributed to the timing of cash receipts from customers and payments to vendors, partially offset by higher inventory levels. The increase in accounts receivable is primarily due to the increase in Genzyme unbilled receivables due to the adoption of ASC Topic 606.

Cash used in operating activities for the year ended December 31, 2017 was $8.8 million, compared to cash used in operating activities of $227.8 million for the year ended December 31, 2016. Cash used in operating activities was primarily attributed to the timing of cash receipts from customers and payments to vendors, partially offset by higher inventory levels.

Cash Provided by (Used in) Investing Activities

Net cash provided by investing activities for the year ended December 31, 2018 was $264.4 million, compared to net cash used in investing activities of $305.5 million for the year ended December 31, 2017. Net cash provided by investing activities for the year ended December 31, 2018 was primarily attributable to $359.0 million in net maturities of available-for-sale debt securities and $50.0 million in milestone payment receipts related to a previously sold intangible asset, partially offset by $144.6 million in purchases of property, plant and equipment. We expect to continue to make significant capital investments in our manufacturing facilities and our corporate headquarters to accommodate anticipated headcount growth.

Net cash used in investing activities for the year ended December 31, 2017 was $305.5 million, compared to net cash used in investing activities of $484.0 million for the year ended December 31, 2016. Net cash used in investing activities for the year ended December 31, 2017 was primarily attributable to $229.5 million in net purchases of available-for-sale debt securities and $199.2 million in purchases of property, plant and equipment, partially offset by $125.0 million in milestone payment receipts related to a previously sold intangible asset.

Cash (Used in) Provided by Financing Activities

Net cash used in financing activities for the year ended December 31, 2018 was $388.0 million, compared to net cash provided by financing activities of $507.1 million for the year ended December 31, 2017. Net cash used in financing activities for the year ended December 31, 2018 was primarily related to the $375.0 million settlement of the 2018 Notes, which matured in October 2018, partially offset by $31.6 million of net proceeds from issuances under our equity incentive plans.

Net cash provided by financing activities for the year ended December 31, 2017 was $507.1 million, compared to net cash provided by financing activities of $727.1 million for the year ended December 31, 2016. Net cash provided by financing activities for the year ended December 31, 2017 was primarily attributable to $481.7 million of net proceeds from the issuance of the 2024 Notes, issued in August 2017, and $27.4 million of net proceeds from issuances under our equity incentive plans.

Other Information

Our $870.0 million (undiscounted) of total convertible debt as of December 31, 2018 will impact our liquidity due to the semi-annual cash interest payments. As of December 31, 2018, our indebtedness consisted primarily of our 1.50% senior subordinated convertible notes due in 2020 (the 2020 Notes) and the 2024 Notes (together with the 2020 Notes, the Notes), which, if not converted, will be required to be repaid in cash at maturity in 2020 and 2024, respectively. See Note 12 to our accompanying Consolidated Financial Statements for additional discussion.

Our 2018 Notes matured in October 2018 and were settled with a combination of cash and shares of our common stock, consisting of approximately $375.0 million in cash and 190,220 in shares. The shares issued represented the value of the 2018 Notes in excess of the conversion price of $94.15, as measured over a 25-day averaging period. The cash payment was comprised of the principal, the value of fractional shares and the value of unconverted 2018 Notes. In October 2018, pursuant to a capped call transaction, which was entered into concurrently with the issuance of the 2018 Notes, we received from the capped call counterparties 95,127 shares of our common stock, which was accounted for as treasury shares and subsequently retired. No gain or loss was incurred upon the extinguishment of the 2018 Notes.

In the event the conditional conversion feature of the 2020 Notes is triggered, holders of the 2020 Notes will be entitled to convert the 2020 Notes at any time during specified periods at their option. In addition, the 2020 Notes will be freely convertible on or after July 15, 2020. We intend to use the remaining balance of the net proceeds we received from the issuance of the 2024 Notes to repay, repurchase or settle in cash some or all of the 2020 Notes. We may elect to settle conversions of the 2020 Notes in cash, in whole or in part, which could further affect our liquidity. While we could seek to obtain additional third-party financing to pay for any amounts due in cash upon such events, we cannot be sure that such third-party financing will be available on commercially reasonable terms, if at all. Even if holders of the 2020 Notes do not elect to convert their 2020 Notes, we could be required under applicable accounting rules to reclassify all or a portion of the outstanding principal of such Notes as a current liability rather than long-term liability (for example, when there are twelve months or less remaining until maturity), which would result in a material reduction of our net working capital.

In August 2017, we completed an offering of $495.0 million in aggregate principal amount of the 2024 Notes, which resulted in net proceeds of $481.7 million, after deducting commissions and offering expenses. In August 2016, we sold 7.5 million shares of our common stock at a price of $96.00 per share in an underwritten public offering pursuant to an effective registration statement previously filed with the SEC. We received net proceeds of approximately $712.9 million from this public offering after accounting for the underwriting discount and offering costs.

In October 2018, we entered into an unsecured revolving credit facility of up to $200.0 million (the 2018 Credit Facility) and terminated the credit facility that we entered into in November 2016, which provided for up to $100.0 million in revolving loans (the 2016 Credit Facility). The 2018 Credit Facility includes a letter of credit subfacility and a swingline loan subfacility and is also intended to finance ongoing working capital needs and for other general corporate purposes. Borrowings under the 2018 Credit Facility bear interest, at our option, at a rate equal to either (a) the LIBOR rate (except that if LIBOR is less than zero it shall be deemed to be zero for purposes of the 2018 Credit Facility), or LIBOR successor rate, plus an applicable margin ranging from 1.00% to 1.95% per annum, based upon our net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods, or (b) the Base Rate, generally the prime lending rate, plus an applicable margin ranging from 0.00% to 0.95%, based upon our net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods. Commitment fees payable on the undrawn amount range from 0.15% to 0.35% per annum based upon our net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods. Our obligations under the Credit Facility are guaranteed by our direct subsidiary, California Corporate Center Acquisition LLC, and such obligations may in the future be guaranteed from time to time by certain other material domestic subsidiaries. The 2018 Credit Facility matures on October 19, 2021 at which time all outstanding amounts become due and payable, except that if at least $100.0 million aggregate principal amount of the 2020 Notes remain outstanding on August 1, 2020 and certain other conditions have not been met, we may be required to repay all amounts borrowed under the 2018 Credit Facility on August 1, 2020. We incurred approximately $1.0 million of issuance costs, which will be amortized to Interest expense over the term of the 2018 Credit Facility. We incurred no gain or loss upon the termination of the 2016 Credit facility. The 2018 Credit Facility contains financial covenants requiring us to maintain a minimum interest coverage ratio and a minimum liquidity requirement. See Note 12 to our accompanying Consolidated Financial Statements for additional discussion.

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)
(In millions of U.S. Dollars, except as otherwise disclosed)

Funding Commitments

We cannot estimate with certainty the cost to complete any of our product development programs. Additionally, except as disclosed under "Overview" above, we cannot precisely estimate the time to complete any of our product development programs or when we expect to receive net cash inflows from any of our product development programs. Please see "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K, for a discussion of the reasons we are unable to estimate such information, and in particular the following risk factors:

- *If we fail to obtain regulatory approval to commercially market and sell our product candidates, or if approval of our product candidates is delayed, we will be unable to generate revenue from the sale of these product candidates, our potential for generating positive cash flow will be diminished, and the capital necessary to fund our operations will increase;*
- *If we are unable to successfully develop and maintain manufacturing processes for our products to produce sufficient quantities at acceptable costs, we may be unable to meet demand for our products and lose potential revenue, have reduced margins or be forced to terminate a program;*
- *If we fail to compete successfully with respect to product sales, we may be unable to generate sufficient sales to recover our expenses related to the development of a product program or to justify continued marketing of a product and our revenue could be adversely affected.*
- *If we do not achieve our projected development goals in the timeframes we announce and expect, the commercialization of our product candidates may be delayed and the credibility of our management may be adversely affected and, as a result, our stock price may decline.*

Our investment in our product development programs and continued development of our existing commercial products has a major impact on our operating performance. Our R&D expenses for the period since inception as of December 31, 2018 for certain of our key programs were as follows:

	Since Program Inception
Palynziq	$ 617.7
Valoctocogene roxaparvovec	401.0
Vosoritide	319.0
Brineura	287.1
Other approved products	1,050.4
Other	Not meaningful

We may need or elect to increase our spending above our current long-term plans to be able to achieve our long-term goals. This may increase our capital requirements, including: costs associated with the commercialization of our products; additional clinical trials; investments in the manufacturing of our commercial products; preclinical studies and clinical trials for our other product candidates; potential licenses and other acquisitions of complementary technologies, products and companies; and general corporate purposes.

Our future capital requirements will depend on many factors, including, but not limited to:

- our ability to successfully market and sell our products;
- the time and cost necessary to develop commercial manufacturing processes, including quality systems, and to build or acquire manufacturing capabilities;
- the progress and success of our preclinical studies and clinical trials (including studies and the manufacture of materials);
- the timing, number, size and scope of our preclinical studies and clinical trials;
- the time and cost necessary to obtain regulatory approvals and the costs of post-marketing studies which may be required by regulatory authorities;
- the progress of research programs carried out by us.

Management's Discussion and Analysis of Financial Condition and Results of Operations (continued)
(In millions of U.S. Dollars, except as otherwise disclosed)

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements that are currently material or reasonably likely to be material to our consolidated financial position or results of operations.

Contractual and Commercial Obligations

We have contractual and commercial obligations under our convertible debt, operating leases and other obligations related to R&D activities, purchase commitments, licenses and sales royalties with annual minimums. Our contractual obligations as of December 31, 2018 are presented in the table below.

	Payments Due within				
	1 Year or Less	>1 -3 Years	> 3 - 5 Years	More Than 5 Years	Total
2020 Notes and related interest	$ 5.6	$ 380.6	$ —	$ —	$ 386.2
2024 Notes and related interest	3.0	5.9	5.9	498.0	512.8
Operating leases	13.0	23.7	20.6	27.7	85.0
R&D and purchase commitments	88.3	3.5	—	—	91.8
Total	$ 109.9	$ 413.7	$ 26.5	$ 525.7	$ 1,075.8

We are also subject to contingent payments related to certain development and regulatory activities and commercial sales and licensing milestones totaling approximately $477.3 million as of December 31, 2018, which are due upon achievement of certain development and commercial milestones, and if they occur before certain dates in the future. Of this amount, $154.5 million relates to remaining amounts due to Ares Trading S.A. (Merck Serono), from whom in 2016 we acquired certain rights and other assets with respect to Kuvan and Palynziq, and $80.7 million relates to programs that are no longer being developed.

As of December 31, 2018, we have recorded $132.8 million of contingent consideration on our Consolidated Balance Sheets.

Any outstanding amounts due under the 2018 Credit Facility will be due in full in October 2021 with related interest, if any, due on a quarterly basis, except that if at least $100.0 million aggregate principal amount of the 2020 Notes remain outstanding on August 1, 2020 and certain other conditions have not been met, we may be required to repay all amounts borrowed under the 2018 Credit Facility on August 1, 2020. As of December 31, 2018, there was no outstanding balance.

Item 7A. Quantitative and Qualitative Disclosure About Market Risk

We are exposed to market risks that may result from changes in foreign currency exchange rates, interest rates and credit risks. To reduce certain of these risks, we enter into foreign currency derivative hedging transactions, follow investment guidelines and monitor outstanding trade receivables as part of our risk management program.

Foreign Currency Exchange Rate Risk

Our operations include manufacturing and sales activities in the U.S. as well as sales activities in regions outside the U.S, including Europe, Latin America and Asia Pacific. As a result, our financial results may be significantly affected by factors such as changes in foreign currency exchange rates or weak economic conditions in the foreign markets in which we sell our products. Our operating results are exposed to changes in foreign currency exchange rates between the U.S. Dollar (USD) and various foreign currencies, primarily the Euro. When the USD strengthens against these currencies, the relative value of the sales made in the respective foreign currency decreases. Conversely, when the USD weakens against these currencies, the relative value of such sales increases. Overall, we are a net receiver of foreign currencies and, therefore, benefit from a weaker USD and are adversely affected by a stronger USD relative to those foreign currencies in which we transact significant business.

During 2018, approximately 39% of our net product sales were denominated in foreign currencies and 17% of our operating expenses were denominated in foreign currencies. To partially mitigate the impact of changes in currency exchange rates on net cash flows from our foreign currency denominated sales and operating expenses, we may enter into forward foreign currency exchange contracts (forward contracts). We also hedge certain monetary assets and liabilities, primarily those denominated in Euros, using forward contracts, which reduces but does not eliminate our exposure to currency fluctuations between the date the transaction is recorded and the date the cash is collected or paid. Generally, the market risks of these contracts are offset by the corresponding gains and losses on the transactions being hedged.

We do not use derivative financial instruments for speculative trading purposes, nor do we hedge foreign currency exchange rate exposure in a manner that entirely offsets the effects of changes in foreign currency exchange rates. The counterparties to these forward contracts are creditworthy multinational commercial banks, which minimizes the risk of counterparty nonperformance. We regularly review our hedging program and may, as part of this review, make changes to the program.

As of December 31, 2018, we had open forward contracts with notional amounts of $418.4 million. A hypothetical 10% strengthening in foreign currency exchange rates compared with the USD relative to exchange rates at December 31, 2018 would have resulted in a reduction in the value received over the remaining life of these contracts by approximately $43.7 million on this date and, if realized, would negatively affect earnings during the remaining life of the contracts. The estimated fair value change was determined by measuring the impact of the hypothetical exchange rate movement on outstanding forward contracts. This analysis does not consider the impact of the hypothetical changes in foreign currency rates would have on the forecasted transactions that these foreign currency sensitive instruments were designated to offset. Our use of this methodology to quantify the market risk of such instruments is subject to assumptions and actual impact could be significantly different.

Based on our overall foreign currency exchange rate exposures at December 31, 2018, we believe that a near-term 10% fluctuation of the USD exchange rate could result in a potential change in the fair value of our foreign currency sensitive assets, excluding our investments and open forward contracts by approximately $3.3 million. We expect to continue to enter into transactions based in foreign currencies that could be impacted by changes in exchange rates.

Interest Rate Market Risk

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio, which includes our cash equivalents and marketable debt securities. By policy, we place our investments with highly rated credit issuers and limit the amount of credit exposure to any one issuer. As stated in our investment policy, we seek to improve the safety and likelihood of preservation of our invested funds by limiting default risk and market risk.

We mitigate default risk by investing in high credit quality securities and by positioning our portfolio to respond appropriately to a significant reduction in a credit rating of any investment issuer or guarantor. The portfolio includes only marketable securities with active secondary or resale markets to ensure portfolio liquidity.

We have outstanding $375.0 million (undiscounted) of the 2020 Notes and $495.0 million (undiscounted) of the 2024 Notes. The interest rates on these notes are fixed and therefore they do not expose us to risk related to rising interest rates. As of December 31, 2018, the fair value of our convertible debt was $911.3 million.

In connection with the October 2013 offering of the 2018 Notes, which matured in October 2018, and the 2020 Notes, we paid $29.8 million to purchase a capped call covering 3,982,988 shares of our common stock, with 50% related to the 2018 Notes and 50% related to the 2020 Notes. If the per share price of our common stock remains below $94.15, the capped call transaction would be not applicable and, therefore, would provide us no benefit in offsetting potential dilution from the 2020 Notes. If the per share price of our common stock exceeds $121.05, then, to the extent of the excess, the capped call transaction would result in additional dilution from conversion of the 2020 Notes.

As of December 31, 2018, our investment portfolio did not include any investments with significant exposure to countries that face economic volatility and weakness. Although not predictive in nature, we believe a hypothetical 100 basis point threshold reflects a reasonably possible near-term change in interest rates. Based on our investment portfolio and interest rates at December 31, 2018, we believe that a 100 basis point increase in interest rates could result in a potential loss in fair value of our investment portfolio of approximately $5.6 million. Changes in interest rates may affect the fair value of our investment portfolio. However, we will not recognize such gains or losses in our Consolidated Statements of Operations unless the investments are sold or we determine that the decline in the investment's value is other than temporary.

The table below summarizes the expected maturities and average interest rates of our interest-generating investments at December 31, 2018 (in millions):

	Expected Maturity						
	2019	2020	2021	2022	2023	Thereafter	Total
Available-for-sale debt securities	$ 649.7	$ 182.3	$ 53.4	$ —	$ —	$ 0.2	$ 885.6
Average interest rate	2.8%	3.1%	3.2%	—	—	5.3%	2.9%

Counterparty credit risks

Our financial instruments, including derivatives, are subject to counterparty credit risk that we consider as part of the overall fair value measurement. Our financial risk management policy limits derivative transactions by requiring transactions to be with institutions with minimum credit ratings of A or equivalent by Standards & Poor's, Moody's or Fitch. In addition, we have an investment policy that limits investments to certain types of debt and money market instruments issued by institutions primarily with investment grade credit ratings and places restriction on maturities and concentrations by asset class and issuer.

Item 8. Financial Statements and Supplementary Data

The information required to be filed in this item appears under "Exhibits, Financial Statement Schedules" in Part IV, Item 15 of this Annual Report on Form 10-K and is set forth on pages F-1 to F-41.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

An evaluation was carried out, under the supervision of and with the participation of our management, including our Chief Executive Officer and our Chief Financial Officer, of the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this report. Based on the evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of December 31, 2018.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining an adequate internal control structure and procedures for financial reporting. Under the supervision of and with the participation of our management,

including our Chief Executive Officer and our Chief Financial Officer, our management has assessed the effectiveness of our internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act as of December 31, 2018. Our management's assessment was based on criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO), Internal Control-Integrated Framework (2013).

Based on the COSO criteria, our management has concluded that our internal control over financial reporting as of December 31, 2018 was effective.

Our independent registered public accounting firm, KPMG LLP, has audited the financial statements included in this Annual Report on Form 10-K and has issued a report on the effectiveness of our internal control over financial reporting. The report of KPMG LLP is incorporated by reference to Item 8 of this Annual Report on Form 10-K.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during our most recently completed quarter that have materially affected or are reasonably likely to materially affect our internal control over financial reporting, as defined in Rule 13a-15(f) under the Exchange Act.

Effective January 1, 2019, we adopted Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 842, Leases (ASC Topic 842). During the year ended 2018, we evaluated internal controls necessary to ensure that we adequately evaluated our contracts and properly assessed the impact of ASC Topic 842 on our financial statements to facilitate the adoption on January 1, 2019. We have implemented new internal controls. No new systems were implemented and we do not expect significant changes to our internal control over financial reporting due to the adoption of ASC Topic 842.

Scope of the Effectiveness of Controls

Our 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 GAAP. Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;
- provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and our board of directors; and
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our 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.

Item 9B. Other Information

None.

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item regarding our directors, executive officers and corporate governance is incorporated into this section by reference to the sections captioned “Election of Directors” and “Executive Officers” in the proxy statement for our 2019 annual meeting of stockholders.

Item 11. Executive Compensation

The information required by this Item regarding executive compensation is incorporated into this section by reference to the section captioned “Executive Compensation” in the proxy statement for our 2019 annual meeting of stockholders.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item regarding security ownership of our beneficial owners, management and related stockholder matters is incorporated into this section by reference to the section captioned “Security Ownership of Certain Beneficial Owners and Management” in the proxy statement for our 2019 annual meeting of stockholders.

The information required by this Item regarding the securities authorized for issuance under our equity compensation plans is incorporated into this section by reference to the section captioned “Equity Compensation Plan Information” in the proxy statement for our 2019 annual meeting of stockholders.

Item 13. Certain Relationships and Related Transactions and Director Independence

The information required by this Item regarding certain relationships, related transactions and director independence is incorporated into this section by reference to the sections captioned “Transactions with Related Persons, Promoters and Certain Control Persons,” “Review, Approval and Ratification of Transactions with Related Parties” and “Director Independence” in the proxy statement for our 2019 annual meeting of stockholders.

Item 14. Principal Accounting Fees and Services

The information required by this Item regarding our principal accountant fees and services is incorporated into this section by reference to the section captioned “Independent Registered Public Accounting Firm” in the proxy statement for our 2019 annual meeting of stockholders.

Part IV

Item 15. Exhibits, Financial Statement Schedules

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2.1	Purchase Agreement, dated as of November 23, 2014, among BioMarin Falcons B.V., BioMarin Pharmaceutical Inc. and Prosensa Holding N.V., previously filed with the SEC on November 26, 2014 as Exhibit 2.01 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
2.2	Amended and Restated Termination and Transition Agreement, dated as of December 23, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on January 7, 2016 as Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.3	Termination Agreement, dated as of October 1, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on January 7, 2016 as Exhibit 2.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.4	Termination and Transition Agreement, dated as of October 1, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on January 7, 2016 as Exhibit 2.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.5	First Amendment, dated as of December 12, 2016, to the Amended and Restated Termination and Transition Agreement, dated as of December 23, 2015 and effective as of October 1, 2015, between BioMarin Pharmaceutical Inc. and Ares Trading S.A., previously filed with the SEC on February 27, 2017 as Exhibit 2.6 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. Portions of this exhibit (indicated by asterisks) have been omitted pursuant to a request for confidential treatment. Omitted portions have been filed separately with the SEC.
2.6	Asset Purchase Agreement between BioMarin Pharmaceutical Inc. and Medivation, Inc., dated August 21, 2015, previously filed with the SEC on October 7, 2015 as Exhibit 2.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
3.1	Restated Certificate of Incorporation of BioMarin Pharmaceutical Inc., previously filed with the SEC on June 12, 2017 as Exhibit 3.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
3.2	Amended and Restated Bylaws of BioMarin Pharmaceutical Inc., previously filed with the SEC on September 24, 2018 as Exhibit 3.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.1	Indenture dated as of March 29, 2006, between BioMarin Pharmaceutical Inc. and Wilmington Trust Company, previously filed with the SEC on March 29, 2006 as Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.2	Second Supplemental Indenture, dated as of April 23, 2007, between BioMarin Pharmaceutical Inc. and Wilmington Trust Company, previously filed with the SEC on April 23, 2007 as Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.

4.3	Indenture, dated as of October 15, 2013, between BioMarin Pharmaceutical Inc. and Wilmington Trust, National Association, previously filed with the SEC on October 15, 2013 as Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.4	First Supplemental Indenture, dated as of October 15, 2013, between BioMarin Pharmaceutical Inc. and Wilmington Trust, National Association (including the form of 0.75% Senior Subordinated Convertible Notes due 2018), previously filed with the SEC on October 15, 2013 as Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.5	Second Supplemental Indenture, dated as of October 15, 2013, between BioMarin Pharmaceutical Inc. and Wilmington Trust, National Association (including the form of 1.50% Senior Subordinated Convertible Notes due 2020), previously filed with the SEC on October 15, 2013 as Exhibit 4.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.6	Base Indenture, dated August 11, 2017, between the Company and Wilmington Trust, National Association, as Trustee, previously filed with the SEC on August 11, 2017 as Exhibit 4.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
4.7	First Supplemental Indenture, dated August 11, 2017, between the Company and Wilmington Trust, National Association, as Trustee (including the form of 0.599% Senior Subordinated Convertible Note due 2024), previously filed with the SEC on August 11, 2017 as Exhibit 4.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.1†	Form of Indemnification Agreement for Directors and Officers, previously filed with the SEC on December 19, 2016 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.2†	BioMarin Pharmaceutical Inc. Amended and Restated 2006 Employee Stock Purchase Plan, as adopted on June 21, 2006 and amended on March 5, 2014, previously filed with the SEC on June 10, 2014 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.3†	BioMarin Pharmaceutical Inc. Amended and Restated 2006 Share Incentive Plan, as adopted on May 2, 2006 and as amended and restated on April 16, 2015, previously filed with the SEC on June 15, 2015 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.4†	Form of Agreement Regarding Restricted Share Units for the BioMarin Pharmaceutical Inc. 2006 Share Incentive Plan, previously filed with the SEC on May 16, 2013 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.5†	Form of Amendment to Agreement Regarding Restricted Share Units for the BioMarin Pharmaceutical Inc. 2006 Share Incentive Plan, previously filed with the SEC on December 9, 2016 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.6†	Amended and Restated BioMarin Pharmaceutical Inc. Nonqualified Deferred Compensation Plan, as adopted on December 1, 2005 and as amended and restated on January 1, 2009 and further amended and restated on December 19, 2013 and October 7, 2014, previously filed with the SEC on October 14, 2014 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.7†	Summary of Bonus Plan, previously filed with the SEC on February 27, 2009 as Exhibit 10.33 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.

10.8†	Amended and Restated Employment Agreement with Jean-Jacques Bienaimé effective December 13, 2016 previously filed with the SEC on December 19, 2016 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.9	Grant Terms and Conditions Agreement between BioMarin Pharmaceutical Inc. and Harbor-UCLA Research and Education Institute dated April 1, 1997, as amended, previously filed with the SEC on July 21, 1999 as Exhibit 10.17 to the Company's Amendment No. 3 to Registration Statement on Form S-1 (File No. 333-77701), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.10	License Agreement dated July 30, 2004, between BioMarin Pharmaceutical Inc. and Daiichi Suntory Pharma Co., Ltd., as amended by Amendment No. 1 to License Agreement dated November 19, 2004, previously filed with the SEC on March 16, 2005 as Exhibit 10.25 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.11	Operating Agreement with Genzyme Corporation, previously filed with the SEC on July 6, 1999 as Exhibit 10.30 to the Company's Amendment No. 2 to Registration Statement on Form S-1 (File No. 333-77701), which is incorporated herein by reference.
10.12	Manufacturing, Marketing and Sales Agreement dated as of January 1, 2008, by and among BioMarin Pharmaceutical Inc., Genzyme Corporation and BioMarin/Genzyme LLC previously filed with the SEC on February 28, 2008 as Exhibit 10.30 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.13	Amended and Restated Collaboration Agreement dated as of January 1, 2008, by and among BioMarin Pharmaceutical Inc., Genzyme Corporation and BioMarin/Genzyme LLC previously filed with the SEC on February 28, 2008 as Exhibit 10.31 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.14	Members Agreement dated as of January 1, 2008 by and among BioMarin Pharmaceutical Inc., Genzyme Corporation, BioMarin Genetics Inc., and BioMarin/Genzyme LLC previously filed with the SEC on February 28, 2008 as Exhibit 10.32 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.15†	BioMarin Pharmaceutical Inc. 2012 Inducement Plan, adopted May 8, 2012, previously filed with the SEC on May 9, 2012 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.16†	Form of Stock Options Agreement for the BioMarin Pharmaceutical Inc. 2006 Share Incentive Plan. (as Amended and Restated 2010), previously filed with the SEC on August 2, 2012 as Exhibit 10.11 to the Company's Quarterly Report on Form 10-Q (File No. 000-26727), which is incorporated herein by reference.
10.17†	Form of Stock Options Agreement for the BioMarin Pharmaceutical Inc. 2012 Inducement Plan, previously filed with the SEC on August 2, 2012 as Exhibit 10.13 to the Company's Quarterly Report on Form 10-Q (File No. 000-26727), which is incorporated herein by reference.
10.18†	Form of Agreement Regarding Restricted Stock Units for the BioMarin Pharmaceutical Inc. 2012 Inducement Plan, previously filed with the SEC on August 2, 2012 as Exhibit 10.14 to the Company's Quarterly Report on Form 10-Q (File No. 000-26727), which is incorporated herein by reference.

10.19	Capped Call Confirmation for the 2018 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Bank of America, N.A., previously filed with the SEC on October 11, 2013 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.20	Capped Call Confirmation for the 2020 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Bank of America, N.A., previously filed with the SEC on October 11, 2013 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.21	Capped Call Confirmation for the 2018 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Morgan Stanley & Co. LLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.22	Capped Call Confirmation for the 2020 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Morgan Stanley & Co. LLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.4 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.23	Capped Call Confirmation for the 2018 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Barclays Bank PLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.5 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.24	Capped Call Confirmation for the 2020 Notes, dated October 8, 2013, between BioMarin Pharmaceutical Inc. and Barclays Bank PLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.6 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.25	Additional Capped Call Confirmation for the 2018 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Bank of America, N.A., previously filed with the SEC on October 11, 2013 as Exhibit 10.7 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.26	Additional Capped Call Confirmation for the 2020 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Bank of America, N.A., previously filed with the SEC on October 11, 2013 as Exhibit 10.8 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.27	Additional Capped Call Confirmation for the 2018 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Morgan Stanley & Co. LLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.9 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.28	Additional Capped Call Confirmation for the 2020 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Morgan Stanley & Co. LLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.10 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.29	Additional Capped Call Confirmation for the 2018 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Barclays Bank PLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.11 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.30	Additional Capped Call Confirmation for the 2020 Notes, dated October 9, 2013, between BioMarin Pharmaceutical Inc. and Barclays Bank PLC, previously filed with the SEC on October 11, 2013 as Exhibit 10.12 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.

10.31	Contract of Purchase and Sale and Joint Escrow Instructions, dated December 17, 2013, for the San Rafael Corporate Center, by and among BioMarin Pharmaceutical Inc., through its wholly-owned subsidiary, California Corporate Center Acquisition, LLC, SR Corporate Center Phase One, LLC, and SR Corporate Center Phase Two, previously filed with the SEC on February 26, 2014 as Exhibit 10.68 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.
10.32	Convertible Promissory Note, dated as of November 26, 2014, between Prosensa Holding N.V. and BioMarin Falcons B.V., previously filed with the SEC on November 26, 2014 as Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.33†	BioMarin Pharmaceutical Inc. 2014 Inducement Plan, adopted December 17, 2014, previously filed with the SEC on December 23, 2014 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.34	Form of Contingent Value Rights Agreement, dated as of January 14, 2015, by and between BioMarin Pharmaceutical Inc., BioMarin Falcons B.V. and American Stock Transfer & Trust Company, LLC, previously filed with the SEC on January 16, 2015 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.35†	Form of Stock Options Agreement for the BioMarin Pharmaceutical Inc. 2014 Inducement Plan, previously filed with the SEC on March 2, 2015 as Exhibit 10.60 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.
10.36†	Form of Agreement Regarding Restricted Share Units for the BioMarin Pharmaceutical Inc. 2014 Inducement Plan, previously filed with the SEC on March 2, 2015 as Exhibit 10.61 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.
10.37†	Form of Amended and Restated Employment Agreement for the Company's Executive Officers (other than the Company's Chief Executive Officer) previously filed with the SEC on June 15, 2015 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.38	Settlement and License Agreement among BioMarin Pharmaceutical Inc., Merck & Cie, Dr. Reddy's Laboratories, Inc. and Dr. Reddy's Laboratories, Ltd., dated September 14, 2015, previously filed with the SEC on November 2, 2015 as Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.39	Credit Agreement by and among BioMarin Pharmaceutical Inc., as the Borrower, Bank of America, N.A., as Administrative Agent, Swing Line Lender, L/C Issuer and a Lender, and the Lenders party thereto, dated as of November 29, 2016, previously filed with the SEC on February 27, 2017 as Exhibit 10.49 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.
10.40	Settlement and License Agreement among BioMarin Pharmaceutical Inc., Merck & Cie and Par Pharmaceutical, Inc., dated as of April 12, 2017, previously filed with the SEC on November 13, 2017 as Exhibit 10.1 to the Company's Amendment No. 1 to Quarterly Report on Form 10-Q/A (File No. 000-26727), which is incorporated herein by reference. The SEC has granted confidential treatment with respect to certain portions of this exhibit. Omitted portions have been filed separately with the SEC.
10.41†	Form of Agreement Regarding Performance Stock Award in the Form of Restricted Stock Units for the BioMarin Pharmaceutical Inc. 2006 Share Incentive Plan, previously filed with the SEC on February 27, 2017 as Exhibit 10.50 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated herein by reference.

10.42†	BioMarin Pharmaceutical Inc. 2017 Equity Incentive Plan, adopted April 10, 2017, previously filed with the SEC on June 12, 2017 as Exhibit 10.1 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.43†	Form of Stock Options Agreement for the BioMarin Pharmaceutical Inc. 2017 Equity Incentive Plan, previously filed with the SEC on June 12, 2017 as Exhibit 10.2 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.44†	Form of Agreement Regarding Restricted Stock Units for the BioMarin Pharmaceutical Inc. 2017 Equity Incentive Plan, previously filed with the SEC on June 12, 2017 as Exhibit 10.3 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.45†	Form of Agreement Regarding Performance Stock Award in the Form of Restricted Stock Units for the BioMarin Pharmaceutical Inc. 2017 Equity Incentive Plan, previously filed with the SEC on June 12, 2017 as Exhibit 10.4 to the Company's Current Report on Form 8-K (File No. 000-26727), which is incorporated herein by reference.
10.46†	BioMarin Pharmaceutical Inc. Summary of Independent Director Compensation, previously filed with the SEC on October 31, 2017 as Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q (File No. 000-26727), which is incorporated herein by reference.
10.47	Asset Purchase Agreement by and between Novartis Pharma AG, BioMarin Pharmaceutical Inc. and BioMarin Commercial Ltd., dated as of November 21, 2017, previously filed with the SEC on February 26, 2018 as Exhibit 10.47 to the Company's Annual Report on Form 10-K (File No. 000-26727), which is incorporated by reference herein.
10.48*	Credit Agreement by and among BioMarin Pharmaceutical Inc., as the Borrower, Bank of America, N.A., as Administrative Agent, Swing Line Lender and a Lender, and Citibank N.A. as L/C Issuer, and the Lenders party thereto, dated as of October 19, 2018.
21.1*	Subsidiaries of BioMarin Pharmaceutical Inc.
23.1*	Consent of KPMG LLP, Independent Registered Public Accounting Firm for BioMarin Pharmaceutical Inc.
24.1*	Power of Attorney (Included in Signature Page to this Report)
31.1*	Certification of Chief Executive Officer pursuant to Rules 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2*	Certification of Chief Financial Officer pursuant to Rules 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1*	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. This Certification accompanies this report and shall not, except to the extent required by the Sarbanes-Oxley Act of 2002, be deemed filed for purposes of §18 of the Securities Exchange Act of 1934, as amended.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Link Document

* Filed herewith
† Management contract or compensatory plan or arrangement

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.

BIOMARIN PHARMACEUTICAL INC.

Dated: February 27, 2019

By: /S/ DANIEL SPIEGELMAN
Daniel Spiegelman
Executive Vice President and Chief Financial Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Jean-Jacques Bienaimé and Daniel Spiegelman, his or her attorney-in-fact, with the power of substitution, for him or her in any and all capacities, to sign any amendments to the 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, hereby ratifying and confirming all that each of said attorneys-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated:

Signature	Title	Date
/S/ JEAN-JACQUES BIENAIMÉ **Jean-Jacques Bienaimé**	Chairman and Chief Executive Officer (Principal Executive Officer)	February 27, 2019
/S/ DANIEL SPIEGELMAN **Daniel Spiegelman**	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 27, 2019
/S/ BRIAN R. MUELLER **Brian R. Mueller**	Senior Vice President, Finance and Chief Accounting Officer (Principal Accounting Officer)	February 27, 2019
/S/ WILLARD H. DERE, M.D. **Willard H. Dere, M.D.**	Director	February 27, 2019
/S/ MICHAEL G. GREY **Michael G. Grey**	Director	February 27, 2019
/S/ ELAINE J. HERON **Elaine J. Heron**	Director	February 27, 2019
/S/ ROBERT J. HOMBACH **Robert J. Hombach**	Director	February 27, 2019
/S/ V. BRYAN LAWLIS **V. Bryan Lawlis**	Director	February 27, 2019
/S/ ALAN J. LEWIS **Alan J. Lewis**	Director	February 27, 2019
/S/ RICHARD A. MEIER **Richard A. Meier**	Lead Independent Director	February 27, 2019
/S/ DAVID PYOTT **David Pyott**	Director	February 27, 2019
/S/ DENNIS J. SLAMON **Dennis J. Slamon**	Director	February 27, 2019

BIOMARIN PHARMACEUTICAL INC.
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Report of Independent Registered Public Accounting Firm

To the stockholders and the Board of Directors
BioMarin Pharmaceutical Inc.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of BioMarin Pharmaceutical, Inc. and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018 and the related notes (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, 2018 and 2017, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2018, 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, 2018, 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 27, 2019 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 4 to the consolidated financial statements, the Company has changed its method of accounting for Revenue effective January 1, 2018, due to the adoption of Accounting Standards Codification 606 (ASC 606), *Revenue from Contracts with Customers*.

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.

/s/ KPMG LLP

We have served as the Company's auditor since 2002.

San Francisco, California
February 27, 2019

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
BioMarin Pharmaceutical Inc.:

Opinion on Internal Control Over Financial Reporting

We have audited BioMarin Pharmaceutical, Inc. and subsidiaries' (the Company) internal control over financial reporting as of December 31, 2018, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, 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, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the "consolidated financial statements"), and our report dated February 27, 2019 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 Annual Report on Internal Control Over Financial Reporting in Item 9a. 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 LLP

San Francisco, California
February 27, 2019

BIOMARIN PHARMACEUTICAL INC.

CONSOLIDATED BALANCE SHEETS

December 31, 2018 and 2017

(In thousands of U.S. Dollars, except share and per share amounts)

	December 31, 2018	December 31, 2017
ASSETS		
Current assets:		
Cash and cash equivalents	$ 493,982	$ 598,028
Short-term investments	590,326	797,940
Accounts receivable, net	342,633	261,365
Inventory	530,871	475,775
Other current assets	98,403	74,036
Total current assets	2,056,215	2,207,144
Noncurrent assets:		
Long-term investments	235,864	385,785
Property, plant and equipment, net	948,682	896,700
Intangible assets, net	491,808	517,510
Goodwill	197,039	197,039
Deferred tax assets	460,952	399,095
Other assets	36,568	29,852
Total assets	$ 4,427,128	$ 4,633,125
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable and accrued liabilities	$ 437,290	$ 401,921
Short-term convertible debt, net	—	360,949
Short-term contingent consideration	85,951	53,648
Total current liabilities	523,241	816,518
Noncurrent liabilities:		
Long-term convertible debt, net	830,417	813,521
Long-term contingent consideration	46,883	135,318
Other long-term liabilities	58,647	59,105
Total liabilities	1,459,188	1,824,462
Stockholders' equity:		
Common stock, $0.001 par value: 500,000,000 shares authorized; 178,252,954 and 175,843,749 shares issued and outstanding, respectively.	178	176
Additional paid-in capital	4,669,926	4,483,220
Company common stock held by Nonqualified Deferred Compensation Plan (the NQDC)	(13,301)	(14,224)
Accumulated other comprehensive income (loss)	5,271	(22,961)
Accumulated deficit	(1,694,134)	(1,637,548)
Total stockholders' equity	2,967,940	2,808,663
Total liabilities and stockholders' equity	$ 4,427,128	$ 4,633,125

The accompanying notes are an integral part of these Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

Years Ended December 31, 2018, 2017 and 2016

(In thousands of U.S. Dollars, except per share amounts)

	2018	2017	2016
REVENUES:			
Net product revenues	$ 1,470,356	$ 1,270,445	$ 1,110,381
Royalty and other revenues	20,856	43,201	6,473
Total revenues	1,491,212	1,313,646	1,116,854
OPERATING EXPENSES:			
Cost of sales	315,264	241,786	209,620
Research and development	696,328	610,753	661,905
Selling, general and administrative	604,353	554,336	476,593
Intangible asset amortization and contingent consideration	48,791	46,471	(26,953)
Impairment of intangible assets	—	—	599,118
Gain on sale of intangible assets	(50,000)	(125,000)	—
Total operating expenses	1,614,736	1,328,346	1,920,283
LOSS FROM OPERATIONS	(123,524)	(14,700)	(803,429)
Equity in the loss of BioMarin/Genzyme LLC	(553)	(1,291)	(538)
Interest income	22,831	14,853	7,487
Interest expense	(43,664)	(42,707)	(39,499)
Other income, net	2,205	7,970	4,929
LOSS BEFORE INCOME TAXES	(142,705)	(35,875)	(831,050)
Provision for (benefit from) income taxes	(65,494)	81,167	(200,840)
NET LOSS	$ (77,211)	$ (117,042)	$ (630,210)
NET LOSS PER SHARE, BASIC	$ (0.44)	$ (0.67)	$ (3.80)
NET LOSS PER SHARE, DILUTED	$ (0.44)	$ (0.67)	$ (3.81)
Weighted average common shares outstanding, basic	177,061	174,427	165,985
Weighted average common shares outstanding, diluted	177,268	174,427	166,219

The accompanying notes are an integral part of these Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

Years Ended December 31, 2018, 2017 and 2016

(In thousands of U.S. Dollars)

	2018	2017	2016
NET LOSS	$ (77,211)	$ (117,042)	$ (630,210)
OTHER COMPREHENSIVE INCOME (LOSS):			
Available-for-sale debt securities:			
Unrealized holding gain (loss) arising during the period, net of tax impact of $(413), $272 and $4,412, respectively.	1,391	(483)	(7,692)
Less: reclassifications to net loss, net of tax impact of $0, $(1,191) and $42, respectively.	—	2,061	(73)
Net change in unrealized holding gain (loss), net of tax	1,391	(2,544)	(7,619)
Cash flow hedges:			
Unrealized holding gain (loss) arising during the period, net of tax impact of $0.	25,386	(38,351)	9,677
Less: reclassifications to net loss, net of tax impact of $0.	(2,047)	(5,113)	10,273
Net change in unrealized holding gain (loss), net of tax	27,433	(33,238)	(596)
Other	(6)	5	(2)
OTHER COMPREHENSIVE INCOME (LOSS), NET OF TAX	28,818	(35,777)	(8,217)
COMPREHENSIVE LOSS	$ (48,393)	$ (152,819)	$ (638,427)

The accompanying notes are an integral part of these Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
Years Ended December 31, 2018, 2017 and 2016
(In thousands of U.S. Dollars and share amounts in thousands)

	Common stock		Additional Paid-in Capital	Company Stock Held by NQDC	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2015	161,526	$ 162	$ 3,414,837	$ (13,616)	$ 21,033	$ (1,021,569)	$ 2,400,847
Net loss						(630,210)	(630,210)
Cumulative-effect adjustment of new share-based compensation guidance						131,273	131,273
Other comprehensive loss, net of tax					(8,217)		(8,217)
Issuance of common stock, net of offering costs	7,500	8	712,930				712,938
Issuances under equity incentive plans, net of tax	3,184	3	14,755				14,758
Conversion of convertible notes, net	438		8,928				8,928
Company stock held by NQDC				(705)			(705)
Stock-based compensation			136,663				136,663
Balance at December 31, 2016	172,648	$ 173	$ 4,288,113	$ (14,321)	$ 12,816	$ (1,520,506)	$ 2,766,275
Net loss						(117,042)	(117,042)
Other comprehensive loss, net of tax					(35,777)		(35,777)
Issuances under equity incentive plans, net of tax	2,092	2	27,350				27,352
Conversion of convertible notes, net	1,104	1	22,476				22,477
Company stock held by NQDC				97			97
Stock-based compensation			145,281				145,281
Balance at December 31, 2017	175,844	$ 176	$ 4,483,220	$ (14,224)	$ (22,961)	$ (1,637,548)	$ 2,808,663
Impact of change in accounting principle - ASC Topic 606						20,039	20,039
Impact of change in accounting principle - ASU 2018-02					(586)	586	—
Adjusted balance at January 1, 2018	175,844	$ 176	$ 4,483,220	$ (14,224)	$ (23,547)	$ (1,616,923)	$ 2,828,702
Net loss						(77,211)	(77,211)
Other comprehensive income, net of tax					28,818		28,818
Issuances under equity incentive plans, net of tax	2,314	2	31,583				31,585
Conversion of convertible notes, net	95		(16)				(16)
Company stock held by NQDC				923			923
Stock-based compensation			155,139				155,139
Balance at December 31, 2018	178,253	$ 178	$ 4,669,926	$ (13,301)	$ 5,271	$ (1,694,134)	$ 2,967,940

The accompanying notes are an integral part of these Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
Years Ended December 31, 2018, 2017 and 2016
(In thousands of U.S. dollars)

	2018	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	$ (77,211)	$ (117,042)	$ (630,210)
Adjustments to reconcile net loss to net cash used in operating activities:			
Depreciation and amortization	95,671	87,861	96,912
Non-cash interest expense	31,186	32,300	29,930
Accretion of discount on investments	358	3,077	1,300
Stock-based compensation expense	148,819	140,263	134,641
Gain on sale of intangible assets	(50,000)	(125,000)	—
(Gain) loss on sale of equity investment	—	(3,252)	108
Impairment of assets	—	—	599,118
Deferred income taxes	(68,378)	44,464	(228,054)
Unrealized foreign exchange loss (gain)	(17,766)	6,258	(14,481)
Non-cash changes in the fair value of contingent consideration\	9,296	10,342	(57,161)
Other	(2,347)	5,935	336
Changes in operating assets and liabilities:			
Accounts receivable, net	(54,274)	(25,256)	(51,483)
Inventory	(23,747)	(96,890)	(64,512)
Other current assets	(17,767)	(20,687)	19,316
Other assets	(935)	(2,439)	(4,979)
Accounts payable and accrued liabilities	38,389	45,517	(53,205)
Other long-term liabilities	8,914	5,792	(5,413)
Net cash provided by (used in) operating activities	20,208	(8,757)	(227,837)
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchases of property, plant and equipment	(144,620)	(199,219)	(148,380)
Maturities and sales of investments	993,734	425,960	367,569
Purchase of available-for-sale debt securities	(634,753)	(655,447)	(699,749)
Proceeds from sale of intangible asset	50,000	125,000	—
Business acquisitions, net of cash acquired	—	—	(2,789)
Other	(10)	(1,753)	(698)
Net cash provided by (used in) investing activities	264,351	(305,459)	(484,047)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from exercises of awards under equity incentive plans	67,488	60,859	74,227
Taxes paid related to net share settlement of equity awards	(35,919)	(33,507)	(59,469)
Proceeds from public offering of common stock, net	—	—	712,938
Proceeds from convertible senior subordinated note offering, net	—	481,713	—
Repayments of convertible debt	(374,953)	(26)	—
Payment of contingent consideration	(44,623)	(1,894)	—
Other	—	—	(588)
Net cash (used in) provided by financing activities	(388,007)	507,145	727,108
Effect of exchange rate changes on cash	(598)	(3,231)	(3,934)
NET (DECREASE) INCREASE IN CASH AND CASH EQUIVALENTS	(104,046)	189,698	11,290
Cash and cash equivalents:			
Beginning of period	598,028	408,330	397,040
End of period	$ 493,982	$ 598,028	$ 408,330
SUPPLEMENTAL CASH FLOW DISCLOSURES:			
Cash paid for interest, net of interest capitalized into fixed assets	$ 11,623	$ 8,544	$ 8,643
Cash paid for income taxes	$ 16,676	$ 23,895	$ 95,857
SUPPLEMENTAL CASH FLOW DISCLOSURES FOR NON-CASH INVESTING AND FINANCING ACTIVITIES:			
Increase (decrease) in accounts payable and accrued liabilities related to fixed assets	$ (1,206)	$ (25,786)	$ 20,158
Conversion of convertible debt, net	$ —	$ 22,477	$ 8,928

The accompanying notes are an integral part of these Consolidated Financial Statements.

BIOMARIN PHARMACEUTICAL INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(1) NATURE OF OPERATIONS AND BUSINESS RISKS

BioMarin Pharmaceutical Inc. (the Company or BioMarin) is a global biotechnology company that develops and commercializes innovative therapies for people with serious and life-threatening rare diseases and medical conditions. The Company selects product candidates for diseases and conditions that represent a significant unmet medical need, have well-understood biology and provide an opportunity to be first-to-market or offer a significant benefit over existing products. The Company's therapy portfolio consists of several commercial products and multiple clinical and pre-clinical product candidates.

The Company expects to continue to finance future cash needs that exceed its operating activities primarily through its current cash, cash equivalents and investments and through proceeds from debt or equity offerings, commercial borrowing, or through collaborative agreements with corporate partners. If the Company elects to increase its spending on development programs significantly above current long-term plans or enters into potential licenses and other acquisitions of complementary technologies, products or companies, the Company may need additional capital.

The Company is subject to a number of risks, including: the financial performance of its commercial products; the potential need for additional financing; the Company's ability to successfully commercialize its approved products; the uncertainty of the Company's research and development efforts resulting in future successful commercial products; the Company's ability to successfully obtain regulatory approval for new products; significant competition from larger organizations; reliance on the proprietary technology of others; dependence on key personnel; uncertain patent protection; dependence on corporate partners and collaborators; and possible restrictions on reimbursement from governmental agencies and healthcare organizations, as well as other changes in the healthcare industry. Please see "Risk Factors" included in Part I, Item 1A of this Annual Report on Form 10-K for a more detailed discussion of these risks.

(2) BASIS OF PRESENTATION

Basis of Presentation

These Consolidated Financial Statements have been prepared pursuant to United States generally accepted accounting principles (U.S. GAAP) and the rules and regulations of the Securities and Exchange Commission (the SEC) for Annual Reports on Form 10-K and include the accounts of BioMarin and its wholly owned subsidiaries. All intercompany transactions have been eliminated. Certain amounts in these notes to the Company's Consolidated Financial Statements have been reclassified to conform to the current period presentation. Management performed an evaluation of the Company's activities through the date of filing of this Annual Report on Form 10-K, and has concluded that there are no subsequent events or transactions that occurred subsequent to the balance sheet date and prior to the filing this Annual Report on Form 10-K that would require recognition or disclosure in the Consolidated Financial Statements.

Effective January 1, 2018, the Company adopted the requirements of Accounting Standards Codification 606, *Revenue from Contracts with Customers* (ASC Topic 606), using the modified retrospective method as discussed in Note 3 - Significant Accounting Policies. The Company recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of Accumulated Deficit. The comparative information for the periods prior to 2018 has not been restated and continue to be reported under the accounting standards in effect for those periods.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make judgments, estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the dates of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Although these estimates are based on management's best knowledge of current events and actions that the Company may undertake in the future, actual results may be different from those estimates.

(3) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Cash, Cash Equivalents and Investments

The Company treats liquid investments with maturities of three months or less as cash equivalents. Cash and cash equivalents primarily consist of cash on deposit with banks, investments in money market funds and debt securities with original maturities of three months or less when purchased.

The Company determines the appropriate classification of its investments in debt and equity securities at the time of purchase and reevaluates such designations at each balance sheet date. The Company classifies its debt and equity securities with original maturities greater than three months when purchased as either short-term or long-term investments based on each instrument's underlying contractual maturity date and its availability for use in current operations. Available-for-sale debt securities, which primarily consist of corporate securities, commercial paper, and U.S. federal government agency securities, are recorded at fair market value with unrealized gains and losses included in Accumulated Other Comprehensive Income (Loss) (AOCI) on the Company's Consolidated Balance Sheets, with the exception of unrealized losses believed to be other-than-temporary, which, if any, are reported in Other Income, Net in the current period. Impairment assessments are made at the individual security level each reporting period. When the fair value of an investment is less than its cost at the balance sheet date, a determination is made as to whether the impairment is other-than-temporary and, if it is other-than-temporary, an impairment loss is recognized in earnings equal to the difference between the investment's amortized cost and fair value at such date.

Inventory

The Company values inventory at the lower of cost and net realizable value and determines the cost of inventory using the average-cost method. The Company analyzes its inventory levels quarterly and adjusts inventory to its net realizable value, if required, for obsolete, or has a cost basis in excess of its expected net realizable value or for quantities in excess of expected requirements. These adjustments are recognized as Cost of Sales in the Consolidated Statements of Operations.

When future commercialization is considered probable and the future economic benefit is expected to be realized, based on management's judgment, the Company capitalizes pre-launch inventory costs prior to regulatory approval. A number of factors are taken into consideration, including the current status in the regulatory approval process, pivotal clinical trial results for the underlying product candidate, results from meetings with the relevant regulatory authorities prior to the filing of regulatory applications, historical experience, as well as potential impediments to the approval process such as product safety or efficacy, commercialization and marketplace trends. As of December 31, 2018, there was no pre-launch inventory on the Company's Consolidated Balance Sheets.

Property, Plant and Equipment

Property, plant and equipment are stated at historical cost net of accumulated depreciation. Depreciation is computed using the straight-line method over the related estimated useful lives as presented in the table below. Significant additions and improvements are capitalized, while repairs and maintenance are charged to expense as incurred. Depreciation of property, plant and equipment are included in Cost of Sales, Research and Development (R&D) and Selling, General and Administrative (SG&A), as appropriate, in the Consolidated Statements of Operations. Property and equipment purchased for specific R&D projects with no alternative uses are expensed as incurred and recorded to R&D expense in the Consolidated Statements of Operations.

Leasehold improvements	Shorter of life of asset or lease term
Building and improvements	20 to 50 years
Manufacturing and laboratory equipment	5 to 15 years
Computer hardware and software	3 to 5 years
Office furniture and equipment	5 years
Vehicles	5 years
Land improvements	10 years
Land	Not applicable
Construction-in-progress	Not applicable

Leases

Certain of the Company's operating lease agreements include scheduled rent escalations over the lease term. Scheduled increases in rent expense are recognized on a straight-line basis over the lease term. The difference between rent expense and rent paid is recorded as deferred rent and included in Other Liabilities in the Consolidated Balance Sheets. The free rent periods are recognized as a reduction of rent expense over the lease term on a straight-line basis. Rent expense is recorded to Cost of Sales, R&D expense and/or SG&A expense, as appropriate, in the Consolidated Statements of Operations.

See Note 4 to these Consolidated Financial Statements for further discussion on the Company's planned adoption of Accounting Standards Codification (ASC) Topic 842, *Leases* (ASC Topic 842) on January 1, 2019.

Goodwill and Intangible Assets

The Company records goodwill in a business combination when the total consideration exceeds the fair value of the net tangible and identifiable intangible assets acquired. Intangible assets with indefinite useful lives are related to purchased in-process research and development (IPR&D) projects and are measured at their respective fair values as of the acquisition date. The Company does not amortize goodwill and intangible assets with indefinite useful lives. Intangible assets related to IPR&D projects are considered to be indefinite-lived until the completion or abandonment of the associated R&D efforts. If and when development is complete, which generally occurs if and when regulatory approval to market a product is obtained, the associated assets are considered finite-lived and are amortized using the straight-line method based on their respective estimated useful lives at that point in time. The amortization of these intangible assets is included in Intangible Asset Amortization and Contingent Consideration in the Consolidated Statements of Operations.

Impairment

The Company assesses its goodwill and indefinite-lived intangible assets for impairment annually in the fourth quarter, or more frequently as warranted by events or changes in circumstances that indicate that the carrying amount may not be recoverable.

Goodwill is assessed for impairment by comparing the fair value of the Company's reporting unit with its carrying amount. If the carrying value of the reporting unit exceeds its fair value, an impairment loss equal to the difference would be recorded. No impairment charges were recorded in the periods presented.

Indefinite-lived intangible assets are assessed for impairment first by performing a qualitative assessment. If the qualitative assessment indicates that it is more likely than not that the fair value of an indefinite-lived intangible asset is less than its carrying amount, then the Company will perform a quantitative assessment and record an impairment loss. Impairment charges that are not material are recorded to Intangible Asset Amortization and Contingent Consideration in the Consolidated Statements of Operations.

Long-lived Assets

The Company's long-lived assets consist of property, plant and equipment and finite-lived intangible assets. Should there be an indication of impairment, the Company tests for recoverability by comparing the estimated undiscounted future cash flows expected to result from the use of the asset or asset group and its eventual disposition to the carrying amount of the asset or asset group. Any excess of the carrying value of the asset or asset group over its estimated fair value is recognized as an impairment loss. Impairment charges that are not material are recorded to depreciation expense and presented in SG&A in the Consolidated Statements of Operations.

Revenue Recognition

Effective January 1, 2018, the Company adopted the provisions of ASC Topic 606 using the modified retrospective method for all contracts not completed as of the date of adoption. For contracts that were modified before the effective date, the Company reflected the aggregate effect of all modifications when identifying performance obligations and allocating transaction price in accordance with available practical expedients. The reported results for 2018 reflect the application of ASC Topic 606 guidance, while the reported results for 2017 and 2016 were prepared under the guidance of ASC 605, Revenue Recognition (ASC 605), which is also referred to herein as "previous guidance."

Under ASC Topic 606, the Company recognizes revenue when its customer obtains control of promised goods or services, in an amount that reflects the consideration which the Company expects to receive in exchange for those goods or services. To determine revenue recognition for arrangements that are within the scope of ASC Topic 606, the Company performs the following five steps:

(i) identification of the promised goods or services in the contract;
(ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract;
(iii) measurement of the transaction price, including the constraint on variable consideration;
(iv) allocation of the transaction price to the performance obligations based on estimated selling prices; and
(v) recognition of revenue when (or as) the Company satisfies each performance obligation. A performance obligation is a promise in a contract to transfer a distinct good or service to the customer, and is the unit of account in ASC Topic 606.

Net Product Revenues

In the U.S., the Company's commercial products, except for Palynziq and Aldurazyme, are generally sold to specialty pharmacies or end-users, such as hospitals, which act as retailers. Palynziq is distributed in the U.S. through certain certified specialty pharmacies under the Palynziq Risk Evaluation and Mitigation Strategy (REMS) and Aldurazyme is marketed world-wide by Genzyme Corporation (Genzyme). Outside the U.S., the Company's commercial products are sold to its authorized distributors or directly to government purchasers or hospitals, which act as the end-users. Revenues from product sales are recognized when the customer obtains control of the Company's product, which occurs at a point in time, typically upon shipment to the customer. Amounts collected from customers and remitted to governmental authorities, which primarily consist of value-added taxes related to product sales in foreign jurisdictions, are presented on a net basis in the Company's Consolidated Statements of Operations, in that taxes billed to customers are not included as a component of Net Product Revenues.

For Aldurazyme revenues, the Company receives a payment ranging from 39.5% to 50% on worldwide net Aldurazyme sales by Genzyme depending on sales volume, which is included in Net Product Revenues in the Company's Consolidated Statements of Operations. Under ASC Topic 606, the Company recognizes its best estimate of the entire revenue that it expects to receive when the product is released and control is transferred to Genzyme. The Company records Aldurazyme net product revenues based on the estimated variable consideration payable when the product is sold through by Genzyme. Actual amounts of consideration ultimately received may differ from the Company's estimates. Differences between the estimated variable consideration to be received from Genzyme and actual payments received are not expected to be material. If actual results vary from the Company's estimates, the Company will make adjustments, which would affect Net Product Revenues and earnings in the period such variances become known. The adoption of ASC Topic 606 did not have an impact on the timing or amount of revenues from other sources.

Under the previous guidance, the Company only recognized a portion of the tiered payment as product transfer revenue when the product was released to Genzyme because all of the Company's performance obligations were fulfilled at that point, the prices were substantially fixed or determinable and title to, and risk of loss for, the product had transferred to Genzyme. The product transfer revenue only represented the fixed amount per unit of Aldurazyme that Genzyme was required to pay the Company if the product was unsold by Genzyme. The amount of product transfer revenue was eventually deducted from the calculated royalty recognized when the product was subsequently sold by Genzyme. The Company recorded the Aldurazyme revenues based on net sales information provided by Genzyme and recorded product transfer revenues based on the fulfillment of Genzyme purchase orders in accordance with the terms of the related agreements with Genzyme.

Revenue Reserves

Revenues from product sales are recorded at the net sales price (transaction price), which includes estimates of variable consideration for which reserves are established and which result from government rebates, sales returns, and other incentives that are offered within contracts between the Company and its customers, such as specialty pharmacies, hospitals, authorized distributors and government purchasers. These reserves are based on the amounts earned or to be claimed on the related sales and are classified as reductions of accounts receivable (if the amount is payable to the customer) or a current liability (if the amount is payable to a party other than a customer). Where appropriate, these estimates take into consideration a range of possible outcomes that are probability-weighted for relevant factors such as the Company's historical experience, current contractual and statutory requirements, specific known market events and trends, industry data and forecasted customer buying and payment patterns. Overall, these reserves reflect the Company's best estimates of the amount of consideration to which it is 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. Actual amounts of consideration ultimately received may differ from the Company's estimates, however the Company does not expect any such difference to be material. If actual results in the future vary from the Company's estimates, the Company will adjust its estimates, which would affect net product revenue and earnings in the period such variances become known.

Government Rebates: The Company records reserves for rebates payable under Medicaid and other government programs as a reduction of revenue at the time product revenues are recorded. The Company's reserve calculations require estimates, including estimates of customer mix, to determine which sales will be subject to rebates and the amount of such rebates. The Company updates its estimates and assumptions on a quarterly basis and records any necessary adjustments to its reserves.

Sales Returns: The Company records allowances for product returns, if appropriate, as a reduction of revenue at the time product sales are recorded. Several factors are considered in determining whether an allowance for product returns is required, including market exclusivity of the products based on their orphan drug status, the patient population, the customers' limited return rights and the Company's historical experience with returns. Because of the pricing of the Company's commercial products, the limited number of patients and the customers' limited return rights, most customers and retailers carry a limited inventory. The Company relies on historical return rates to estimate returns. Based on these factors and the fact that the Company has not experienced significant product returns to date, management has concluded that product returns will be minimal. In the future, if any of these factors and/or the history of product returns change, an allowance for product returns may be required.

Other Incentives: Other incentives include fees paid to the Company's distributors, discounts for prompt payment. Since 2018, the Company has also offered a branded co-pay assistance program for eligible patients with commercial insurance in the U.S. who are on Brineura, Kuvan or Palynziq therapy. The branded co-pay assistance programs assist commercially insured patients who have coverage for an eligible BioMarin product and are intended to reduce each participating patient's portion of the financial responsibility of the purchase price up to a specified dollar amount of assistance. The Company records fees paid to distributors, cash discounts and amounts paid under the branded specific co-pay assistance program for each patient as a reduction of revenue.

Royalty and Other Revenues

Royalties: For arrangements that include the receipt of sales-based royalties, including milestone payments based on the level of sales when the license is deemed to be the predominant item to which the royalties relate, the Company recognizes revenue at the later of (a) when the related sales occur, or (b) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied).

Licenses of intellectual property: If the license to the Company's intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenues from non-refundable, up-front fees allocated to the license when the license is transferred to the customer and the customer is able to use and benefit from the license. For licenses that are bundled with other promises, the Company uses judgment to assess the nature of the combined performance obligation to determine 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, up-front fees. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the measure of performance and related revenue recognition.

Milestone payments: At the inception of each arrangement that includes developmental, regulatory or commercial milestone payments, the Company evaluates whether achieving the milestones is considered probable and estimates 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 value of the associated milestone (such as a regulatory submission by the Company) is included in the transaction price. Milestone payments that are not within the control of the Company, such as approvals from regulators or where attainment of the specified event is dependent on the development activities of a third party, are not considered probable of being achieved until those approvals are received or the specified event occurs. Revenue is recognized from the satisfaction of performance obligations in the amount billable to the customer.

Research and Development

R&D costs are generally expensed as incurred. These expenses include contract R&D services provided by third parties, preclinical and clinical studies, raw materials costs associated with manufacturing clinical product, quality control and assurance, other R&D activities, facilities and regulatory costs and R&D-related personnel costs including salaries, benefits and stock-based compensation. Upfront and milestone payments made to third parties in connection with licensed intellectual property used in the Company's development programs are expensed as incurred up to the point of regulatory approval.

Convertible Debt

For non-conventional convertible debt that may be settled entirely or partially in cash, the Company separately accounts for the liability and equity components by allocating the proceeds from issuance between the liability component and the embedded conversion option, or equity component. The value of the equity component is calculated by first measuring the fair value of the liability component, using the interest rate of a similar liability that does not have a conversion feature, as of the issuance date. The difference between the proceeds from the convertible debt issuance and the amount measured as the liability component is recorded as the equity component with a corresponding discount recorded on the debt. The liability component is presented net of any discounts and issuance costs. For conventional convertible debt that may only be settled with common shares, the Company accounts for the debt, net of any discounts or issuance costs, on the Consolidated Balance Sheet.

The Company recognizes discount accretion and debt issuance cost amortization using the effective interest method as part of Interest Expense in the Consolidated Statements of Operations.

Net Loss Per Common Share

Basic net loss per share is calculated by dividing net loss by the weighted average shares of common stock outstanding during the period. Diluted net loss per share reflects the potential dilution that would occur if securities or other contracts to issue common stock were exercised or converted into common stock; however, potential common equivalent shares are excluded if their effect is anti-dilutive.

Stock-Based Compensation

The Company has equity incentive plans, including an Employee Stock Purchase Plan (ESPP), under which various types of equity-based awards are granted or available to employees, including restricted stock units (RSUs) with both performance and service-based vesting conditions and stock options. Stock-based compensation expense is recognized on a straight-line basis over the requisite service period for each award and is classified as Cost of Sales, R&D or SG&A, as appropriate, in the Consolidated Statements of Operations. The Company accounts for forfeitures as they occur.

The fair value of RSUs with service-based vesting conditions and RSUs with performance conditions is determined to be the fair market value of the Company's underlying common stock on the date of grant. The stock-based compensation for RSUs with service-based vesting is recognized ratably over the period during which the vesting restrictions lapse. Stock-based compensation for RSUs with performance conditions is recognized ratably over the service period beginning in the period the Company determines it is probable that the performance condition will be achieved.

The fair value of each stock option award and the Company's ESPP awards are estimated on the date of grant using the Black-Scholes valuation model and the following assumptions: expected life of a stock option, expected volatility, risk-free interest rate and expected dividend yield. The dividend yield reflects that the Company has not paid any cash dividends since inception and does not intend to pay any cash dividends in the foreseeable future. The expected life of stock options is based on observed historical exercise patterns. Groups

of employees that have similar historical exercise patterns were considered separately for valuation purposes. The Company has identified two groups, executive and non-executive employees, with distinctly different exercise patterns. The executive employee group has a history of holding stock options for longer periods than non-executive employees.

The determination of the fair value of stock-based payment awards using an option-pricing model is affected by the Company's stock price and may use assumptions regarding a number of complex and subjective variables.

Income Taxes

The Company calculates and provides for income taxes in each of the tax jurisdictions in which it operates. Deferred tax assets and liabilities, measured using enacted tax rates, are recognized for the future tax consequences of temporary differences between the tax and financial statement basis of assets and liabilities. A valuation allowance reduces the deferred tax assets to the amount that is more likely than not to be realized. The Company establishes liabilities or reduces assets for uncertain tax positions when the Company believes certain tax positions are not more likely than not of being sustained if challenged. Each quarter, the Company evaluates these uncertain tax positions and adjusts the related tax assets and liabilities in light of changing facts and circumstances.

The Company uses financial projections to support its net deferred tax assets, which contain significant assumptions and estimates of future operations. If such assumptions were to differ significantly, it may have a material impact on the Company's ability to realize its deferred tax assets. At the end of each period, the Company will reassess the ability to realize its deferred tax benefits. If it is more likely than not that the Company would not realize the deferred tax benefits, a valuation allowance may need to be established against all or a portion of the deferred tax assets, which will result in a charge to tax expense.

Foreign Currency

For the Company and its subsidiaries, the functional currency has been determined to be the U.S. Dollar (USD). Assets and liabilities denominated in foreign currency are remeasured at period-end exchange rates for monetary assets. Non-monetary assets and liabilities denominated in foreign currencies are remeasured at historical rates. Foreign currency transaction gains and losses resulting from remeasurement are recognized in SG&A in the Consolidated Statements of Operations.

Derivatives and Hedging Activities

The Company uses forward foreign currency exchange contracts (forward contracts) to hedge certain operational exposures resulting from potential changes in foreign currency exchange rates. Such exposures result from portions of the Company's forecasted revenues and operating expenses being denominated in currencies other than the USD, primarily the Euro. The Company designates certain of these forward contracts as hedging instruments and enters into some forward contracts that are considered to be economic hedges that are not designated as hedging instruments. Whether designated or undesignated, these forward contracts protect against the reduction in value of forecasted foreign currency cash flows resulting from product revenues, royalty revenues, operating expenses and asset or liability positions designated in currencies other than the USD. To receive hedge accounting treatment, cash flow hedges must be highly effective in offsetting changes to expected future cash flows on hedged transactions. The Company does not hold or issue derivative instruments for trading or speculative purposes.

The Company accounts for its derivative instruments as either assets or liabilities on the balance sheet and measures them at fair value, which is estimated using current exchange rates and interest rates, and takes into consideration the current creditworthiness of the counterparties or the Company, as applicable. For derivative instruments that hedge the exposure to variability in expected future cash flows that are designated as cash flow hedges, the effective portion of the gain or loss is reported as a component of AOCI in shareholders' equity and reclassified to earnings in the same period or periods during which the hedged transaction affects earnings. The ineffective portion of the gain or loss on the derivative instrument, if any, is recognized in earnings in the current period. Derivatives that are not designated as hedging instruments are adjusted to fair value through earnings in Operating Expenses in the Consolidated Statements of Operations.

See Note 4 to these Consolidated Financial Statements for further discussion on the Company's adoption of Accounting Standards Update (ASU) No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities* on January 1, 2019.

Fair Value of Financial Instruments

The Company applies fair value accounting for all financial assets and liabilities and non-financial assets and liabilities that are recognized or disclosed at fair value in the financial statements on a recurring basis. The Company defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities that are required to be recorded at fair value, the Company considers the principal or most advantageous market in which the Company would transact and the market-based risk measurements or assumptions that market participants would use to price the asset or liability, such as risks inherent in valuation techniques, transfer restrictions and credit risk. When estimating fair value, depending on the nature and complexity of the asset or liability, the Company may use the following techniques:

- Income approach, which is based on the present value of a future stream of net cash flows
- Market approach, which is based on market prices and other information from market transactions involving identical or comparable assets or liabilities.

The Company's fair value methodologies depend on the following types of inputs:

- Quoted prices for identical assets or liabilities in active markets (Level 1 inputs)
- Quoted prices for similar assets or liabilities in active markets, or quoted prices for identical or similar assets or liabilities that are not active, or inputs other than quoted process that are directly or indirectly observable, or inputs that are derived principally from, or corroborated by, observable market data by correlation or other means (Level 2 inputs)
- Unobservable inputs that reflect estimates and assumptions (Level 3 inputs)

The Company's Level 2 instruments are valued using third-party pricing sources. The pricing services utilize industry standard valuation models, including both income and market-based approaches, for which all significant inputs are observable, either directly or indirectly, to estimate fair value. These inputs include reported trades of and broker/dealer quotes on the same or similar securities, issuer credit spreads, benchmark securities, prepayment/default projections based on historical data and other observable inputs. The Company validates the prices provided by its third-party pricing services by understanding the models used, obtaining market values from other pricing sources, analyzing pricing data in certain instances and confirming those securities traded in active markets.

The Company's Level 3 financial assets and liabilities include intangible assets and contingent consideration resulting from business acquisitions. The estimated fair value of long-lived and indefinite-lived intangible assets and contingent consideration are measured by applying a probability-based income approach utilizing an appropriate discount rate as of the acquisition date. Key assumptions used by management to estimate the fair value of contingent consideration include estimated probabilities, the estimated timing of when a milestone may be attained and assumed discount periods and rates. Changes in the fair value of the contingent consideration can result from changes to one or more inputs, including the estimated probability with respect to regulatory approval, changes in the assumed timing of when milestones are likely to be achieved and changes in assumed discount periods and rates. Contingent consideration is remeasured on a recurring basis and resulting changes in the fair value, due to the revision of key assumptions, are recorded in Intangible Asset Amortization and Contingent Consideration in the Company's Consolidated Statements of Operations.

The Company's Level 3 instruments also include asset retirement obligation liabilities, and corresponding capital assets, which are measured at the estimated fair value of the obligation, when estimable, on a non-recurring basis. In subsequent periods, the Company records interest expense to accrete the asset retirement obligation liability to full value and depreciates each retirement obligation asset, both over the term of the associated lease agreement.

See Notes 5, 10, 11 and 12 to these Consolidated Financial Statements for further information on the nature of these financial instruments.

Segment Information

The Company currently operates in one segment focused on the development and commercialization of innovative therapies for people with serious and life-threatening rare diseases and medical conditions. A single management team reports to the chief operating decision maker who comprehensively manages the entire business. All products are included in one operating segment because the majority of the Company's products have similar economic and other characteristics, including the nature of the products and production processes, type of customers, distribution methods and regulatory environment. The Company is not organized by market and is managed and operated as one business. The Company does not operate any separate lines of business or separate business entities with respect to its products. Accordingly, the Company does not accumulate discrete financial information with respect to separate products, other than revenues, cost of sales and certain other operating expenses.

Acquisitions

Acquisitions of businesses are accounted for using the acquisition method of accounting. The Company allocates the purchase price of acquired businesses to the tangible and intangible assets acquired and liabilities assumed based upon their estimated fair values on the acquisition date. The purchase price allocation process requires management to make significant estimates and assumptions, especially at the acquisition date with respect to intangible assets and IPR&D. There were no acquisitions or business combinations in the periods presented.

(4) RECENT ACCOUNTING PRONOUNCEMENTS

Accounting Pronouncements Not Yet Adopted

Effective January 1, 2019, the Company will adopt ASU No. 2016-02, *Leases* (ASC Topic 842). The amended guidance requires balance sheet recognition of lease right-of-use (ROU) assets and liabilities by lessees for leases classified as operating leases, with an option to not recognize lease ROU assets and lease liabilities for leases with a term of 12 months or less. The amendments also require new disclosures providing additional qualitative and quantitative information about the amounts recorded in the financial statements. Lessor accounting is largely unchanged. As required by the new standard, the Company expects to adopt ASC Topic 842 using the modified retrospective approach with the cumulative effect of adoption recognized to Accumulated Deficit on January 1, 2019.

As of December 31, 2018, the Company's lease task force is in the process of finalizing the impact on its Consolidated Financial Statements and related disclosures for all leases as of the adoption date. During 2018, management assessed the required changes to the Company's accounting policies, systems and internal control over financial reporting. In the first quarter of 2019, the Company expects the impact of adopting ASC Topic 842 to result in recognition of a lease liability of approximately $60.0 million and corresponding ROU asset, with the difference between these amounts recorded as an adjustment to Accumulated Deficit. The Company anticipates no material impact on its other Consolidated Financial Statements.

Effective January 1, 2019, the Company will adopt ASU No. 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities* (ASU 2017-12). The standard changes the recognition and presentation requirements of hedge accounting, including eliminating the requirement to separately measure and report hedge ineffectiveness and presenting all items that affect earnings in the same income statement line as the hedged item. The Company anticipates no material impact on its Consolidated Financial Statements due to the nature of the Company's hedging activity.

Accounting Pronouncements Adopted

Effective January 1, 2018, the Company adopted ASC Topic 606, which provides principles for recognizing revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those goods or services. The Company adopted ASC Topic 606 on a modified retrospective basis through a cumulative adjustment to Accumulated Deficit. See Note 3 – *Significant Accounting Policies* and Note 18 – *Revenue, Credit Concentrations and Geographic Information* for additional disclosures related to the adoption of ASC Topic 606.

The cumulative effect of applying the new guidance of ASC Topic 606 to all contracts with customers that were not completed as of January 1, 2018 was recorded as an adjustment to Accumulated Deficit as of the

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

adoption date. As a result of applying the modified retrospective method to adopt the new revenue guidance, the following adjustments were made to accounts on the Consolidated Balance Sheet as of January 1, 2018:

	As Reported	Adjustments		Adjusted
	December 31, 2017	Aldurazyme (1)	Tax Provision (2)	January 1, 2018
Balance Sheet				
Assets:				
Accounts receivable, net	$ 261,365	$ 26,012	$ —	$ 287,377
Deferred tax assets	$ 399,095	$ —	$ (5,973)	$ 393,122
Total assets	$ 4,633,125	$ 26,012	$ (5,973)	$ 4,653,164
Equity:				
Accumulated deficit	$ (1,637,548)	$ 26,012	$ (5,973)	$ (1,617,509)
Total liabilities and stockholders' equity	$ 4,633,125	$ 26,012	$ (5,973)	$ 4,653,164

(1) This adjustment represents management's estimate of the variable consideration to be earned on worldwide sales of Aldurazyme by Genzyme in excess of the product transfer revenue previously recognized for Genzyme's ending inventory at December 31, 2017. The product transfer revenue previously recognized as revenue represents the fixed amount per unit of Aldurazyme that Genzyme was required to pay the Company if the product was unsold by Genzyme.

(2) The adoption of ASC Topic 606 primarily resulted in an acceleration of the variable consideration components of revenue as of December 31, 2017, which in turn generated additional deferred tax liabilities that ultimately reduced the Company's net deferred tax asset position. The tax provision amount has been calculated using the Company's estimated statutory rate.

The impact of adoption on the Company's Consolidated Statement of Operations for the year ended December 31, 2018 was as follows:

	Before Adoption of ASC Topic 606	Adjustments (1)	As Reported
Net product revenues	$ 1,450,154	$ 20,202	$ 1,470,356
Provision for (benefit from) income taxes	$ (70,132)	$ 4,638	$ (65,494)
Net loss	$ (92,775)	$ 15,564	$ (77,211)

(1) The adoption of ASC Topic 606 resulted in additional revenues recognized in 2018, which in turn generated additional deferred tax liabilities that reduced the Company's benefit from income taxes. The benefit from income taxes amount has been calculated using the Company's estimated statutory rate.

The impact of adoption on the Company's Consolidated Statement of Cash Flows for the year ended December 31, 2018 was as follows:

	Before Adoption of ASC Topic 606	Adjustments (1)	As Reported
Net loss	$ (92,775)	$ 15,564	$ (77,211)
Deferred income taxes	$ (73,016)	$ 4,638	$ (68,378)
Changes in operating assets and liabilities:			
Accounts receivable, net	$ (74,476)	$ (20,202)	$ (54,274)
Net cash used in operating activities	$ 20,208	$ —	$ 20,208

(1) The adoption of ASC Topic 606 resulted in decreased Net Loss and increased Accounts Receivable, Net due to additional revenues recognized in 2018, which in turn generated additional

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

deferred tax liabilities that reduced net Deferred Tax Assets. The amount of deferred income taxes has been calculated using the Company's estimated statutory rate.

Effective January 1, 2018, the Company adopted ASU No. 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income* (ASU 2018-02). The amendments allow a reclassification from AOCI to Accumulated Deficit for stranded tax effects resulting from the change in the U.S. federal corporate income tax rate on the gross deferred tax amounts at the date of enactment of the Tax Cuts and Jobs Act of 2017 (the 2017 Tax Act). ASU 2018-02 is effective for fiscal years beginning after December 15, 2018, including interim periods within those fiscal years. The Company elected to early adopt ASU 2018-02 using the modified retrospective approach on an aggregate portfolio basis on January 1, 2018. As a result of adoption ASU 2018-02, the Company reclassified $0.6 million from AOCI to Accumulated Deficit in the first quarter of 2018.

(5) FINANCIAL INSTRUMENTS

The following tables show the Company's cash, cash equivalents and available-for-sale securities by significant investment category as of December 31, 2018 and 2017, respectively:

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities (1)	Long-term Marketable Securities (2)
Level 1:							
Cash	$ 228,809	$ —	$ —	$ 228,809	$ 228,809	$ —	$ —
Level 2:							
Money market instruments	205,736	—	—	205,736	205,736	—	—
Corporate debt securities	564,852	214	(2,288)	562,778	2,000	376,545	184,233
Commercial paper	77,702	—	—	77,702	21,964	55,738	—
U.S. government agency securities	240,436	144	(697)	239,883	31,474	156,967	51,442
Foreign and other	5,126	139	(1)	5,264	3,999	1,076	189
Subtotal	1,093,852	497	(2,986)	1,091,363	265,173	590,326	235,864
Total	$ 1,322,661	$ 497	$ (2,986)	$ 1,320,172	$ 493,982	$ 590,326	$ 235,864

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Aggregate Fair Value	Cash and Cash Equivalents	Short-term Marketable Securities (1)	Long-term Marketable Securities (2)
Level 1:							
Cash	$ 340,253	$ —	$ —	$ 340,253	$ 340,253	$ —	$ —
Level 2:							
Money market instruments	215,441	—	—	215,441	215,441	—	—
Corporate debt securities	707,652	150	(2,553)	705,249	3,096	406,188	295,965
Commercial paper	24,566	—	—	24,566	2,751	21,815	—
U.S. government agency securities	472,593	—	(1,975)	470,618	35,497	345,501	89,620
Foreign and other	25,540	150	(64)	25,626	990	24,436	200
Subtotal	1,445,792	300	(4,592)	1,441,500	257,775	797,940	385,785
Total	$ 1,786,045	$ 300	$ (4,592)	$ 1,781,753	$ 598,028	$ 797,940	$ 385,785

(1) The Company's short-term marketable securities mature in one year or less.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(2) The Company's long-term marketable securities mature between one and five years.

As of December 31, 2018, some of the Company's investments were in an unrealized loss position. However, the Company has the ability and intent to hold all investments that have been in a continuous loss position until maturity or recovery, thus no other-than-temporary impairment was deemed to have occurred.

See Note 3 to these Consolidated Financial Statements for additional discussion regarding the Company's fair value measurements.

(6) INTANGIBLE ASSETS

Intangible assets consisted of the following:

	December 31,	
	2018	2017
Intangible assets:		
Finite-lived intangible assets	$ 307,995	$ 303,298
Indefinite-lived intangible assets	326,359	326,359
Gross intangible assets:	634,354	629,657
Less: Accumulated amortization	(142,546)	(112,147)
Net carrying value	$ 491,808	$ 517,510

Finite-Lived Intangible Assets

The following table summarizes the net-book-value and estimated remaining life of the Company's finite-lived intangible assets as of December 31, 2018:

	Net Balance	Average Remaining Life
Acquired intellectual property	$ 126,202	6.4 years
Repurchased royalty rights	33,188	4.9 years
Other (1)	6,059	2.2 - 5.6 years
Total	$ 165,449	

(1) Other finite-lived intangible assets includes an asset that has not yet commenced amortizing.

As of December 31, 2018, the estimated future amortization expense associated with the Company's finite-lived intangible assets was as follows:

Fiscal Year	Amount
2019	$ 30,086
2020	27,605
2021	26,681
2022	26,657
2023	26,029
Thereafter	28,391
	$ 165,449

Indefinite-Lived Intangible Assets

The Company's indefinite-lived intangible assets were $326.4 million as of December 31, 2018 and 2017 and consisted of IPR&D related to the Palynziq rights in Europe.

In 2018, the Company received $50.0 million due to the achievement by a third party of development and regulatory milestones and commercial sales related to a previously sold intangible asset, which the Company recorded as a gain on the sale of intangible assets in the Consolidated Statements of Comprehensive Loss.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

In December 2017, the Company sold the Rare Pediatric Disease Priority Review Voucher (PRV) it received from the Federal Drug Administration in connection with the U.S. approval of Brineura. In exchange for the voucher, the Company received $125.0 million in proceeds from the sale of the PRV, which was recognized as a gain on the sale of intangible asset as the PRV did not have a carrying value on the Company's Consolidated Balance Sheet at the time of sale.

In the fourth quarter of 2017, the Company recognized an impairment charge of $5.8 million related to other acquired IPR&D assets.

In 2016, the Company recorded impairment charges of $574.1 million related to the Kyndrisa and other exon IPR&D assets based on the status of development efforts. The impairment reduced the remaining book value to zero due to the termination of the programs. In 2016, the Company also recognized an impairment charge of $25.0 million related to the reveglucosidase alfa IPR&D assets due to the decision to terminate that development program.

(7) PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment, net, consisted of the following:

	December 31,	
	2018	2017
Building and improvements	$ 694,447	$ 663,347
Manufacturing and laboratory equipment	345,947	294,521
Computer hardware and software	157,787	144,268
Leasehold improvements	41,188	42,572
Furniture and equipment	33,234	31,515
Land improvements	6,551	5,331
Land	77,993	62,369
Construction-in-progress	64,170	59,511
	1,421,317	1,303,434
Accumulated depreciation	(472,635)	(406,734)
Total property, plant and equipment, net	$ 948,682	$ 896,700

The construction-in-process balance primarily includes costs related to the Company's significant in-process projects at its facilities in Marin County, California, and in Shanbally, Ireland.

Depreciation for the years ended December 31, 2018, 2017 and 2016 was $90.4 million, $75.8 million and $73.2 million, respectively, of which $25.2 million, $24.1 million and $17.4 million was capitalized into inventory, respectively.

(8) INVENTORY

Inventory consisted of the following:

	December 31,	
	2018	2017
Raw materials	$ 74,616	$ 49,877
Work-in-process	231,064	234,674
Finished goods	225,191	191,224
Total inventory	$ 530,871	$ 475,775

BIOMARIN PHARMACEUTICAL INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(9) SUPPLEMENTAL BALANCE SHEET INFORMATION

Accounts payable and accrued liabilities consisted of the following:

	December 31, 2018	December 31, 2017
Accounts payable and accrued operating expenses	$ 207,620	$ 166,616
Accrued compensation expense	149,937	140,781
Accrued rebates payable	43,116	36,472
Accrued royalties payable	19,977	18,820
Value added taxes payable	7,785	9,740
Forward foreign currency exchange contracts	4,178	14,464
Other	4,677	15,028
Total accounts payable and accrued liabilities	$ 437,290	$ 401,921

The roll forward of significant estimated accrued rebates and reserve for cash discounts for the years ended December 31, 2018, 2017 and 2016 were as follows:

	Balance at Beginning of Period	Provision for Current Period Sales	Payments	Balance at End of Period
Year ended December 31, 2018:				
Accrued rebates	$ 36,472	$ 67,843	$ (61,199)	$ 43,116
Reserve for cash discounts	1,055	12,474	(12,332)	1,197
Year ended December 31, 2017:				
Accrued rebates	$ 34,737	$ 52,596	$ (50,861)	$ 36,472
Reserve for cash discounts	888	10,672	(10,505)	1,055
Year ended December 31, 2016:				
Accrued rebates	$ 32,553	$ 39,142	$ (36,958)	$ 34,737
Reserve for cash discounts	831	8,867	(8,810)	888

(10) DERIVATIVE INSTRUMENTS AND HEDGING STRATEGIES

The following table summarizes the Company's designated forward foreign currency exchange contracts outstanding as of December 31, 2018 (notional amounts in millions):

Foreign Exchange Contracts	Number of Contracts	Aggregate Notional Amount in Foreign Currency	Maturity
Australian Dollars - Sell	12	5.1	Jan. 2019 - Jun. 2019
Brazilian Reais – Sell	4	61.0	May 2019
Canadian Dollars – Sell	12	14.9	Jan. 2019 - Jun. 2019
Colombian Pesos – Sell	6	53,300.0	Jan. 2019 - Jun. 2019
Euros – Purchase	147	170.1	Jan. 2019 - Sep. 2021
Euros – Sell	458	547.5	Jan. 2019 - Sep. 2021
Norwegian Krone - Sell	6	22.9	Jan. 2019 - Jun. 2019
Total	645		

The maximum length of time over which the Company hedges its exposure to the reduction in value of forecasted foreign currency revenues through forward foreign currency exchange contracts is through September 2021. Over the next twelve months, the Company expects to reclassify $3.6 million from AOCI to earnings as the forecasted revenue and operating expense transactions occur.

The following table summarizes the Company's non-designated forward foreign currency exchange contracts outstanding as of December 31, 2018 (notional amounts in millions):

Foreign Exchange Contracts	Number of Contracts	Aggregate Notional Amount in Foreign Currency	Maturity
Colombian Pesos – Sell	1	55,000.0	February 2019
Euros – Purchase	3	57.2	February 2019
Ruble – Sell	1	310.0	February 2019
Total	5		

The fair value carrying amounts of the Company's derivative instruments were as follows:

	Asset Derivatives December 31, 2018		Liability Derivatives December 31, 2018	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Level 2(1)				
Forward foreign currency exchange contracts	Other current assets	$ 12,686	Accounts payable & accrued liabilities	$ 4,036
Forward foreign currency exchange contracts	Other assets	10,324	Other long- term liabilities	3,653
Total		$ 23,010		$ 7,689
Derivatives not designated as hedging instruments:				
Level 2(1)				
Forward foreign currency exchange contracts	Other current assets	$ 168	Accounts payable & accrued liabilities	$ 142
Total		168		142
Total value of derivative contracts		$ 23,178		$ 7,831

	Asset Derivatives December 31, 2017		Liability Derivatives December 31, 2017	
	Balance Sheet Location	Fair Value	Balance Sheet Location	Fair Value
Derivatives designated as hedging instruments:				
Level 2(1)				
Forward foreign currency exchange contracts	Other current assets	$ 4,015	Accounts payable & accrued liabilities	$ 14,420
Forward foreign currency exchange contracts	Other assets	4,973	Other long- term liabilities	12,686
Total		$ 8,988		$ 27,106
Derivatives not designated as hedging instruments:				
Level 2(1)				
Forward foreign currency exchange contracts	Other current assets	$ 675	Accounts payable & accrued liabilities	$ 44
Total		675		44
Total value of derivative contracts		$ 9,663		$ 27,150

(1) See Note 3 to these Consolidated Financial Statements for additional information related to the Company's fair value measurements.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

The effect of the Company's derivative instruments on the Consolidated Financial Statements for the years ended December 31, 2018, 2017 and 2016 was as follows:

	Years Ended December 31,		
	2018	2017	2016
Derivatives Designated as Hedging Instruments:			
Net gain (loss) recognized in AOCI (1)	$ 25,386	$ (38,351)	$ 9,677
Net gain (loss) reclassified from AOCI into earnings (2)	(2,047)	(5,113)	6,529
Net gain recognized in net loss (3)	8,901	2,576	5,070
Derivatives Not Designated as Hedging Instruments:			
Net gain (loss) recognized in net loss(4)	$ (3,240)	$ 8,255	$ (8,687)

(1) Net change in the fair value of the effective portion classified as AOCI.
(2) Effective portion classified as Net Product Revenues and Operating expenses.
(3) Ineffective portion and amount excluded from effectiveness testing classified as Operating expense.
(4) Classified as Operating expense.

The Company is exposed to counterparty credit risk on all of its derivative financial instruments. The Company has established and maintains strict counterparty credit guidelines and enters into hedges only with financial institutions that are investment grade or better to minimize the Company's exposure to potential defaults. The Company does not require collateral to be pledged under these agreements.

(11) FAIR VALUE MEASUREMENTS

The Company measures certain financial assets and liabilities at fair value in accordance with its policy in Note 3 – *Significant Accounting Policies* to these Consolidated Financial Statements. The following tables below presents the classification within fair value hierarchy of financial assets and liabilities not disclosed elsewhere that are remeasured on a recurring basis.

	Fair Value Measurements at December 31, 2018			
	Quoted Price in Active Markets For Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Other Current Assets:				
NQDC Plan assets	—	370	—	370
Restricted investments (1)	—	9,581	—	9,581
Total other current assets	—	9,951	—	9,951
Other Assets:				
NQDC Plan assets	—	12,828	—	12,828
Restricted investments (1)	—	2,450	—	2,450
Strategic investment (2)	942	—	—	942
Total other assets	942	15,278	—	16,220
Total assets	$ 942	$ 25,229	$ —	$ 26,171
Liabilities:				
Current Liabilities:				
NQDC Plan liability	$ 55	$ 370	$ —	$ 425
Contingent consideration	—	—	85,951	85,951
Total current liabilities	55	370	85,951	86,376
Other long-term liabilities:				
NQDC Plan liability	17,598	12,828	—	30,426
Contingent consideration	—	—	46,883	46,883
Total other long-term liabilities	17,598	12,828	46,883	77,309
Total liabilities	$ 17,653	$ 13,198	$ 132,834	$ 163,685

BIOMARIN PHARMACEUTICAL INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

	Fair Value Measurements at December 31, 2017			
	Quoted Price in Active Markets For Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total
Assets:				
Other Current Assets:				
NQDC Plan assets	—	967	—	967
Restricted investments (1)	—	15,647	—	15,647
Total other current assets	—	16,614	—	16,614
Other Assets:				
NQDC Plan assets	—	11,859	—	11,859
Total other assets	—	11,859	—	11,859
Total assets	$ —	$ 28,473	$ —	$ 28,473
Liabilities:				
Current Liabilities:				
NQDC Plan liability	$ 1,356	$ 967	$ —	$ 2,323
Contingent consideration	—	—	53,648	53,648
Total current liabilities	1,356	967	53,648	55,971
Other long-term liabilities:				
NQDC Plan liability	18,272	11,859	—	30,131
Contingent consideration	—	—	135,318	135,318
Total other long-term liabilities	18,272	11,859	135,318	165,449
Total liabilities	$ 19,628	$ 12,826	$ 188,966	$ 221,420

(1) The restricted investments at December 31, 2018 and 2017 secure the Company's irrevocable standby letters of credit obtained in connection with certain commercial agreements.

(2) The Company has investments in marketable equity securities measured using quoted prices in an active market that are considered strategic investments and included in other assets on the Company's Balance Sheets.

There were no transfers between levels during the periods presented.

Liabilities measured at fair value using Level 3 inputs consisted of contingent consideration and asset retirement obligations. The following tables represent a roll-forward of contingent consideration.

Contingent consideration as of December 31, 2017	$ 188,966
Milestone payments to Ares Trading S.A. (Merck Serono)	(61,607)
Milestone payments to former LEAD Therapeutics, Inc. shareholders	(9,013)
Changes in the fair value of other contingent consideration	18,525
Foreign exchange remeasurement of Euro denominated contingent acquisition consideration	(4,037)
Contingent consideration as of December 31, 2018	$ 132,834

BIOMARIN PHARMACEUTICAL INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(12) DEBT

As of December 31, 2018, the Company had outstanding fixed-rate notes with varying maturities for an undiscounted aggregate principal amount of $870.0 million (collectively the Notes). The Notes are senior subordinated convertible obligations, summarized as of December 31, as follows:

	2018	2017
0.75% senior subordinated convertible notes due October 2018 (the 2018 Notes)	$ —	$ 374,980
Unamortized discount	—	(12,488)
Unamortized deferred offering costs	—	(1,543)
Convertible Notes due 2018, net	—	360,949
1.50% senior subordinated convertible notes due in October 2020 (the 2020 Notes)	374,993	374,993
Unamortized discount	(26,581)	(40,287)
Unamortized deferred offering costs	(2,334)	(3,631)
Convertible Notes due 2020, net	346,078	331,075
0.599% senior subordinated convertible notes due in August 2024 (the 2024 Notes)	495,000	495,000
Unamortized discount	(7,946)	(9,355)
Unamortized deferred offering costs	(2,715)	(3,199)
Convertible Notes due in 2024, net	484,339	482,446
Total convertible debt, net	$ 830,417	$ 1,174,470
Fair value of fixed rate convertible debt		
Convertible Notes due in 2018 (1)	$ —	$ 403,955
Convertible Notes due in 2020 (1)	419,722	446,470
Convertible Notes due in 2024 (1)	491,626	493,894
Total	$ 911,348	$ 1,344,319

(1) The fair value of the Company's fixed-rate convertible debt is based on open market trades and is classified as Level 1 in the fair value hierarchy. See Note 3 to these Consolidated Financial Statements for additional information related to the Company's fair value measurements.

Interest expense on the Company's debt consisted of the following:

	Years Ended December 31,		
	2018	2017	2016
Coupon interest	$ 12,452	$ 10,407	$ 9,555
Amortization of debt issuance costs	3,610	3,725	3,367
Accretion of discount on convertible notes	27,602	28,575	26,577
Total interest expense on convertible debt	$ 43,664	$ 42,707	$ 39,499

2024 Convertible Notes

In August 2017, the Company issued $495.0 million in aggregate principal amount of senior subordinated convertible notes with a maturity date of August 1, 2024. The 2024 Notes were issued to the public at 98% of face value and bear interest at the rate of 0.599% per annum. Interest is payable semi-annually in cash in arrears on February 1 and August 1 of each year, beginning February 1, 2018. The 2024 Notes are convertible, at the option of the holder into shares of the Company's common stock. The initial conversion rate for the 2024 Notes is 8.0212 shares per $1,000 principal amount of the 2024 Notes, which represents a conversion price of approximately $124.67 per share, subject to adjustment under certain conditions. Following certain corporate transactions, the Company will, in certain circumstances, increase the conversion rate for a holder that elects to convert its 2024 Notes in connection with such corporate transactions by a number of additional shares of the Company's common stock. A holder may convert fewer than all of such holder's 2024 Notes so long as the

amount of the 2024 Notes converted is an integral multiple of $1,000 principal amount. Net proceeds from the offering were $481.7 million.

The 2024 Notes are senior subordinated, unsecured obligations, and rank (i) subordinated in right of payment to the prior payment in full of any of the Company's existing and future senior debt, (ii) equal in right of payment to any of the Company's existing and future senior subordinated debt, (iii) senior in right of payment to any of the Company's existing and future indebtedness that is expressly subordinated in right of payment to the 2024 Notes, and (iv) effectively subordinated to any of the Company's existing and future secured indebtedness, to the extent of the value of the collateral securing that indebtedness and structurally subordinated to all existing and future indebtedness and other liabilities, including trade payables, and (to the extent the Company is not a holder thereof) preferred equity, if any, of the Company's subsidiaries. Upon the occurrence of a "fundamental change," as defined in the indenture governing the 2024 Notes, the holders may require the Company to repurchase all or a portion of such holder's 2024 Notes for cash at 100% of the principal amount of the 2024 Notes being purchased, plus any accrued and unpaid interest.

In connection with the issuance of the 2024 Notes, the Company recorded a discount on the 2024 Notes of $9.9 million, which will be accreted and recorded as additional interest expense over the life of the 2024 Notes. In connection with the issuance of the 2024 Notes, the Company incurred $3.4 million of issuance costs. These costs were deferred and are being amortized over the life of the 2024 Notes and recorded as additional interest expense.

2018/2020 Convertible Notes

On October 15, 2013, the Company issued $750.0 million in aggregate principal amount of senior subordinated convertible notes consisting of $375.0 million in aggregate principal amount of 0.75% senior subordinated convertible notes that had a maturity date of October 15, 2018 and $375.0 million in aggregate principal amount of 1.50% senior subordinated convertible notes with a maturity date of October 15, 2020. Net proceeds from the offering were $726.2 million. Interest on the 2020 Notes is payable semiannually in arrears on April 15 and October 15 of each year.

The Company's 2018 Notes matured on October 15, 2018. Substantially all holders of the 2018 Notes converted at maturity and the 2018 Notes were settled with a combination of cash and shares of the Company's common stock, consisting of approximately $375.0 million in cash and 190,220 in shares. The shares issued represented the value of the 2018 Notes in excess of the conversion price of $94.15, as measured over a 25-day averaging period. The cash payment comprised the principal, the value of fractional shares and the value of unconverted 2018 Notes.

The 2020 Notes are senior unsecured obligations, and rank (i) subordinated to any of the Company's existing and future unsecured senior debt, (ii) equally to any of the Company's existing and future senior subordinated debt, (iii) senior to any of the Company's future indebtedness that is expressly subordinated to the 2020 Notes, and (iv) effectively junior to any secured indebtedness to the extent of the value of the assets securing such indebtedness. Upon the occurrence of a "fundamental change", as defined in the indenture, the holders may require the Company to repurchase all or a portion of the 2020 Notes for cash at 100% of the principal amount of the Notes being purchased, plus any accrued and unpaid interest.

The initial conversion rate for the 2020 Notes is 10.6213 shares per $1,000 principal amount of the 2020 Notes, which represents a conversion price of approximately $94.15 per share. Such conversion rates are subject to adjustment under certain conditions. Holders may convert their 2020 Notes at their option at any time prior to July 15, 2020 only under the following circumstances: (1) during any calendar quarter commencing after the calendar quarter ending on March 31, 2014 (and only during such calendar quarter), if the last reported sale price of the Company's common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the applicable conversion price on each applicable trading day; (2) during the five business day period after any five consecutive trading day period (the measurement period) in which the trading price per $1,000 principal amount of the relevant notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the applicable conversion rate on each such trading day; or (3) upon the occurrence of specified corporate events. On or after July 15, 2020, in the case of the 2020 Notes, until the close of business on the second scheduled trading day immediately preceding the applicable maturity date, holders may convert their notes at any time, regardless of the foregoing circumstances. Upon conversion of the 2020 Notes, the Company may pay cash, shares of the Company's common stock or a combination of cash and stock, as determined by the Company in its discretion.

The Company separately accounted for the liability and equity components of the 2020 Notes by allocating the proceeds from issuance of the 2020 Notes between the liability component and the embedded conversion option, or equity component. This allocation was done by first estimating an interest rate at the time of issuance for similar notes that do not include the embedded conversion option. The Company allocated $156.2 million to the equity component, net of offering costs of $5.1 million. The Company recorded a discount on the 2018 Notes and 2020 Notes of $161.3 million which was accreted and recorded as additional interest expense over the lives of the 2018 Notes and 2020 Notes. Additionally, in connection with the issuance of the 2018 Notes and the 2020 Notes, the Company incurred $23.8 million of issuance costs, which were deferred and amortized over the lives of the 2018 Notes and 2020 Notes and recorded as additional interest expense.

To minimize the impact of potential dilution upon conversion of the 2018 Notes and the 2020 Notes, the Company entered into capped call transactions separate from the issuance of the Notes with certain counterparties covering 3,982,988 shares of the Company's common stock, subject to adjustment, which applies 50% to the 2018 Notes and 50% to the 2020 Notes. The capped calls have a strike price of $94.15 and a cap price of $121.05 and are exercisable when and if the Notes are converted. If upon conversion of the Notes, the price of the Company's common stock is above the strike price of the capped calls, the counterparties will deliver shares of the Company's common stock and/or cash with an aggregate value equal to the difference between the price of the Company's common stock at the conversion date and the strike price, multiplied by the number of shares of the Company's common stock related to the capped calls being exercised. The Company paid $29.8 million for these capped calls transactions, which was recorded as additional paid-in capital.

Upon maturity of the 2018 Notes, the Company received from the capped call counterparties 95,127 shares of the Company's common stock, which were accounted for as treasury shares and subsequently retired. The Company incurred no gain or loss upon the extinguishment of the 2018 Notes.

See Note 13 to these Consolidated Financial Statements for further discussion of the effect of conversion on net loss per common share.

Revolving Credit Facility

In November 2016, the Company entered into a senior unsecured revolving credit facility (the 2016 Credit Facility) that provided revolving credit of up to $100.0 million in revolving loans, which included a $10.0 million letter of credit subfacility and a $15.0 million swingline loan subfacility. The maturity date of the 2016 Credit Facility would have occurred on November 29, 2018, but the Company terminated the 2016 Credit Facility before maturity as described below.

In October 2018, the Company entered into an unsecured revolving credit facility of up to $200.0 million (the 2018 Credit Facility) and terminated the 2016 Credit Facility. The 2018 Credit Facility includes a letter of credit subfacility and a swingline loan subfacility and is intended to finance ongoing working capital needs and for other general corporate purposes. Borrowings under the 2018 Credit Facility bear interest, at the Company's option, at a rate equal to either (a) the LIBOR rate (except that if LIBOR is less than zero it shall be deemed to be zero for purposes of the 2018 Credit Facility), or LIBOR successor rate, plus an applicable margin ranging from 1.00% to 1.95% per annum, based upon the Company's net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods, or (b) the Base Rate, generally the prime lending rate, plus an applicable margin ranging from 0.00% to 0.95%, based upon the Company's net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods. Commitment fees payable on the undrawn amount range from 0.15% to 0.35% per annum based upon the Company's net leverage ratio and EBITDA for each of the two most recently ended four-quarter measurement periods. The Company's obligations under the Credit Facility are guaranteed by its direct subsidiary, California Corporate Center Acquisition LLC, and such obligations may in the future be guaranteed from time to time by certain other material domestic subsidiaries. The 2018 Credit Facility matures on October 19, 2021 at which time all outstanding amounts become due and payable, except that if at least $100.0 million aggregate principal amount of the 2020 Notes remain outstanding on August 1, 2020 and certain other conditions have not been met, the Company may be required to repay all amounts borrowed under the 2018 Credit Facility on August 1, 2020. The 2018 Credit Facility contains financial covenants requiring the Company to maintain a minimum interest coverage ratio and a minimum liquidity requirement.

The Company incurred approximately $1.0 million of issuance costs, which will be amortized to Interest Expense over the term of the 2018 Credit Facility. The Company incurred no gain or loss upon the termination of the 2016 Credit facility. As of December 31, 2018, there were no outstanding amounts due under the 2018 Credit Facility and the Company and certain of its subsidiaries that serve as guarantors were in compliance with all covenants.

(13) NET LOSS PER COMMON SHARE

Potentially issuable shares of common stock include shares issuable upon the exercise of outstanding employee stock option awards, common stock issuable under the Company's ESPP, unvested restricted stock units (RSUs), common stock held by the NQDC and contingent issuances of common stock related to convertible debt.

The following table sets forth the computation of basic and diluted earnings per common share (common shares in thousands):

	Years Ended December 31,		
	2018	2017	2016
Numerator:			
Net loss, basic	$ (77,211)	$ (117,042)	$ (630,210)
Less: gain on common stock held by the NQDC	(710)	—	(3,184)
Net loss, diluted	(77,921)	(117,042)	(633,394)
Denominator:			
Weighted-average common shares outstanding, basic	177,061	174,427	165,985
Effect of dilutive securities:			
Common stock held by the NQDC	207	—	234
Weighted-average common shares outstanding, diluted	177,268	174,427	166,219
Net loss per common share, basic	$ (0.44)	$ (0.67)	$ (3.80)
Net loss per common share, diluted	$ (0.44)	$ (0.67)	$ (3.81)

The table below presents potential shares of common stock that were excluded from the computation of basic and diluted earnings per common share as they were anti-dilutive using the if-converted or treasury stock method (in thousands):

	Years Ended December 31,		
	2018	2017	2016
Options to purchase common stock	7,364	8,108	8,856
Common stock issuable under the 2017 Notes	—	—	1,105
Common stock issuable under the 2018 Notes	—	3,983	3,983
Common stock issuable under the 2020 Notes	3,983	3,983	3,983
Common stock issuable under the 2024 Notes	3,970	3,970	—
Unvested restricted stock units	3,404	2,911	2,618
Common stock potentially issuable for ESPP purchases	435	436	404
Common stock held by the NQDC	—	220	—
Total number of potentially issuable shares	19,156	23,611	20,949

The potential effect of the capped call transactions with respect to the 2018 Notes and the 2020 Notes was excluded from the diluted net income/loss per share as the Company's closing stock price on December 31, 2018, 2017 and 2016 did not exceed the conversion price of $94.15 per share for the 2018 Notes and the 2020 Notes. There is no similar capped call transaction associated with the 2024 Notes. See Note 12 to these Consolidated Financial Statements for information on the Company's debt.

(14) INCOME TAXES

The provision for (benefit from) income taxes is based on loss before income taxes as follows:

	Years Ended December 31,		
	2018	2017	2016
U.S. Source	$ (128,700)	$ (19,461)	$ 10,696
Non-U.S. Source	(14,005)	(16,414)	(841,746)
Loss before income taxes	$ (142,705)	$ (35,875)	$ (831,050)

The U.S. and foreign components of the provision for (benefit from) income taxes are as follows:

	Years Ended December 31,		
	2018	2017	2016
Provision for (benefit from) current income tax expense:			
Federal	$ (2,660)	$ 29,848	$ 22,239
State and local	588	2,880	1,418
Foreign	4,956	3,975	3,557
	2,884	36,703	27,214
Provision for (benefit from) deferred income taxes:			
Federal	(72,074)	12,446	(78,428)
State and local	(994)	32,336	(6,012)
Foreign	4,690	(318)	(143,614)
	(68,378)	44,464	(228,054)
Provision for (benefit from) income taxes	$ (65,494)	$ 81,167	$ (200,840)

On December 22, 2017, the bill known as the Tax Cuts and Jobs Act (the 2017 Tax Act) was signed into law. The new law has resulted in significant changes to the U.S. corporate income tax system. These changes include a federal statutory rate reduction from 35% to 21% and the elimination or reduction of certain domestic deductions and credits, including a 50% reduction in the orphan drug credit benefit. The 2017 Tax Act changed U.S. international taxation from a worldwide basis to a modified territorial system that includes base erosion prevention measures on foreign earnings. This will result in the Company's foreign subsidiaries being subject to U.S. taxation in the future. These changes were effective in 2018. Changes to tax laws and tax rates are required

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

to be accounted for in the period of the enactment, therefore the Company's tax expense for the year ended December 31, 2017 included the impact of the 2017 Tax Act.

In December 2017, the SEC staff issued Staff Accounting Bulletin No. 118, *Income Tax Accounting Implications of the Tax Cuts and Jobs Act* (SAB 118), which allowed companies to record provisional amounts during a measurement period not to extend beyond one year of the enactment date. As a result, the Company previously provided a provisional estimate of the effect of the 2017 Tax Act in its 2017 financial statements. In the fourth quarter of 2018, the Company completed its analysis to determine the effect of the 2017 Tax Act and recorded immaterial adjustments as of December 31, 2018. The Company has elected to account for Global Intangible Low-taxed Income (GILTI) as a current period expense when incurred.

For the year ended December 31, 2016, the Company's Dutch operations had a book net loss of $539.2 million, which included the impairment of the Kyndrisa IPR&D assets and a resulting deferred tax benefit of $143.5 million associated with the reversal of the deferred tax liability of such IPR&D assets.

The following is a reconciliation of the statutory federal income tax rate to the Company's effective income tax rate:

	Years Ended December 31,		
	2018	2017	2016
Federal statutory income tax rate	$ (29,968)	$ (12,556)	$ (290,867)
State and local taxes	(276)	7,282	(2,978)
Orphan Drug & General Business Credit	(66,451)	(33,683)	(62,041)
Stock compensation expense	(5,647)	(6,843)	(38,263)
Changes in the fair value of contingent consideration	(2,361)	1,099	(7,616)
Subpart F income	6,543	30,181	—
Foreign tax rate differential	12,583	9,403	154,553
Section 162(m) limitation	7,440	9,492	45,056
Tax Cuts and Jobs Act of 2017	—	42,338	—
Tax Reserves	8,545	2,262	2,294
Other	(422)	(2,938)	(5,133)
Valuation allowance/deferred benefit	4,521	35,132	4,155
Effective income tax rate	$ (65,494)	$ 81,167	$ (200,840)

The significant components of the Company's net deferred tax assets are as follows:

	December 31,	
	2018	2017
Net deferred tax assets:		
Net operating loss carryforwards	$ 42,007	$ 48,374
Tax credit carryforwards	466,066	384,381
Accrued expenses, reserves, and prepaids	55,041	54,565
Intangible assets	18,734	17,556
Stock-based compensation	35,966	31,371
Inventory	12,859	13,206
Other	278	4,967
Valuation allowance	(107,928)	(111,001)
Total deferred tax assets	523,023	443,419
Joint venture basis difference	(1,010)	(1,229)
Acquired intangibles	(6,508)	(3,332)
Deferred revenue	(4,480)	—
Convertible notes discount	(5,157)	(10,100)
Property, plant and equipment	(44,916)	(29,663)
Total deferred tax liabilities	(62,071)	(44,324)
Net deferred tax assets	$ 460,952	$ 399,095

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

In 2018, the decrease in the valuation allowance was primarily due to the realization of deferred gains that had a full valuation allowance.

As of December 31, 2018, the Company had the following net operating loss and tax credit carryforwards, which if not utilized, will expire as follows:

Type	Amount	Year
Federal net operating loss carryforwards	$ 157,919	2028 – 2037
Federal R&D and orphan drug credit carryforwards	$ 469,543	2030 – 2038
State net operating loss carryforwards	$ 153,737	2019 – 2038
Dutch net operating loss carryforwards	$ 118,225	2021 – 2025

$142.0 million of federal net operating losses and $96.1 million of state research credit carryovers will carry forward indefinitely.

The Company's net operating losses and credits could be subject to annual limitations due to ownership change limitations provided by IRC Section 382 and similar state provisions. An annual limitation could result in the expiration of net operating losses and tax credit carryforward before utilization. There are limitations on the tax attributes of acquired entities however, the Company does not believe the limitations will have a material impact on the utilization of the net operating losses or tax credits.

The financial statement recognition of the benefit for a tax position is dependent upon the benefit being more likely than not to be sustainable upon audit by the applicable taxing authority. If this threshold is met, the tax benefit is then measured and recognized at the largest amount that is greater than 50% likely of being realized upon ultimate settlement. A reconciliation of the beginning and ending amount of unrecognized tax benefits for the years ended December 31, 2018 and 2017 is as follows:

	December 31,	
	2018	2017
Balance at beginning of period	$ 113,486	$ 103,210
Additions based on tax positions related to the current year	30,811	11,042
(Deletions) Additions for tax positions of prior years	3,148	(766)
Balance at end of period	$ 147,445	$ 113,486

Included in the balance of unrecognized tax benefits at December 31, 2018 are potential benefits of $147.4 million that, if recognized, would affect the effective tax rate. The Company's policy for classifying interest and penalties associated with unrecognized income tax benefits is to include such items in the income tax expense. The total amount of accrued interest and penalties was not significant as of December 31, 2018.

The Company files income tax returns in the U.S. and various foreign jurisdictions. The U.S. and foreign jurisdictions have statute of limitations ranging from three to five years. However, carryforward tax attributes that were generated in 2014 and earlier may still be adjusted upon examination by tax authorities.

U.S. income and foreign withholding taxes have not been recognized on the excess of the amount for financial reporting over the tax basis of investments in foreign subsidiaries that are essentially permanent in duration. This excess totaled approximately $11.5 million as of December 31, 2018, which will be indefinitely reinvested; deferred income taxes have not been provided on such foreign earnings.

(15) EQUITY COMPENSATION PLANS AND STOCK-BASED COMPENSATION

Equity Compensation Plans

Shares Available Under Equity Compensation Plans

As of December 31, 2018, an aggregate of approximately 27.2 million unissued shares was authorized for future issuance under the Company's stock plans, which primarily includes shares issuable under the 2017 Equity Incentive Plan, the ESPP. Under the 2017 Equity Incentive Plan, shares issued under the 2006 Share Incentive Plan and the 2017 Equity Incentive Plan that expire or are forfeited generally become available for future issuance under the 2017 Equity Incentive Plan. See Note 3 to these Consolidated Financial Statements for discussion regarding the valuation of equity awards.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

2017 Equity Incentive Plan

The 2017 Equity Incentive Plan was approved by the Company's stockholders on June 6, 2017 and became effective that same date, and is the successor to and continuation of the Company's Amended and Restated 2006 Share Incentive Plan (the 2006 Share Incentive Plan), provides for awards of RSUs and stock options as well as other forms of equity compensation. No additional awards will be granted under the 2006 Share Incentive Plan; however, there are vested and unvested awards outstanding under the 2006 Share Incentive Plan. Stock option awards granted to employees generally vest over a four-year period on a cliff basis twelve months after the grant date and then monthly thereafter. The contractual term of stock option awards is generally ten years from the grant date. RSUs granted to employees generally vest annually over a straight-line four-year period after the grant date. RSUs granted to directors generally vest in full one year after the grant date.

Shares formerly reserved for future issuance under the 2006 Share Incentive Plan were transferred to the 2017 Equity Incentive Plan, from which future shares shall be issued. The Company's stock-based compensation plans are administered by the Company's Board of Directors (the Board), or designated Committee thereof, which selects persons to receive awards and determines the number of shares subject to each award and the terms, conditions, performance measures and other provisions of the awards. As of December 31, 2018, options to purchase approximately 7.4 million shares were outstanding under the Company's stock option plans and approximately 10.9 million shares were authorized for future issuance under the 2017 Equity Incentive Plan.

Employee Stock Purchase Plan

The ESPP was initially approved in June 2006, replacing the Company's previous plan, and was further amended on March 5, 2014. Under BioMarin's ESPP, employees meeting specific employment qualifications are eligible to participate and can purchase shares on established dates (each purchase date) semi-annually through payroll deductions at the lower of 85% of the fair market value of the stock at the commencement of the offering period or each purchase date of the offering period. Each offering period will span up to two years. The ESPP permits eligible employees to purchase common stock through payroll deductions for up to 10% of qualified compensation, up to an annual limit of $25,000. The ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the IRC. During the year ended December 31, 2018, the Company issued 0.2 million shares under the ESPP.

As of December 31, 2018, there were approximately 3.5 million shares were authorized and 0.4 million shares reserved for future issuance under the ESPP.

Board of Director Grants

On September 28, 2017, the Board approved revised compensation for the Independent Directors of the Company as follows. On the date of the Company's annual meeting of stockholders for a given year, each re-elected Independent Director receives an RSU grant valued at $375,000, with the number of RSUs to be granted calculated based on the three month trailing average closing price of the Company's common stock on the Nasdaq Global Select Market. The RSUs subject to the annual award vest in full on the one-year anniversary of the grant date, subject to each respective director providing service to the Company through such vesting date. Upon election or appointment, a new Independent Director will receive an RSU grant on the same terms as the annual award, pro-rated for amount and vesting to the nearest quarter for the time such new Independent Director will serve prior to the Company's next annual meeting of stockholders.

Stock-based Compensation

Compensation expense included in the Company's Consolidated Statements of Operations for all stock-based compensation arrangements was as follows:

	Years Ended December 31,		
	2018	2017	2016
Cost of sales	$ 13,558	$ 10,636	$ 9,121
Research and development	57,557	53,112	58,279
Selling, general and administrative	77,704	76,515	67,241
Total stock-based compensation expense	$ 148,819	$ 140,263	$ 134,641

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

Stock-based compensation of $20.0 million, $16.1 million and $11.4 million was capitalized into inventory, for the years ended December 31, 2018, 2017 and 2016, respectively. Capitalized stock-based compensation is recognized as cost of sales when the related product is sold.

Restricted Stock Unit Awards with Service-Based Vesting Conditions

Below is a summary of RSU activity under the plan for the year ended December 31, 2018:

	Shares	Weighted Average Grant Date Fair Value	Weighted Average Remaining Years	Aggregate Intrinsic Value
Non-vested units as of December 31, 2017	2,679,534	$ 90.04	2.5	$ 238,934
Granted	1,681,120	$ 84.63		
Vested	(963,062)	$ 89.53		
Forfeited	(250,069)	$ 88.68		
Non-vested units as of December 31, 2018	3,147,523	$ 87.42	2.6	$ 268,012

The weighted-average grant date fair value per share of RSUs granted during the years ended December 31, 2018, 2017 and 2016, was $84.63, $87.88 and $84.18, respectively. The total intrinsic value of restricted stock that vested and was released in the years ended December 31, 2018, 2017 and 2016 was $84.5 million, $76.5 million and $63.5 million, respectively.

The Company recorded $102.0 million, $86.5 million and $74.7 million of compensation costs related to RSUs with service-based vesting conditions for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, there was $192.5 million of total unrecognized compensation cost related to unvested RSUs with service-based vesting conditions. These costs are expected to be recognized over a weighted average period of 2.6 years.

Stock Options

The following table summarizes activity under the Company's stock option plans, including the 2012 and 2014 Inducement Plans and those suspended upon the adoption of the 2017 Share Incentive Plan, for the year ended December 31, 2018. All option grants presented in the table had exercise prices not less than the fair value of the underlying common stock on the grant date:

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Years	Aggregate Intrinsic Value (1)
Options outstanding as of December 31, 2017	8,107,981	$ 56.53	5.1	$ 281,141
Granted	782,240	$ 83.77		
Exercised	(1,456,274)	$ 36.71		
Expired and forfeited	(70,338)	$ 86.46		
Options outstanding as of December 31, 2018	7,363,609	$ 63.06	5.1	$ 183,091
Options unvested at December 31, 2018	1,441,416	$ 85.75	8.6	$ 1,559
Exercisable at December 31, 2018	5,922,193	$ 57.57	4.2	$ 181,532

(1) The aggregate intrinsic value for outstanding options is calculated as the difference between the exercise price of the underlying awards and the quoted price of the Company's common stock on the Nasdaq Global Select Market as of the last trading day for the respective year. The aggregate intrinsic value of options outstanding and exercisable includes options with an exercise price below $85.15, the closing price of the Company's common stock on the Nasdaq Global Select Market on December 31, 2018.

The weighted-average fair value per option granted in the years ended December 31, 2018, 2017 and 2016 were $33.40, $36.07 and $40.70, respectively. The total intrinsic value of options exercised during the years ended December 31, 2018, 2017 and 2016 was $79.9 million, $77.0 million and $127.4 million,

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

respectively. The aggregate intrinsic value of options exercised was determined as of the date of option exercise. Upon the exercise of the options, the Company issues new common stock from its authorized shares.

The assumptions used to estimate the per share fair value of stock options granted during the periods presented were as follows:

	Years Ended December 31,		
	2018	2017	2016
Expected volatility	36.8 – 38.4%	37.6 – 39.7%	35.7 – 44.2%
Dividend yield	0.00%	0.00%	0.00%
Expected life	4.6 – 5.7 years	4.9 – 6.6 years	5.0 – 8.1 years
Risk-free interest rate	2.3 – 2.8%	1.8 – 2.2%	1.1 – 2.3%

The Company recorded $32.0 million, $36.7 million and $45.5 million of compensation costs related to current period vesting of stock options for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, the total unrecognized compensation cost related to unvested stock options was $42.7 million. These costs are expected to be recognized over a weighted average period of 2.4 years. The net tax benefit from stock options exercised during the year ended December 31, 2018 was $5.8 million.

The assumptions used to estimate the per share fair value of stock purchase rights granted under the ESPP were as follows:

	Years Ended December 31,		
	2018	2017	2016
Expected volatility	29.7 – 35.0%	27.7 – 42.3%	41.5 – 49.7%
Dividend yield	0.00%	0.00%	0.00%
Expected life	6 – 24 months	6 – 24 months	6 – 24 months
Risk-free interest rate	1.2 – 2.8%	1.0 – 1.6%	0.4 – 0.8%

The Company recorded $10.4 million, $11.7 million and $10.1 million of compensation costs related to shares granted under the ESPP for the years ended December 31, 2018, 2017 and 2016, respectively. As of December 31, 2018, there was $10.8 million of total unrecognized compensation cost related to unvested stock options issuable under the ESPP. These costs are expected to be recognized over a weighted average period of 1.3 years.

Restricted Stock Unit Awards with Performance Conditions

The Compensation Committee of the Board (with respect to awards to certain executive officers other than the Chief Executive Officer) and the Board (with respect to awards to the Chief Executive Officer) may grant RSUs with performance-based vesting conditions to certain executive officers. In March 2018, the Compensation Committee and Board approved the grant of 129,680 RSUs (base RSUs) with performance-based vesting conditions. This award is contingent upon the achievement of a 2018 revenue target and the awarded RSUs, if any, vest ratably over a three-year service period. The number of shares that may be earned range between 50% and 200% of the base RSUs, dependent on the percentage of 2018 “managed revenues” (defined as the Company’s net product revenues, excluding net revenues attributable to Aldurazyme, and determined using fixed foreign currency exchange rates) achieved against the target managed revenues, with a threshold achievement level of 70% of target and a ceiling achievement level of 125% of target. RSUs with performance-based vesting conditions with similar performance conditions were granted in 2017, 2016 and 2015.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

The following table details the base RSUs granted, RSUs earned and expected to vest and the performance multiplier achieved for the RSUs with performance-based vesting conditions for the years ended December 31, 2017, 2016 and 2015, respectively, as well as the base RSUs granted in March 2018:

Date of Grant	Base RSUs Granted	Grant Date Fair Value per RSU	Multiplier Achieved	RSUs Earned	Compensation Expense for the Years Ended December 31, 2018	2017	2016
March 2018 (1)	129,680	$ 83.57	(1)	(1)	$ 3,829	$ —	$ —
March 2017 (2)	133,250	$ 87.42	103%	131,651	$ 3,446	$ 4,141	$ —
March 2016 (2)	130,310	$ 83.43	103%	134,219	$ 3,125	$ 3,928	$ 2,956
March 2015 (2)	58,300	$ 108.36	111%	64,713	$ 340	$ 2,291	$ 2,342

(1) Based on the Company's performance against the 2018 revenue target, the Company expects its Compensation Committee to approve a multiplier of 97.8% and the participating executive officers to earn 126,814 RSUs. The Company evaluated the 2018 revenue target in the context of its current 2018 revenue forecast, and related confidence level in the forecast, and determined that attainment of the revenue target was probable for accounting purposes commencing in the first quarter of 2018.

(2) The RSUs with performance-based vesting conditions granted in 2015, 2016 and 2017 were earned on the one year anniversary upon achievement of the respective performance target and vest ratably over a three-year service period.

As of December 31, 2018, total unrecognized compensation expense of $11.6 million related to RSU awards with performance-vesting conditions is expected to be recognized over a weighted average period of 1.7 years.

(16) OTHER EMPLOYEE BENEFITS

Employment Agreements

The Company has entered into employment agreements with certain officers. Generally, these agreements can be terminated without cause by the Company upon prior written notice and payment of specified severance, or by the officer upon four weeks' prior written notice to the Company.

401(k) Plan

The Company sponsors the BioMarin Retirement Savings Plan (the 401(k) Plan). Most employees (Participants) are eligible to participate following the start of their employment, at the beginning of each calendar month. Participants may contribute to the 401(k) Plan up to the lesser of 100% of their current compensation or an amount up to a statutorily prescribed annual limit. The Company pays the direct expenses of the 401(k) Plan and matched 100% of each Participant's contributions, up to a maximum of the lesser of 6% of the employee's annual compensation or $16,000 per year ($19,000 per year effective January 1, 2019). The Company's matching contribution vests over four years from employment commencement and was approximately $23.0 million, $19.8 million and $16.0 million for the years ended December 31, 2018, 2017 and 2016, respectively. Employer contributions not vested upon employee termination are forfeited.

Deferred Compensation Plan

In December 2005, the Company adopted the Deferred Compensation Plan. All of the investments held in the NQDC Plan are classified as trading securities and recorded at fair value with changes in the investments' fair values recognized as earnings in the period they occur. Company stock issued and held by the NQDC Plan is accounted for similarly to treasury stock in that the value of the employer stock is determined on the date the restricted stock vests and the shares are issued into the NQDC Plan. The restricted stock issued into the NQDC Plan is recorded as stockholders' equity and changes in the fair value of the corresponding liability are recognized in earnings as incurred. The corresponding liabilities for the NQDC Plan are included in Accounts Payable and Accrued Liabilities and Other Long-Term Liabilities in the Company's Consolidated Balance Sheets. The corresponding assets for the NQDC Plan are included in Other Current Assets and Other Assets in the Company's Consolidated Balance Sheets.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

As of December 31, 2018 and 2017, the fair value of Company stock held by the Deferred Compensation Plan, was $17.7 million and $19.6 million, respectively, which is included in current and non-current liabilities. The change in market value amounted to a gain of $0.9 million, a loss of $1.4 million and a gain of $5.0 million in the years 2018, 2017 and 2016, respectively.

(16) COMPREHENSIVE INCOME (LOSS)

The following table summarizes amounts reclassified out of AOCI and their effect on the Company's Consolidated Statements of Operations for the years ended December 31, 2018 and 2017.

Details about AOCI Components	Years Ended December 31, 2018	2017	2016	Consolidated Statement of Operations Classification
Gains (losses) on cash flow hedges:				
Forward foreign currency exchange contracts	$ (6,005)	$ (5,377)	$ 6,112	Net product revenues
Forward foreign currency exchange contracts	3,958	264	4,161	Operating expenses
Total gain (loss) on cash flow hedges	(2,047)	(5,113)	10,273	
Gain (loss) on sale of available-for-sale debt securities	—	3,252	(115)	Other income, net
Income tax effect of the above	—	(1,191)	(42)	Provision for (benefit from) income taxes
Total gain (loss) on available-for-sale debt securities	—	2,061	(157)	
	$ (2,047)	$ (3,052)	$ 10,116	Net loss

The following table summarizes changes in the accumulated balances for each component of AOCI, including current period other comprehensive income (loss) and reclassifications out of AOCI, for the periods presented.

	Gains and Losses on Cash Flow Hedges	Unrealized Gains (Losses) on Available-for-Sale Debt Securities	Other	Total
AOCI balance at December 31, 2016	$ 13,006	$ (178)	$ (12)	$ 12,816
Other comprehensive income (loss) before reclassifications	(38,351)	(755)	5	(39,101)
Less: net gain (loss) reclassified from AOCI	(5,113)	3,252		(1,861)
Tax effect	—	1,463	—	1,463
Net current-period other comprehensive loss	(33,238)	(2,544)	5	(35,777)
AOCI balance at December 31, 2017	(20,232)	(2,722)	(7)	(22,961)
Impact of change in accounting principle (1)	—	(586)	—	(586)
AOCI balance at January 1, 2018	(20,232)	(3,308)	(7)	(23,547)
Other comprehensive income (loss) before reclassifications	25,386	1,804	(6)	27,184
Less: loss reclassified from AOCI	(2,047)	—	—	(2,047)
Tax effect	—	(413)	—	(413)
Net current-period other comprehensive income (loss)	27,433	1,391	(6)	28,818
AOCI balance at December 31, 2018	$ 7,201	$ (1,917)	$ (13)	$ 5,271

(1) As of January 1, 2018, the Company early adopted the requirements of ASU 2018-02. The amount represents the reclassification from AOCI to Accumulated Deficit in the first quarter of 2018 related to the adoption of ASU 2018-02. See Note 4 for additional discussion.

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

(17) REVENUE, CREDIT CONCENTRATIONS AND GEOGRAPHIC INFORMATION

The Company operates in one business segment, which primarily focuses on the development and commercialization of innovative therapies for people with serious and life-threatening rare diseases and medical conditions. The Company considers there to be revenue concentration risks for regions where net product revenues exceed 10% of consolidated net product revenues. The concentration of the Company's net product revenues within the regions below may have a material adverse effect on the Company's revenues and results of operations if sales in the respective regions experience difficulties.

The Company adopted the requirements of ASC Topic 606 on January 1, 2018 using the modified retrospective method, therefore there is a lack of comparability to the prior periods presented. See Note 4 – *Recent Accounting Pronouncements* for additional discussion.

The following table disaggregates Total Revenues from external customers and collaborative partners by geographic region. Net product revenues by geographic region are based on patient location for the Company's commercial products, except for Aldurazyme. Although Genzyme sells Aldurazyme worldwide, the revenues earned by the Company based on Genzyme's net sales are included in the U.S. region, as the transactions are with Genzyme whose headquarters is located in the U.S.

	Years Ended December 31,		
	2018	2017	2016
Total revenues by geographic region:			
United States	$ 696,793	$ 588,243	$ 507,539
Europe	436,434	398,814	340,775
Latin America	185,046	181,970	147,474
Rest of world	172,939	144,619	121,066
Total revenues	$ 1,491,212	$ 1,313,646	$ 1,116,854

The following table disaggregates total Net Product Revenues from external customers by product.

	Years Ended December 31,		
	2018	2017	2016
Net product revenues by product:			
Aldurazyme	$ 135,097	$ 89,959	$ 93,749
Brineura	39,889	8,595	—
Firdapse	21,787	18,890	18,028
Kuvan	433,582	407,542	348,009
Naglazyme	345,851	332,208	296,537
Palynziq	12,173	—	—
Vimizim	481,977	413,251	354,058
Total net product revenues	$ 1,470,356	$ 1,270,445	$ 1,110,381

The table below disaggregates total Net Product Revenues based on patient location for products sold directly by the Company, and global sales of Aldurazyme, which is marketed by Genzyme. Genzyme is the

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

Company's sole customer for Aldurazyme and is responsible for marketing and selling Aldurazyme to third parties.

	Years Ended December 31,		
	2018	2017	2016
Region:			
United States	$ 560,030	$ 495,741	$ 411,877
Europe	424,357	363,538	340,775
Latin America	184,984	181,963	147,474
Rest of world	165,888	139,244	116,506
Total net product revenues marketed by the Company	1,335,259	1,180,486	1,016,632
Aldurazyme net product revenues marketed by Genzyme	135,097	89,959	93,749
Total net product revenue	$ 1,470,356	$ 1,270,445	$ 1,110,381

The following table illustrates the percentage of the Company's total Net Product Revenues attributed to the Company's largest customers.

	For the Years Ended December 31,		
	2018	2017	2016
Customer A	18%	18%	19%
Customer B	12%	14%	13%
Customer C	10%	10%	10%
Total	40%	42%	42%

On a consolidated basis, two customers accounted for 30% and 16% of the Company's December 31, 2018 accounts receivable balance, respectively, compared to December 31, 2017 when two customers accounted for 21% and 18% of the accounts receivable balance, respectively. As of December 31, 2018 and 2017, the accounts receivable balance for Genzyme included $73.9 million and $18.1 million, respectively, of unbilled accounts receivable, which become payable to the Company when the product is sold through by Genzyme. The Company does not require collateral from its customers, but does perform periodic credit evaluations of its customers' financial condition and requires immediate payment in certain circumstances.

The sells its products in countries that face economic volatility and weakness. Although the Company has historically collected receivables from customers in such countries, sustained weakness or further deterioration of the local economies and currencies may cause customers in those countries to be unable to pay for the Company's products. The Company has not historically experienced a significant level of uncollected receivables and has received continued payments from its more aged accounts in these countries. The Company believes that the allowances for doubtful accounts related to these countries, if any, is adequate based on its analysis of the specific business circumstances and expectations of collection for each of the underlying accounts in these countries.

The following table summarizes non-monetary long-lived assets by geographic region. Non-monetary long-lived assets primarily consist of property, plant and equipment, intangible assets, deferred tax assets and goodwill.

	December 31,	
	2018	2017
Long-lived assets by geography:		
United States	$ 1,719,733	$ 1,653,944
Ireland	220,878	198,781
Rest of world	158,583	158,530
Total long-lived assets	$ 2,099,194	$ 2,011,255

(18) COLLABORATION AND LICENSE AGREEMENTS

In July 2017, the Company executed a license agreement and a settlement agreement (the Sarepta Agreements) with Sarepta Therapeutics (Sarepta) that provide Sarepta with global exclusive rights to the Company's Duchenne muscular dystrophy (DMD) patent estate for EXONDYS 51 and all future exon-skipping products. The Sarepta Agreements resolved the ongoing worldwide patent proceedings related to the use of EXONDYS 51 and all future exon-skipping products for the treatment of DMD. Pursuant to the Sarepta Agreements, Sarepta paid the Company a net one-time upfront fee of $31.5 million, which was recognized as license revenue. Under the Sarepta Agreements, Sarepta may pay certain additional regulatory and commercial milestone fees for exons 51, 45, 53 and possibly on future exon-skipping products to the Company if certain development and sales milestones are achieved. Additionally, the Company receives from Sarepta royalties based on 5% of net sales in the U.S. through the end of 2023 and 8% of net sales in the EU and in other countries, where certain of the Company's patents exist, through September 30, 2024. The Company retained the right to convert the license to a co-exclusive right in the event it decides to proceed with an exon-skipping therapy for DMD.

On October 1, 2015, the Company entered into a Termination and Transition Agreement with Ares Trading S.A. (Merck Serono), as amended and restated on December 23, 2015 (the A&R Kuvan Agreement), to terminate the Development, License and Commercialization Agreement, dated May 13, 2005, as amended (the License Agreement), between the Company and Merck Serono, including the license to Kuvan the Company had granted to Merck Serono under the License Agreement. The Company and Merck Serono have no further rights or obligations under the License Agreement with respect to Kuvan or Palynziq. Also on October 1, 2015, the Company and Merck Serono entered into a Termination Agreement (the Pegvaliase Agreement) to terminate the license to pegvaliase the Company had granted to Merck Serono under the License Agreement. On January 1, 2016, pursuant to the A&R Kuvan Agreement and the Pegvaliase Agreement, the Company completed the acquisition from Merck Serono and its affiliates of certain rights and other assets with respect to Kuvan and Palynziq. As a result, the Company acquired all global rights to Kuvan and Palynziq from Merck Serono, with the exception of Kuvan in Japan. Previously, the Company had exclusive rights to Kuvan in the U.S. and Canada and Palynziq in the U.S. and Japan. Pursuant to the A&R Kuvan Agreement, the Company paid Merck Serono $374.5 million in cash and is obligated to pay Merck Serono up to a maximum of €60.0 million, in cash, if future sales milestones are met. Pursuant to the Pegvaliase Agreement, as of December 31, 2018, the Company is obligated to pay Merck Serono up to a maximum of €75.0 million, in cash, if future development milestones are met.

On October 6, 2015, the Company completed the sale of talazoparib to Medivation Inc. (Medivation) pursuant to an asset purchase agreement (the Medivation Asset Purchase Agreement). Pursuant to the Medivation Asset Purchase Agreement, Medivation paid the Company an upfront payment of $410.0 million upon the closing of the transaction. In September 2016, Pfizer Inc. acquired Medivation, therefore obligations under the Medivation Asset Purchase Agreement ("Medivation Agreement") transferred to Pfizer. During the fourth quarter of 2015, the Company recognized a net gain of $369.5 million related to the sale of the talazoparib intangible assets. In accordance with the Medivation Agreement, Pfizer shall pay the Company milestone payments of up to $160.0 million, of which $50.0 million was paid in 2018 pursuant to achievement of development and regulatory approval milestones. Commencing in 2018, pursuant to the Medivation Agreement, the Company receives mid-single digit percentage royalties on net sales of talazoparib.

In October 2012, the Company licensed to Catalyst Pharmaceutical Partners, Inc., (Catalyst) the North American rights to develop and market Firdapse. In consideration of this licensing arrangement, the Company received from Catalyst a $5.0 million convertible promissory note. Under the terms of the note agreement, the Company received 6.7 million shares of Catalyst common stock upon the automatic conversion of the convertible promissory note on December 10, 2012. In exchange for the North American rights to Firdapse, the Company will receive royalties of 7% to 10% on net product sales of Firdapse in North America, which is expected to commence in the first quarter of 2019. As of December 31, 2018 and 2017, there were no amounts due from Catalyst for reimbursable development costs and the Company held no shares of Catalyst common stock.

In September 2007, the Company licensed to Asubio Pharma Co., Ltd. (a subsidiary of Daiichi Sankyo) exclusive rights to data and intellectual property contained in the Kuvan new drug application. The Company receives royalties on net sales of the product in Japan.

The Company is engaged in R&D collaborations with various other entities. These provide for sponsorship of R&D by the Company and may also provide for exclusive royalty-bearing intellectual property licenses or

(In thousands of U.S. Dollars, except per share amounts or as otherwise disclosed)

rights of first negotiation regarding licenses to intellectual property development under the collaborations. Typically, these agreements can be terminated for cause by either party upon 90 days written notice.

(19) COMMITMENTS AND CONTINGENCIES

Lease Commitments

The Company leases office space and research, testing and manufacturing laboratory space in various facilities under operating agreements expiring at various dates through 2031. Certain of the leases provide for options by the Company to extend the lease for multiple five-year renewal periods and also provide for annual minimum increases in rent, usually based on a consumer price index or annual minimum increases. Minimum lease payments for future years are as follows:

2019	$	12,976
2020		12,549
2021		11,198
2022		10,574
2023		9,993
Thereafter		27,701
Total	$	84,991

Rent expense for the years ended December 31, 2018, 2017 and 2016 was $12.2 million, $11.4 million and $11.6 million, respectively. Deferred rent accruals at December 31, 2018 totaled $2.1 million, of which $0.5 million was current. Deferred rent accruals at December 31, 2017 totaled $2.3 million, of which $2.0 million was current.

Under certain of the Company's lease agreements, the Company is contractually obligated to return leased space to its original condition upon termination of the applicable lease agreement. As of December 31 2018 and 2017, the balance of the asset retirement obligation liability was $4.9 million and $4.2 million, respectively. See Note 3 to these Consolidated Financial Statements for further information on the fair value measurement of asset retirement obligations.

Research and Development Funding and Technology Licenses

The Company uses experts and laboratories at universities and other institutions to perform certain R&D activities. These amounts are included as R&D expense as services are provided. The Company has also licensed technology, for which it is required to pay royalties upon future sales, subject to certain annual minimums.

Other Commitments

In the normal course of business, the Company enters into various firm purchase commitments primarily related to active pharmaceutical ingredients, certain inventory related items and certain third-party R&D services. As of December 31, 2018, these commitments for the next five years were approximately $91.8 million.

Contingencies

From time to time the Company is involved in legal actions arising in the normal course of its business. The process of resolving matters through litigation or other means is inherently uncertain and it is possible that an unfavorable resolution of these matters could adversely affect the Company, its results of operations, financial condition and cash flows. The Company's general practice is to expense legal fees as services are rendered in connection with legal matters, and to accrue for liabilities when losses are probable and reasonably estimable.

Contingent Payments

As of December 31, 2018, the Company is also subject to contingent payments totaling approximately $477.3 million upon achievement of certain development and regulatory activities and commercial sales and licensing milestones if they occur before certain dates in the future. Of this amount, $154.5 million relates to the acquisition of certain rights and other assets with respect to Kuvan and Palynziq from Merck Serono and $80.7 million relates to programs that are no longer being developed.

As of December 31, 2018, the Company has recorded $132.8 million of contingent consideration on its Consolidated Balance Sheets.

Exhibit 10.48

Published CUSIP Number: 09075UAA2

CREDIT AGREEMENT

Dated as of October 19, 2018

among

BIOMARIN PHARMACEUTICAL INC.,

as the Borrower,

BANK OF AMERICA, N.A.,
as Administrative Agent, Swing Line Lender and a Lender,

CITIBANK, N.A.,
as L/C Issuer

and

the other Lenders from time to time party hereto

MERRILL LYNCH, PIERCE, FENNER & SMITH INCORPORATED

CITIBANK, N.A.

WELLS FARGO SECURITIES, LLC

as Joint Lead Arrangers and Joint Bookrunners

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H Solvency Certificate

CREDIT AGREEMENT

This CREDIT AGREEMENT ("Agreement") is entered into as of October 19, 2018, among BIOMARIN PHARMACEUTICAL INC., a Delaware corporation (the "Borrower"), each lender from time to time party hereto (collectively, the "Lenders" and individually, a "Lender"), BANK OF AMERICA, N.A., as Administrative Agent and Swing Line Lender and Citibank, N.A., as L/C Issuer.

PRELIMINARY STATEMENTS:

The Borrower has requested that the Lenders provide a revolving credit facility, and the Lenders have indicated their willingness to lend and the L/C Issuer has indicated its willingness to issue letters of credit, in each case, on the terms and subject to the conditions set forth herein.

In consideration of the mutual covenants and agreements herein contained, the parties hereto covenant and agree as follows:

ARTICLE I
DEFINITIONS AND ACCOUNTING TERMS

1.01 Defined Terms

. As used in this Agreement, the following terms shall have the meanings set forth below:

"2024 Subordinated Notes" has the meaning specified in the definition of "Subordinated Notes".

"Administrative Agent" means Bank of America in its capacity as administrative agent under any of the Loan Documents, or any successor administrative agent.

"Administrative Agent's Office" means the Administrative Agent's address and, as appropriate, account as set forth on Schedule 10.02, or such other address or account as the Administrative Agent may from time to time notify to the Borrower and the Lenders.

"Administrative Questionnaire" means an Administrative Questionnaire in substantially the form of Exhibit E-2 or any other form approved by the Administrative Agent.

"Affiliate" means, with respect to any Person, another Person that directly, or indirectly through one or more intermediaries, Controls or is Controlled by or is under common Control with the Person specified.

"Aggregate Commitments" means the Commitments of all the Lenders.

"Agreement" means this Credit Agreement.

"Applicable Fee Rate" means a percentage per annum set forth below corresponding to the applicable Pricing Level and Tier Pricing as of the most recent Calculation Date:

		Tier 1 Pricing	Tier 2 Pricing
Pricing Level	Net Leverage Ratio	Applicable Fee Rate	Applicable Fee Rate
4	≥ 3.0x	0.35%	0.30%
3	<3.0x and ≥ 2.0x	0.30%	0.25%
2	<2.0x and ≥ 1.0x	0.25%	0.20%
1	<1.0x	0.20%	0.15%

Each Applicable Fee Rate shall be determined and adjusted quarterly on the date that is the first Business Day after the actual delivery date by which the Borrower provides the consolidated financial information required by Section 6.01(a) or (b), as applicable, and the Compliance Certificate required by Section 6.02(b) for the fiscal quarter or year of the Borrower most recently ended prior to such date (the "Calculation Date").

Any change in the Pricing Level and/or Tier Pricing shall become effective on the Calculation Date. The Pricing Level will be determined in accordance with the above grid based on the Net Leverage Ratio as specified

in the Compliance Certificate delivered to the Administrative Agent pursuant to Section 6.02(b) for the most recently ended fiscal quarter or year of the Borrower preceding any applicable Calculation Date.

Tier 2 Pricing shall be applicable if Consolidated EBITDA is at least $250,000,000 for each of the two most recently ended Test Periods for which financial statements (and related Compliance Certificates) have been delivered pursuant to Section 6.01(a) or (b), as applicable, and Section 6.02(b), respectively, and Tier 1 Pricing will be applicable if otherwise.

Notwithstanding anything to the contrary set forth above, the Applicable Fee Rate shall be deemed to be (i) (x) in Pricing Level 1 and Tier 1 Pricing from the Closing Date until the first Calculation Date occurring after December 31, 2018 and (y) in Pricing Level 4 and Tier 1 Pricing at any time during the existence of an Event of Default under Sections 8.01(a), (f) or (g) and (ii) if Borrower fails to provide the consolidated financial information required by Section 6.01(a) or (b), as applicable, or the Compliance Certificate required by Section 6.02(b) for the most recently ended fiscal quarter or year of the Borrower preceding any applicable Calculation Date, the Applicable Fee Rate from the date by which the Borrower is required to deliver the consolidated financial information required by Section 6.01(a) or (b), as applicable, and the Compliance Certificate required by Section 6.02(b) for the fiscal quarter or year of the Borrower most recently ended shall be based on Pricing Level 4 and Tier 1 Pricing until the first Business Day following delivery of such consolidated financial information and an appropriate Compliance Certificate.

In the event that the Administrative Agent and the Borrower determine in good faith that any financial statement or Compliance Certificate delivered pursuant to Section 6.01 or 6.02, respectively, is inaccurate (regardless of whether this Agreement or the Revolving Credit Commitments are in effect when such inaccuracy is discovered), and such inaccuracy, if corrected would have led to a higher Applicable Fee Rate for any period (an "Applicable Period") than the Applicable Fee Rate applied for such Applicable Period, then (i) the Borrower shall immediately deliver to the Administrative Agent a correct Compliance Certificate for such Applicable Period, (ii) the Applicable Fee Rate shall be determined by reference to the corrected Compliance Certificate (but in no event shall the Lenders owe any amounts to the Borrower), and (iii) the Borrower shall within three Business Days of demand therefor by the Administrative Agent pay to the Administrative Agent the additional fees owing as a result of such increased Applicable Fee Rate for such Applicable Period, which payment shall be promptly applied by the Administrative Agent in accordance with the terms hereof. This paragraph shall not limit the rights of the Administrative Agent and the Lenders hereunder.

"Applicable Percentage" means, with respect to any Lender at any time, the percentage (carried out to the ninth decimal place) of the Revolving Credit Facility represented by such Lender's Commitment at such time, subject to adjustment as provided in Section 2.15. If the commitment of each Lender to make Loans and the obligation of the L/C Issuer to make L/C Credit Extensions have been terminated pursuant to Section 8.02, or if the Commitments have expired, then the Applicable Percentage of each Lender shall be determined based on the Applicable Percentage of such Lender most recently in effect, giving effect to any subsequent assignments. The initial Applicable Percentage of each Lender is set forth opposite the name of such Lender on Schedule 2.01 or in the Assignment and Assumption pursuant to which such Lender becomes a party hereto, as applicable.

"Applicable Period" has the meaning specified in the definition of "Applicable Fee Rate".

"Applicable Rate" means a percentage per annum equal to, for purposes of calculating (A) the applicable interest rate for any day for any Revolving Credit Loan or Swing Line Loan or (B) the applicable rate of the Letter of Credit Fee for any day for purposes of Section 2.03(h), the applicable percentage per annum set forth below corresponding to the applicable Pricing Level and Tier Pricing as of the most recent Calculation Date:

		Tier 1 Pricing		Tier 2 Pricing	
Pricing Level	Net Leverage Ratio	Applicable Rate for Letter of Credit Fee and Revolving Credit Loans that are Eurodollar Rate Loans	Applicable Rate for Revolving Credit Loans and Swing Line Loans that are Base Rate Loans	Applicable Rate for Letter of Credit Fee and Revolving Credit Loans that are Eurodollar Rate Loans	Applicable Rate for Revolving Credit Loans and Swing Line Loans that are Base Rate Loans
4	≥ 3.0x	1.95%	0.95%	1.75%	0.75%
3	<3.0x and ≥ 2.0x	1.70%	0.70%	1.50%	0.50%
2	<2.0x and ≥ 1.0x	1.45%	0.45%	1.25%	0.25%
1	<1.0x	1.20%	0.20%	1.00%	0.00%

Each Applicable Rate shall be determined and adjusted quarterly on the Calculation Date and any change in the Pricing Level and/or Tier Pricing shall become effective on the Calculation Date. The Pricing Level will be determined in accordance with the above grid based on the Net Leverage Ratio as specified in the Compliance Certificate delivered to the Administrative Agent pursuant to Section 6.02(b) for the most recently ended fiscal quarter or year of the Borrower preceding any applicable Calculation Date.

Tier 2 Pricing shall be applicable if Consolidated EBITDA is at least $250,000,000 for each of the two most recently ended Test Periods for which financial statements (and related Compliance Certificates) have been delivered pursuant to Section 6.01(a) or (b), as applicable, and Section 6.02(b), respectively, and Tier 1 Pricing will be applicable if otherwise.

Notwithstanding anything to the contrary set forth above, with respect to (A) any Revolving Credit Loan or Swing Line Loan or (B) the Letter of Credit Fee, the Applicable Rate shall be deemed to be (i) (x) in Pricing Level 1 and Tier 1 Pricing from the Closing Date until the first Calculation Date occurring after December 31, 2018 and (y) in Pricing Level 4 and Tier 1 Pricing at any time during the existence of an Event of Default under Sections 8.01(a), (f), or (g) and (ii) if Borrower fails to provide the consolidated financial information required by Section 6.01(a) or (b), as applicable, or the Compliance Certificate required by Section 6.02(b) for the most recently ended fiscal quarter or year of the Borrower preceding any applicable Calculation Date, each Applicable Rate from the date by which the Borrower is required to deliver the consolidated financial information required by Section 6.01(a) or (b), as applicable, and the Compliance Certificate required by Section 6.02(b) for the fiscal quarter or year of the Borrower most recently ended shall be based on Pricing Level 4 and Tier 1 Pricing until the first Business Day following delivery of such consolidated financial information and an appropriate Compliance Certificate.

In the event that the Administrative Agent and the Borrower determine in good faith that any financial statement or Compliance Certificate delivered pursuant to Section 6.01 or 6.02, respectively, is inaccurate (regardless of whether this Agreement or the Revolving Credit Commitments are in effect when such inaccuracy is discovered), and such inaccuracy, if corrected would have led to a higher Applicable Rate for any Applicable Period than the Applicable Rate applied for such Applicable Period, then (i) the Borrower shall immediately deliver to the Administrative Agent a correct Compliance Certificate for such Applicable Period, (ii) the Applicable Rate shall be determined by reference to the corrected Compliance Certificate (but in no event shall the Lenders owe any amounts to the Borrower), and (iii) the Borrower shall within three Business Days of demand therefor by the Administrative Agent pay to the Administrative Agent the additional interest owing as a result of such increased Applicable Rate for such Applicable Period, which payment shall be promptly applied by the Administrative Agent in accordance with the terms hereof. This paragraph shall not limit the rights of the Administrative Agent and the Lenders hereunder.

"Appropriate Lender" means, at any time, (a) with respect to the Revolving Credit Facility, a Lender that has a Commitment or holds a Revolving Credit Loan at such time, (b) with respect to the Letter of Credit Sublimit, (i) the L/C Issuer and (ii) if any Letters of Credit have been issued pursuant to Section 2.03(a), the Revolving Credit Lenders and (c) with respect to the Swing Line Sublimit, (i) the Swing Line Lender and (ii) if any Swing Line Loans are outstanding pursuant to Section 2.04(a), the Revolving Credit Lenders.

"Approved Fund" means any Fund that is administered or managed by (a) a Lender, (b) an Affiliate of a Lender or (c) an entity or an Affiliate of an entity that administers or manages a Lender.

"Assignment and Assumption" means an assignment and assumption entered into by a Lender and an Eligible Assignee (with the consent of any party whose consent is required by Section 10.06(b)), and accepted by the Administrative Agent, in substantially the form of Exhibit E-1 or any other form (including electronic documentation generated by use of an electronic platform) approved by the Administrative Agent.

"Attributable Indebtedness" means, on any date, (a) in respect of any Capitalized Lease of any Person, the capitalized amount thereof that would appear on a balance sheet of such Person prepared as of such date in accordance with GAAP, (b) in respect of any Synthetic Lease Obligation, the capitalized amount of the remaining lease or similar payments under the relevant lease or other applicable agreement or instrument that would appear on a balance sheet of such Person prepared as of such date in accordance with GAAP if such lease or other agreement or instrument were accounted for as a Capitalized Lease and (c) all Synthetic Debt of such Person.

"Audited Financial Statements" means the audited consolidated balance sheet of the Borrower and its Subsidiaries for the fiscal year ended December 31, 2017, and the related consolidated statements of operations, comprehensive income (or loss), stockholders' equity and cash flows for such fiscal year of the Borrower and its Subsidiaries, including the notes thereto.

"Availability Period" means, the period from and including the Closing Date to the earliest of (i) the Maturity Date, (ii) the date of termination of the Commitments pursuant to Section 2.06, and (iii) the date of termination of the commitment of each Revolving Credit Lender to make Revolving Credit Loans and of the obligation of the L/C Issuer to make L/C Credit Extensions pursuant to Section 8.02.

"Available Amount" means, as at any date, an amount, not less than zero in the aggregate, determined on a cumulative basis equal to (without duplication):

(a) $712,900,000; plus

(b) 100% of the Net Cash Proceeds received after the Original Closing Date and on or prior to such date from any issuance of Qualified Equity Interests of the Borrower; plus

(c) 100% of the aggregate amount of cash contributions to the common capital of the Borrower after the Original Closing Date and on or prior to such date; plus

(d) 100% of the aggregate principal amount of any Indebtedness or any portion thereof of the Borrower and its Restricted Subsidiaries issued following the Original Closing Date that has been settled upon conversion in the form of Qualified Equity Interests of the Borrower on or prior to such date; plus

(e) 100% of the aggregate milestone payments or other similar contingent or deferred payments received after the Original Closing Date and on or prior to such date in connection with the Asset Purchase Agreement between the Borrower and Medivation, Inc., dated August 21, 2015; plus

(f) the net cash proceeds received by the Borrower or any Restricted Subsidiary after the Original Closing Date and on or prior to such date from any distribution, dividend, return of capital, repayment of loans or upon the disposition of any Investment, in each case to the extent received in respect of an Investment made in reliance on the Available Amount (and not in excess of the amount of such Investment); plus

(g) the lesser of the Fair Market Value of any Unrestricted Subsidiary at the time it is redesignated as a Restricted Subsidiary and the amount of Investments made in such Unrestricted Subsidiary in reliance on the Available Amount; minus

(h) the amount of any usage of such Available Amount pursuant to Section 7.03(k) and Section 7.06(d) (and Section 7.03(k) and Section 7.06(d) of the Existing Credit Agreement), in each case, prior to such date.

"Bail-In Action" means the exercise of any Write-Down and Conversion Powers by the applicable EEA Resolution Authority in respect of any liability of an EEA Financial Institution.

"Bail-In Legislation" means, with respect to any EEA Member Country implementing Article 55 of Directive 2014/59/EU of the European Parliament and of the Council of the European Union, the implementing law for such EEA Member Country from time to time which is described in the EU Bail-In Legislation Schedule.

"Bank of America" means Bank of America, N.A. and its successors.

"Base Rate" means, for any day, a fluctuating rate per annum equal to the highest of (a) the Federal Funds Rate plus 1/2 of 1%, (b) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its "prime rate", (c) the Eurodollar Rate plus 1.00% and (d) 1.00%. The "prime rate" is a rate set by Bank of America based upon various factors including Bank of America's costs and desired return, general economic conditions and other factors, and is used as a reference point for pricing some loans, which may be priced at, above, or below such announced rate. Any change in such rate announced by Bank of America shall take effect at the opening of business on the day specified in the public announcement of such change.

"Base Rate Loan" means a Revolving Credit Loan that bears interest based on the Base Rate.

"Beneficial Ownership Certification" shall mean a certification regarding beneficial ownership required by the Beneficial Ownership Regulation.

"Beneficial Ownership Regulation" shall mean 31 C.F.R. § 1010.230.

"Benefit Plan" means any of (a) an "employee benefit plan" (as defined in ERISA) that is subject to Title I of ERISA, (b) a "plan" as defined in and subject to Section 4975 of the Code or (c) any Person whose assets include (for purposes of ERISA Section 3(42) or otherwise for purposes of Title I of ERISA or Section 4975 of the Code) the assets of any such "employee benefit plan" or "plan".

"Borrower" has the meaning specified in the introductory paragraph hereto.

"Borrower Materials" has the meaning specified in Section 6.02.

"Borrowing" means a borrowing consisting of simultaneous Revolving Credit Loans of the same Type and, in the case of Eurodollar Rate Loans, having the same Interest Period made by each of the Revolving Credit Lenders pursuant to Section 2.01.

"Business Day" means any day other than a Saturday, Sunday or other day on which commercial banks are authorized to close under the Laws of, or are in fact closed in, the state where the Administrative Agent's Office is located and, if such day relates to any Eurodollar Rate Loan, means any such day that is also a London Banking Day.

"Calculation Date" has the meaning specified in the definition of "Applicable Fee Rate".

"Capitalized Leases" means all leases that have been or should be, in accordance with GAAP, recorded as capitalized leases; provided that any lease or other arrangement that, under GAAP as in effect on the Closing Date, would not be required to be accounted for as a capital lease shall not constitute a "Capital Lease" hereunder.

"Cash Collateral Account" means a blocked, non-interest bearing deposit account of one or more of the Loan Parties at Bank of America in the name of the Administrative Agent and under the sole dominion and control of the Administrative Agent, and otherwise established in a manner satisfactory to the Administrative Agent.

"Cash Collateralize" means to deposit in a Cash Collateral Account or pledge and deposit with or deliver to the Administrative Agent, for the benefit of one or more of the L/C Issuer or Swing Line Lender (as applicable) and the Lenders, as collateral for L/C Obligations, Obligations in respect of Swing Line Loans, or obligations of Lenders to fund participations in respect of either thereof (as the context may require), cash or deposit account balances or, if the Administrative Agent, the L/C Issuer or Swing Line Lender shall agree in their sole discretion, other credit support, in each case pursuant to documentation in form and substance satisfactory to (a) the Administrative Agent and (b) the L/C Issuer or the Swing Line Lender (as applicable). "Cash Collateral" shall have a meaning correlative to the foregoing and shall include the proceeds of such cash collateral and other credit support.

"Cash Equivalents" means any of the following types of Investments, to the extent owned by the Borrower or any of its Subsidiaries free and clear of all Liens (other than Liens permitted hereunder):

(a) readily marketable obligations issued or directly and fully guaranteed or insured by the United States of America or any agency or instrumentality thereof having maturities of not more than 2 years from the date of acquisition thereof; provided that the full faith and credit of the United States of America is pledged in support thereof;

(b) time deposits with, or insured certificates of deposit or bankers' acceptances of, any commercial bank that (i) (A) is a Lender or (B) is organized under the laws of the United States of America, any state thereof or the District of Columbia or is the principal banking subsidiary of a bank holding company organized under the laws of the United States of America, any state thereof or the District of Columbia, and is a member of the Federal Reserve System, (ii) issues (or the parent of which issues) commercial paper rated as described in clause (c) of this definition and (iii) has combined capital and surplus of at least $1,000,000,000, in each case with maturities of not more than one year from the date of acquisition thereof;

(c) commercial paper issued by any Person organized under the laws of any state of the United States of America and rated at least "Prime-1" (or the then equivalent grade) by Moody's or at least "A-1" (or the then equivalent grade) by S&P, in each case with maturities of not more than 1 year from the date of acquisition thereof;

(d) Investments, classified in accordance with GAAP as current assets of the Borrower or any of its Restricted Subsidiaries, in money market investment programs registered under the Investment Company Act of 1940, which are administered by financial institutions that have the highest rating obtainable from either Moody's or S&P, and the portfolios of which are limited solely to Investments of the character, quality and maturity described in clauses (a), (b) and (c) of this definition;

(e) securities issued or fully guaranteed by any state, district or commonwealth of the United States of America or by any political subdivision (including any municipality) or taxing authority of any such state,

district or commonwealth the securities of which state, district or commonwealth political subdivision or taxing authority (as the case may be) are rated at least "A" (or A-1, SP1 or other then equivalent grade) by S&P or at least "A1" (or "Prime-1" or MIG-1 or other then equivalent grade) by Moody's as of the date of acquisition and, in each case, with a maturity of not more than two years from the date of acquisition thereof;

(f) securities of United States government sponsored entities having ratings of at least Aaa by Moody's (or the then equivalent grade) or AAA by S&P (or the then equivalent grade) as of the date of acquisition and having maturities not more than two years from the date of acquisition thereof;

(g) repurchase obligations of any commercial bank (or any Affiliate thereof) satisfying the requirements of clause (b) above, having a term of not more than 12 months;

(h) in the case of any Foreign Subsidiary, other short-term investments that are analogous to the foregoing, are of comparable credit quality and are customarily used by companies in the jurisdiction of such Foreign Subsidiary for cash management purposes; and

(i) investments permitted pursuant to the Borrower's investment policy as approved by the Board of Directors (or a committee thereof) of the Borrower as in effect on the Closing Date.

"CERCLA" means the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

"CERCLIS" means the Comprehensive Environmental Response, Compensation and Liability Information System maintained by the U.S. Environmental Protection Agency.

"CFC" means a Person that is a controlled foreign corporation as such term is defined in Section 957 of the Code.

"Change in Law" means the occurrence, after the date of this Agreement, of any of the following: (a) the adoption or taking effect of any law, rule, regulation or treaty, (b) any change in any law, rule, regulation or treaty or in the administration, interpretation, implementation or application thereof by any Governmental Authority or (c) the making or issuance of any request, rule, guideline or directive (whether or not having the force of law) by any Governmental Authority; provided that notwithstanding anything herein to the contrary, (x) the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, guidelines or directives thereunder or issued in connection therewith and (y) all requests, rules, guidelines or directives promulgated by the Bank for International settlements, the Basel Committee on Banking Supervision (or any successor or similar authority) or the United States regulatory authorities, in each case pursuant to Basel III, shall in each case be deemed to be a "Change in Law", regardless of the date enacted, adopted or issued.

"Change of Control" means an event or series of events by which:

(a) any "person" or "group" (as such terms are used in Sections 13(d) and 14(d) of the Securities Exchange Act, but excluding any employee benefit plan of such person or its subsidiaries, and any person or entity acting in its capacity as trustee, agent or other fiduciary or administrator of any such plan) becomes the "beneficial owner" (as defined in Rules 13d-3 and 13d-5 under the Securities Exchange Act, except that a person or group shall be deemed to have "beneficial ownership" of all securities that such person or group has the right to acquire, whether such right is exercisable immediately or only after the passage of time (such right, an "option right")), directly or indirectly, of 35% or more of the equity securities of the Borrower entitled to vote for members of the board of directors or equivalent governing body of the Borrower on a fully-diluted basis (and taking into account all such securities that such "person" or "group" has the right to acquire pursuant to any option right); or

(b) a "change of control" or any comparable term under, and as defined in, the Subordinated Notes Documents or any other Indebtedness of the Borrower or any of its Subsidiaries (other than Indebtedness arising under this Agreement) in an aggregate principal amount exceeding the Threshold Amount shall have occurred and, in any event, such occurrence triggers a default, mandatory prepayment or mandatory offer of prepayment, which default, mandatory prepayment or mandatory offer of prepayment has not been waived in writing (other than Indebtedness permitted under Section 7.02(h).

"Closing Date" means the first date all the conditions precedent in Section 4.01 are satisfied or waived in accordance with Section 10.01.

"Closing Date Refinancing" means the termination of any commitment to extend credit under the Existing Credit Agreement and the repayment in full of the principal amount of any loans outstanding thereunder, together with accrued and unpaid interest and fees thereon to, but not including, the Closing Date.

"Closing Fee" has the meaning specified in Section 2.09(b).

"Code" means the United States Internal Revenue Code of 1986, as amended.

"Commitment" means, as to each Revolving Credit Lender, its obligation to (a) make Revolving Credit Loans to the Borrower pursuant to Section 2.01, (b) purchase participations in L/C Obligations, and (c) purchase participations in Swing Line Loans, in an aggregate principal amount at any one time outstanding not to exceed the amount set forth opposite such Lender's name on Schedule 2.01 under the caption "Commitment" or opposite such caption in the Assignment and Assumption pursuant to which such Lender becomes a party hereto, as applicable, as such amount may be adjusted from time to time in accordance with this Agreement. The aggregate amount of Commitments as of the date hereof is $200,000,000.

"Committed Loan Notice" means a notice of (a) a Borrowing, (b) a conversion of Loans from one Type to the other, or (c) a continuation of Eurodollar Rate Loans, pursuant to Section 2.02(a), which shall be substantially in the form of Exhibit A or such other form as may be approved by the Administrative Agent (including any form on an electronic platform or electronic transmission system as shall be approved by the Administrative Agent), appropriately completed and signed by a Responsible Officer of the Borrower.

"Compliance Certificate" means a certificate substantially in the form of Exhibit D.

"Connection Income Taxes" means Other Connection Taxes that are imposed on or measured by net income (however denominated) or that are franchise Taxes or branch profits Taxes.

"Consolidated Cash Interest Expense" means, with reference to any period, (a) the Consolidated Interest Expense of the Borrower and its Restricted Subsidiaries paid or payable in cash and calculated on a consolidated basis for such period but shall exclude, to the extent otherwise included in the calculation of Consolidated Interest Expense for the applicable period, without duplication, (i) debt issuance costs, debt discount or premium and other financing fees and expenses, (ii) any cash costs associated with breakage in respect of Swap Contracts, (iii) annual agency or trustee fees, unused line fees and letter of credit fees and expenses, and (iv) all non-recurring cash interest expense consisting of liquidated damages for failure to timely comply with registration rights obligations under any agreement governing Indebtedness, minus (b) interest income received or receivable in cash (to the extent not netted against interest expense in the calculation of Consolidated Interest Expense).

"Consolidated EBITDA" means, with reference to any period, Consolidated Net Income for such period plus, to the extent deducted in determining Consolidated Net Income for such period (and without duplication), (i) Consolidated Interest Expense, (ii) expense for Taxes paid or accrued, (iii) depreciation, (iv) amortization, (v) extraordinary, unusual or non-recurring charges, expenses or losses, (vi) non-cash expenses related to stock based compensation, (vii) fees and expenses directly incurred or paid in connection with (x) the Transactions, (y) any Permitted Acquisition, other Investments and Dispositions, and (z) issuances or incurrence of Indebtedness, issuances of Equity Interests or refinancing transactions and modifications of instruments of Indebtedness, (viii) milestone payments and other similar contingent or deferred payments owed to third parties and Upfront Payments made by the Borrower or its Restricted Subsidiaries, (ix) the amount of cost savings and synergies projected by Borrower in good faith to be realized as a result of any Permitted Acquisition, other Investment or Disposition, or any operational initiative, in each case within the six consecutive fiscal quarters following the consummation of such acquisition, Investment, Disposition or initiative, calculated as though such cost savings and synergies had been realized on the first day of such period and net of the amount of actual benefits received during such period from such acquisition; provided that (A) a duly completed certificate signed by a Responsible Officer of Borrower, which describes in reasonable detail the cost savings and synergies projected by Borrower to be realized within such six consecutive fiscal quarters, shall be delivered to the Administrative Agent certifying that such cost savings and synergies are reasonably expected and factually supportable in the good faith judgment of Borrower, (B) no cost savings or synergies shall be added pursuant to this clause (ix) to the extent duplicative of any expenses or charges otherwise added to Consolidated EBITDA, whether through a pro forma adjustment or otherwise, for such period and (C) the aggregate amount of cost savings and synergies added back pursuant to this clause (ix), when taken together with the aggregate amount added back pursuant to clause (x) below, shall not exceed 15% of Consolidated EBITDA for any applicable Test Period (prior to giving effect to the addbacks pursuant to this clause (ix) and clause (x) below), (x) restructuring charges or reserves, including write-downs and write-offs, including any one-time costs incurred in connection with any Permitted Acquisition, other Investment, Disposition or initiative and costs related to the closure, consolidation and integration of facilities,

information technology infrastructure and legal entities, and severance and retention bonuses; provided that the aggregate amount added back pursuant to this clause (x), when taken together with the aggregate amount added back pursuant to clause (ix) above, shall not exceed 15% of Consolidated EBITDA for any applicable Test Period (prior to giving effect to the addbacks pursuant to this clause (x) and clause (ix) above), (xi) adjustments relating to purchase price allocation accounting, (xii) the aggregate amount of all other non-cash charges, expenses or losses reducing Consolidated Net Income during such period, (xiii) losses attributable to Dispositions of intangible assets other than in the ordinary course of business and (xiv) losses attributable to changes in the fair value of obligations in respect of milestone payments and other similar contingent or deferred purchase consideration owed to third parties, minus, to the extent included in Consolidated Net Income for such period (and without duplication), (I) interest income (to the extent not netted against interest expense in the calculation of Consolidated Interest Expense), (2) income tax credits and refunds (to the extent not netted from Tax expense), (3) any cash payments made during such period in respect of items described in clauses (vi) or (xii) above subsequent to the applicable Test Period in which the relevant non-cash expenses or losses were incurred, (4) any non-recurring income or gains directly as a result of discontinued operations, (5) gains attributable to Dispositions of intangible assets other than in the ordinary course of business, (6) extraordinary, unusual or non-recurring income or gains, all as determined for Borrower and its Restricted Subsidiaries in accordance with GAAP on a consolidated basis and (7) gains attributable to changes in the fair value of obligations in respect of milestone payments and other similar contingent or deferred purchase consideration owed to third parties.

"Consolidated Interest Expense" means, with reference to any period, the interest expense (including without limitation interest expense under Capitalized Leases that is treated as interest in accordance with GAAP) of the Borrower and its Restricted Subsidiaries calculated on a consolidated basis for such period with respect to all outstanding Indebtedness of the Borrower and its Restricted Subsidiaries allocable to such period in accordance with GAAP (including, without limitation, all commissions, discounts and other fees and charges owed with respect to letters of credit and banker's acceptance financing and net costs and benefits under interest rate Swap Contracts to the extent such net costs and benefits are allocable to such period in accordance with GAAP).

"Consolidated Net Income" means, with reference to any period, the net income (or loss) of the Borrower and its Restricted Subsidiaries calculated in accordance with GAAP on a consolidated basis (without duplication) for such period, provided that there shall be excluded the income of any Restricted Subsidiary (other than a Loan Party) to the extent that the declaration or payment of dividends or other distributions by such Restricted Subsidiary of that income is not at the time permitted by any of its Organization Documents, a requirement of Law or any agreement or instrument applicable to such Restricted Subsidiary, except that the amount of cash dividends or other cash distributions actually paid to any Loan Party by any such Restricted Subsidiary during such period shall be included; provided, further, that there shall be excluded any income (or loss) of any Person other than the Borrower or a Restricted Subsidiary, but any such income so excluded may be included in such period or any later period to the extent of any cash dividends or distributions actually paid in the relevant period to the Borrower or any Restricted Subsidiary that is a Wholly Owned Subsidiary of the Borrower.

"Consolidated Total Assets" means, as of the date of any determination thereof, the consolidated total assets of the Borrower and its Restricted Subsidiaries as set forth on the consolidated balance sheet of the Borrower as of the most recent period for which financial statements were required to have been delivered pursuant to Sections 6.01(a) and (b).

"Consolidated Total Debt" shall mean, as at any date of determination, an amount equal to the sum of the aggregate amount of all outstanding Indebtedness of the Borrower and the Restricted Subsidiaries on a consolidated basis consisting of funded Indebtedness for borrowed money, Attributable Indebtedness in respect of Capitalized Leases and drawn and undrawn letters of credit.

"Contractual Obligation" means, as to any Person, any provision of any security issued by such Person or of any agreement, instrument or other undertaking to which such Person is a party or by which it or any of its property is bound.

"Control" means the possession, directly or indirectly, of the power to direct or cause the direction of the management or policies of a Person, whether through the ability to exercise voting power, by contract or otherwise. "Controlling" and "Controlled" have meanings correlative thereto.

"Credit Extension" means each of the following: (a) a Borrowing and (b) an L/C Credit Extension.

"Debtor Relief Laws" means the Bankruptcy Code of the United States, and all other liquidation, conservatorship, bankruptcy, assignment for the benefit of creditors, moratorium, rearrangement, receivership,

insolvency, reorganization, or similar debtor relief Laws of the United States or other applicable jurisdictions from time to time in effect.

"Default" means any event or condition that constitutes an Event of Default or that, with the giving of any notice, the passage of time, or both, would be an Event of Default.

"Default Rate" means (a) when used with respect to Obligations other than Letter of Credit Fees, an interest rate equal to (i) the Base Rate plus (ii) the Applicable Rate, if any, applicable to Base Rate Loans plus (iii) 2% per annum; provided that with respect to a Eurodollar Rate Loan, the Default Rate shall be an interest rate equal to the interest rate (including any Applicable Rate) otherwise applicable to such Loan plus 2% per annum and (b) when used with respect to Letter of Credit Fees, a rate equal to the Applicable Rate plus 2% per annum.

"Defaulting Lender" means, subject to Section 2.15(b), any Lender that (a) has failed to (i) fund all or any portion of its Loans within two Business Days of the date such Loans were required to be funded hereunder unless such Lender notifies the Administrative Agent and the Borrower in writing that such failure is the result of such Lender's determination that one or more conditions precedent to funding (each of which conditions precedent, together with any applicable default, shall be specifically identified in such writing) has not been satisfied, or (ii) pay to the Administrative Agent, the L/C Issuer, the Swing Line Lender or any other Lender any other amount required to be paid by it hereunder (including in respect of its participation in Letters of Credit or Swing Line Loans) within two Business Days of the date when due, (b) has notified the Borrower, the Administrative Agent, the L/C Issuer or the Swing Line Lender in writing that it does not intend to comply with its funding obligations hereunder, or has made a public statement to that effect (unless such writing or public statement relates to such lender's obligation to fund a Loan hereunder and states that such position is based on such Lender's determination that a condition precedent to funding (which condition precedent, together with any applicable default, shall be specifically identified in such writing or public statement) cannot be satisfied), (c) has failed, within three Business Days after written request by the Administrative Agent or the Borrower, to confirm in writing to the Administrative Agent and the Borrower that it will comply with its prospective funding obligations hereunder (provided that such Lender shall cease to be a Defaulting Lender pursuant to this clause (c) upon receipt of such written confirmation by the Administrative Agent and the Borrower), or (d) has, or has a direct or indirect parent company that has, (i) become the subject of a proceeding under any Debtor Relief Law, (ii) had appointed for it a receiver, custodian, conservator, trustee, administrator, assignee for the benefit of creditors or similar Person charged with reorganization or liquidation of its business or assets, including the Federal Deposit Insurance Corporation or any other state or federal regulatory authority acting in such a capacity or (iii) become the subject of a Bail-In Action; provided that a Lender shall not be a Defaulting Lender solely by virtue of the ownership or acquisition of any Equity Interest in that Lender or any direct or indirect parent company thereof by a Governmental Authority so long as such ownership interest does not result in or provide such Lender with immunity from the jurisdiction of courts within the United States or from the enforcement of judgments or writs of attachment on its assets or permit such Lender (or such Governmental Authority) to reject, repudiate, disavow or disaffirm any contracts or agreements made with such Lender. Any determination by the Administrative Agent that a Lender is a Defaulting Lender under any one or more of clauses (a) through (d) above, and of the effective date of such status, shall be conclusive and binding absent manifest error, and such Lender shall be deemed to be a Defaulting Lender (subject to Section 2.15(b)) as of the date established therefor by the Administrative Agent in a written notice of such determination, which shall be delivered by the Administrative Agent to the Borrower, the L/C Issuer, the Swing Line Lender and each other Lender promptly following such determination.

"Designated Jurisdiction" means any country or territory that is subject to comprehensive Sanctions.

"Disclosure Letter" means the disclosure letter dated the Closing Date and delivered to the Administrative Agent and the Lenders in respect of this Agreement.

"Disposition" or "Dispose" means the sale, transfer, Exclusive License, lease or other disposition (including any sale and leaseback transaction) of any property by any Person (or the granting of any option or other right to do any of the foregoing), including any sale, assignment, transfer or other disposal, with or without recourse, of any notes or accounts receivable or any rights and claims associated therewith and including any disposition of property to a Divided LLC pursuant to an LLC Division or any comparable transaction under any similar law.

"Disqualified Stock" means any Equity Interest which, by its terms (or by the terms of any security or other Equity Interests into which it is convertible or for which it is exchangeable), or upon the happening of any event or condition (a) matures or is mandatorily redeemable (other than solely for Qualified Equity Interests), pursuant to a sinking fund obligation or otherwise (except as a result of a change of control or asset sale so long as any rights of the holders thereof upon the occurrence of a change of control or asset sale event shall be subject to the prior repayment in full of the Loans and all other Obligations that are accrued and payable and the termination of the Commitments),

(b) is redeemable at the option of the holder thereof (other than solely for Qualified Equity Interests), in whole or in part, (c) provides for the scheduled payments of dividends in cash, or (d) is or becomes convertible into or exchangeable for Indebtedness or any other Equity Interests that would constitute Disqualified Stock, in each case, prior to the date that is ninety-one (91) days after the Maturity Date; provided that if such Equity Interests are issued pursuant to a plan for the benefit of current or former employees, directors, independent contractors or other service providers of the Borrower or the Restricted Subsidiaries or by any such plan to such current or former employees, directors, independent contractors or other service providers, such Equity Interests shall not constitute Disqualified Stock solely because it may be required to be repurchased by the Borrower or its Restricted Subsidiaries in order to satisfy applicable statutory or regulatory obligations, including tax withholding, or as a result of such current or former employee's, director's, independent contractor's or other service provider's termination, death or disability; provided further that Disqualified Stock shall exclude Permitted Equity Derivatives.

"Divided LLC" means any LLC which has been formed upon the consummation of an LLC Division.

"Dollar" and "$" mean lawful money of the United States.

"Domestic Subsidiary" means any direct or indirect Subsidiary that is organized under the laws of the United States, any state or commonwealth thereof, or the District of Columbia.

"Drug Acquisition" means any acquisition (including any license or any acquisition of any license) solely or primarily of all or any portion of the rights in respect of one or more drugs or pharmaceutical products, whether in development or on market (including related intellectual property), but not of Equity Interests in any Person or any operating business unit unless such rights constitute all or substantially all of such Person's or operating business' assets.

"EEA Financial Institution" means (a) any credit institution or investment firm established in any EEA Member Country which is subject to the supervision of an EEA Resolution Authority, (b) any entity established in an EEA Member Country which is a parent of an institution described in clause (a) of this definition, or (c) any financial institution established in an EEA Member Country which is a Subsidiary of an institution described in clauses (a) or (b) of this definition and is subject to consolidated supervision with its parent.

"EEA Member Country" means any of the member states of the European Union, Iceland, Liechtenstein, and Norway.

"EEA Resolution Authority" means any public administrative authority or any Person entrusted with public administrative authority of any EEA Member Country (including any delegee) having responsibility for the resolution of any EEA Financial Institution.

"Eligible Assignee" means any Person that meets the requirements to be an assignee under Section 10.06(b)(iii) and (iv) (subject to such consents, if any, as may be required under Section 10.06(b)(iii)).

"Environment" means ambient air, indoor air, surface water, groundwater, drinking water, soil, surface and subsurface strata, and natural resources such as wetland, flora and fauna.

"Environmental Laws" means any and all Federal, state, local, and foreign statutes, laws, regulations, ordinances, rules, judgments, orders, decrees, permits, agreements or governmental restrictions relating to pollution or the protection of the Environment or human health (to the extent related to exposure to Hazardous Materials), including those relating to the manufacture, generation, handling, transport, storage, treatment, Release threat of Release of Hazardous Materials.

"Environmental Liability" means any liability, contingent or otherwise (including any liability for damages, costs of environmental remediation, fines, penalties or indemnities), of the Borrower, any other Loan Party or any of their respective Subsidiaries directly or indirectly resulting from or based upon (a) violation of any Environmental Law, (b) the generation, use, handling, transportation, storage, treatment or disposal of any Hazardous Materials, (c) exposure to any Hazardous Materials, (d) Release or threatened Release of any Hazardous Materials or (e) any contract, agreement or other consensual arrangement pursuant to which liability is assumed or imposed with respect to any of the foregoing.

"Environmental Permit" means any permit, approval, identification number, license or other authorization required under any Environmental Law.

"Equity Interests" means, with respect to any Person, all of the shares of capital stock of (or other ownership or profit interests in) such Person, all of the warrants, options or other rights for the purchase or acquisition from such Person of shares of capital stock of (or other ownership or profit interests in) such Person, all of the securities convertible into or exchangeable for shares of capital stock of (or other ownership or profit interests in) such Person or warrants, rights or options for the purchase or acquisition from such Person of such shares (or such other interests), and all of the other ownership or profit interests in such Person (including partnership, member or trust interests therein), whether voting or nonvoting, and whether or not such shares, warrants, options, rights or other interests are outstanding on any date of determination, provided that Equity Interests shall exclude debt securities and other Indebtedness convertible into or exchangeable for any of the foregoing.

"ERISA" means the Employee Retirement Income Security Act of 1974, as amended, and the rules and regulation promulgated thereunder.

"ERISA Affiliate" means any trade or business (whether or not incorporated) under common control with the Borrower within the meaning of Section 414(b) or (c) of the Code (and Sections 414(m) and (o) of the Code for purposes of provisions relating to Section 412 of the Code).

"ERISA Event" means (a) a Reportable Event with respect to a Pension Plan; (b) the withdrawal of the Borrower or any ERISA Affiliate from a Pension Plan subject to Section 4063 of ERISA during a plan year in which such entity was a "substantial employer" as defined in Section 4001(a)(2) of ERISA or a cessation of operations that is treated as such a withdrawal under Section 4062(e) of ERISA; (c) a complete or partial withdrawal by the Borrower or any ERISA Affiliate from a Multiemployer Plan or notification that a Multiemployer Plan is in reorganization; (d) the filing of a notice of intent to terminate, the treatment of a Pension Plan amendment as a termination under Section 4041 or 4041A of ERISA,; (e) the institution by the PBGC of proceedings to terminate a Pension Plan; (f) any event or condition which constitutes grounds under Section 4042 of ERISA for the termination of, or the appointment of a trustee to administer, any Pension Plan; (g) the determination that any Pension Plan is considered an at-risk plan or a plan in endangered or critical status within the meaning of Sections 430, 431 and 432 of the Code or Sections 303, 304 and 305 of ERISA; (h) the imposition of any liability under Title IV of ERISA, other than for PBGC premiums due but not delinquent under Section 4007 of ERISA, upon the Borrower or any ERISA Affiliate; or (i) a failure by the Borrower or any ERISA Affiliate to meet all applicable requirements under the Pension Funding Rules in respect of a Pension Plan, whether or not waived, or the failure by the Borrower or any ERISA Affiliate to make any required contribution to a Multiemployer Plan.

"EU Bail-In Legislation Schedule" means the EU Bail-In Legislation Schedule published by the Loan Market Association (or any successor person), as in effect from time to time.

"Eurodollar Rate" means:

(a) for any Interest Period with respect to a Eurodollar Rate Loan, the rate per annum equal to the London Interbank Offered Rate ("LIBOR") or a comparable or successor rate established pursuant to Section 3.03, as published on the applicable Bloomberg screen page (or such other commercially available source providing such quotations as may be designated by the Administrative Agent from time to time) at approximately 11:00 a.m., London time, two Business Days prior to the commencement of such Interest Period, for Dollar deposits (for delivery on the first day of such Interest Period) with a term equivalent to such Interest Period; and

(b) for any interest calculation with respect to a Base Rate Loan on any date, the rate per annum equal to LIBOR, at or about 11:00 a.m., London time determined two Business Days prior to such date for U.S. Dollar deposits with a term of one month commencing that day; and

(c) if the Eurodollar Rate shall be less than zero, such rate shall be deemed zero for purposes of this Agreement;

provided that to the extent a comparable or successor rate is established pursuant to Section 3.03, such established rate shall be applied in a manner consistent with market practice; provided, further, that to the extent such market practice is not administratively feasible for the Administrative Agent, such approved rate shall be applied in a manner as otherwise reasonably determined by the Administrative Agent.

"Eurodollar Rate Loan" means a Revolving Credit Loan that bears interest at a rate based on clause (a) of the definition of the Eurodollar Rate.

"Event of Default" has the meaning specified in Section 8.01.

"Excluded Subsidiary" means (a) any Domestic Subsidiary of a Subsidiary that is a CFC, (b) any Domestic Subsidiary that owns no material assets (directly or through one or more disregarded entities) other than Equity Interests (including any debt instrument treated as equity for U.S. federal income tax purposes) of one or more Foreign Subsidiaries that are CFCs, (c) any Subsidiary that is prohibited by applicable Law, rule or regulation or by any contractual obligation (with respect to any such contractual obligation, only to the extent existing on the Closing Date or at the time such Subsidiary is acquired, as applicable (and not entered into in contemplation of such acquisition)), from guaranteeing the Obligations or which would require governmental (including regulatory) consent, approval, license or authorization to provide a guarantee unless such consent, approval, license or authorization has been received, (d) any Foreign Subsidiary, (e) any Immaterial Subsidiary, (f) any Unrestricted Subsidiary or (g) any Non-Wholly Owned Subsidiary.

"Excluded Taxes" means any of the following Taxes imposed on or with respect to any Recipient or required to be withheld or deducted from a payment to a Recipient, (a) Taxes imposed on or measured by net income (however denominated), franchise Taxes, and branch profits Taxes, in each case, (i) imposed as a result of such Recipient being organized under the laws of, or having its principal office or, in the case of any Lender, its Lending Office located in, the jurisdiction imposing such Tax (or any political subdivision thereof) or (ii) that are Other Connection Taxes, (b) in the case of a Lender, U.S. federal withholding Taxes imposed on amounts payable to or for the account of such Lender with respect to an applicable interest in a Loan or Commitment pursuant to a law in effect on the date on which (i) such Lender acquires such interest in the applicable Commitment (or, to the extent such Lender did not fund an applicable Loan pursuant to a prior commitment, on the date on which such Lender acquires its interest in such Loan); provided that this clause (i) shall not apply to a Lender that became a Lender pursuant to an assignment request by the Borrower under Section 10.13 or (ii) such Lender changes its Lending Office, except in each case to the extent that, pursuant to Section 3.01, amounts with respect to such Taxes were payable either to such Lender's assignor immediately before such Lender acquired the applicable interest in the applicable Loan or Commitment or to such Lender immediately before it changed its Lending Office, (c) Taxes attributable to such Recipient's failure to comply with Section 3.01(e) and (d) any U.S. federal withholding Taxes imposed pursuant to FATCA. For purposes of clause (b)(i) of this definition, a participation acquired pursuant to Section 2.13 shall be treated as having been acquired on the earlier date(s) on which the applicable Lender acquired the applicable interests in the Commitments or Loans to which such participation relates.

"Exclusive License" means, with respect to any drug or pharmaceutical product, any license to develop, commercialize, sell, market and promote such drug or pharmaceutical product with a term greater than one (1) year (unless terminable prior to such time without material penalty or premium by the licensor) and which provides for exclusive rights to develop, commercialize, sell, market and promote such drug or product in any geographic region or territory; provided that an "Exclusive License" shall not include (a) any licenses, which may be exclusive, to manufacture or package any such drug or product, (b) any license to manufacture, use, offer for sale or sell any authorized generic version of such drug or product and (c) any license in connection with any companion diagnostics. "Exclusively License" shall have the correlative meaning.

"Existing Credit Agreement" means that certain Credit Agreement, dated as of November 29, 2016 (as amended by that certain First Amendment to Credit Agreement, dated as of March 15, 2018), among the Borrower, each lender from time to time party thereto and Bank of America, N.A., as administrative agent, swing line lender and letter of credit issuer.

"Fair Market Value" means the price that would be paid in an arm's length transaction between an informed and willing seller under no compulsion to sell and an informed and willing buyer under no compulsion to buy, as determined in good faith by a Responsible Officer of the Borrower or by the board of directors (or a committee thereof) of the Borrower, evidenced by an officers' certificate or board resolution, as applicable.

"FASB ASC" means the Accounting Standards Codification of the Financial Accounting Standards Board.

"FATCA" means Sections 1471 through 1474 of the Code, as of the date of this Agreement (or any amended or successor version that is substantively comparable and not materially more onerous to comply with) and any current or future regulations or official interpretations thereof and any agreements entered into pursuant to Section 1471(b)(1) of the Code, as of the date of this Agreement (or any amended or successor version described above), and any intergovernmental agreements (or related Laws, treaties, regulations or other official administrative guidance) implementing the foregoing.

"Federal Funds Rate" means, for any day, the rate per annum equal to the weighted average of the rates on overnight Federal funds transactions with members of the Federal Reserve System, as published by the Federal Reserve Bank of New York on the Business Day next succeeding such day; provided that (a) if such day is not a Business Day, the Federal Funds Rate for such day shall be such rate on such transactions on the next preceding Business Day as so published on the next succeeding Business Day, (b) if no such rate is so published on such next succeeding Business Day, the Federal Funds Rate for such day shall be the average rate (rounded upward, if necessary, to a whole multiple of 1/100 of 1%) charged to Bank of America on such day on such transactions as determined by the Administrative Agent and (c) if the Federal Funds Rate shall be less than zero, such rate shall be deemed zero for purposes of this Agreement.

"Foreign Lender" means a Lender that is not a U.S. Person.

"Foreign Subsidiary" means any direct or indirect Subsidiary of the Borrower that is not a Domestic Subsidiary.

"FRB" means the Board of Governors of the Federal Reserve System of the United States.

"Fronting Exposure" means, at any time there is a Defaulting Lender, (a) with respect to the L/C Issuer, such Defaulting Lender's Applicable Percentage of the outstanding L/C Obligations other than L/C Obligations as to which such Defaulting Lender's participation obligation has been reallocated to other Lenders or Cash Collateralized in accordance with the terms hereof, and (b) with respect to the Swing Line Lender, such Defaulting Lender's Applicable Percentage of Swing Line Loans other than Swing Line Loans as to which such Defaulting Lender's participation obligation has been reallocated to other Lenders in accordance with the terms hereof.

"Fund" means any Person (other than a natural Person) that is (or will be) engaged in making, purchasing, holding or otherwise investing in commercial loans and similar extensions of credit in the ordinary course of its activities.

"GAAP" means generally accepted accounting principles in the United States set forth in the opinions and pronouncements of the Accounting Principles Board and the American Institute of Certified Public Accountants and statements and pronouncements of the Financial Accounting Standards Board or such other principles as may be approved by a significant segment of the accounting profession in the United States, that are applicable to the circumstances as of the date of determination, consistently applied.

"Global Liquidity" means, at any time, the sum of the Market Value of unrestricted cash (other than any restriction arising under or attributable to the Revolving Credit Facility), marketable securities and other assets to the extent constituting "cash and cash equivalents", "short-term investments" or "long-term investments" as reflected in the consolidated balance sheet of the Borrower and its Subsidiaries, in each case, held by the Borrower and its Domestic Subsidiaries that are Restricted Subsidiaries and any Specified Foreign Subsidiaries at such time, regardless of where such assets are domiciled.

"Governmental Authority" means the government of the United States or any other nation, or of any political subdivision thereof, whether state, local or otherwise, and any agency, authority, instrumentality, regulatory body, court, central bank or other entity exercising executive, legislative, judicial, taxing, regulatory or administrative powers or functions of or pertaining to government (including any supra-national bodies such as the European Union or the European Central Bank).

"Guarantee" means, as to any Person, any (a) any obligation, contingent or otherwise, of such Person guaranteeing or having the economic effect of guaranteeing any Indebtedness or other obligation payable or performable by another Person (the "primary obligor") in any manner, whether directly or indirectly, and including any obligation of such Person, direct or indirect, (i) to purchase or pay (or advance or supply funds for the purchase or payment of) such Indebtedness or other obligation, (ii) to purchase or lease property, securities or services for the purpose of assuring the obligee in respect of such Indebtedness or other obligation of the payment or performance of such Indebtedness or other obligation, (iii) to maintain working capital, equity capital or any other financial statement condition or liquidity or level of income or cash flow of the primary obligor so as to enable the primary obligor to pay such Indebtedness or other obligation, or (iv) entered into for the purpose of assuring in any other manner the obligee in respect of such Indebtedness or other obligation of the payment or performance thereof or to protect such obligee against loss in respect thereof (in whole or in part), or (b) any Lien on any assets of such Person securing any Indebtedness or other obligation of any other Person, whether or not such Indebtedness or other obligation is assumed by such Person (or any right, contingent or otherwise, of any holder of such Indebtedness to obtain any such Lien). The amount of any Guarantee shall be deemed to be an amount equal to the stated or determinable amount of the related primary obligation, or portion thereof, in respect of which such Guarantee is made or, if not stated or

determinable, the maximum reasonably anticipated liability in respect thereof as determined by the guaranteeing Person in good faith. The term "Guarantee" as a verb has a corresponding meaning.

"Guaranteed Parties" means, collectively, the Administrative Agent, the Lenders, the L/C Issuer, each co-agent or sub-agent appointed by the Administrative Agent from time to time pursuant to Section 9.05, and the other Persons the Obligations owing to which are or are purported to be guaranteed under the terms of the Guaranty.

"Guarantors" means, collectively, each Subsidiary of the Borrower (other than any Excluded Subsidiary) that shall be required to execute and deliver a guaranty or guaranty supplement pursuant to Section 6.12.

"Guaranty" means, collectively, the Guaranty made by the Guarantors in favor of the Guaranteed Parties, substantially in the form of Exhibit F, together with each other guaranty and guaranty supplement delivered pursuant to Section 6.12.

"Hazardous Materials" means all explosive or radioactive substances or wastes and all hazardous or toxic substances, wastes or other pollutants including petroleum or petroleum distillates, pharmaceutical or medical waste, natural gas, natural gas liquids, asbestos or asbestos-containing materials, polychlorinated biphenyls, radon gas, toxic mold, infectious or medical wastes and all other substances, wastes, chemicals, pollutants, contaminants or compounds of any nature in any form regulated pursuant to any Environmental Law.

"Impacted Loans" has the meaning assigned to such term in Section 3.03.

"Indebtedness" means, as to any Person at a particular time, without duplication, all of the following, whether or not included as indebtedness or liabilities in accordance with GAAP:

(a) all obligations of such Person for borrowed money and all obligations of such Person evidenced by bonds, debentures, notes, loan agreements or other similar instruments;

(b) the maximum amount of all direct or contingent obligations of such Person arising under letters of credit (including standby and commercial), bankers' acceptances, bank guaranties, surety bonds and similar instruments;

(c) net obligations of such Person under any Swap Contract;

(d) all obligations of such Person to pay the deferred purchase price of property or services (other than (i) accounts payable and accrued expenses incurred in the ordinary course of business and not past due more than 60 days, and (ii) payroll liabilities and deferred compensation);

(e) indebtedness (excluding prepaid interest thereon) secured by a Lien on property owned or being purchased by such Person (including indebtedness arising under conditional sales or other title retention agreements), whether or not such indebtedness shall have been assumed by such Person or is limited in recourse;

(f) all Attributable Indebtedness in respect of Capitalized Leases and Synthetic Lease Obligations of such Person and all Synthetic Debt of such Person;

(g) all obligations of such Person to purchase, redeem, retire, defease or otherwise make any payment in respect of any Equity Interest in such Person or any other Person or any warrant, right or option to acquire such Equity Interest, valued, in the case of a redeemable preferred interest, at the greater of its voluntary or involuntary liquidation preference plus accrued and unpaid dividends; and

(h) all Guarantees of such Person in respect of any of the foregoing.

For all purposes hereof, the Indebtedness of any Person shall include the Indebtedness of any partnership or joint venture (other than a joint venture that is itself a corporation or limited liability company) in which such Person is a general partner or a joint venturer, unless such Indebtedness is expressly made non-recourse to such Person. The amount of any net obligation under any Swap Contract on any date shall be deemed to be the Swap Termination Value thereof as of such date.

"Indemnified Taxes" means (a) Taxes, other than Excluded Taxes, imposed on or with respect to any payment made by or on account of any obligation of any Loan Party under any Loan Document and (b) to the extent not otherwise described in (a), Other Taxes.

"Indemnitee" has the meaning specified in Section 10.04(b).

"Information" has the meaning specified in Section 10.07.

"Interest Coverage Ratio" means, as of any date of determination, the ratio of (a) Consolidated EBITDA of the Borrower and its Restricted Subsidiaries for the most recently ended Test Period to (b) Consolidated Cash Interest Expense of the Borrower and its Restricted Subsidiaries for such Test Period.

"Interest Payment Date" means, (a) as to any Eurodollar Rate Loan, the last day of each Interest Period applicable to such Loan and the Maturity Date; provided that if any Interest Period for a Eurodollar Rate Loan exceeds three months, the respective dates that fall every three months after the beginning of such Interest Period shall also be Interest Payment Dates; and (b) as to any Base Rate Loan or Swing Line Loan, the last Business Day of each March, June, September and December and the Maturity Date.

"Interest Period" means, as to each Eurodollar Rate Loan, the period commencing on the date such Eurodollar Rate Loan is disbursed or converted to or continued as a Eurodollar Rate Loan and ending on the date one, two, three or six months thereafter (or twelve months if requested by the Borrower and consented to by all the Appropriate Lenders) (in each case, subject to availability), as selected by the Borrower in its Committed Loan Notice; provided that:

(i) any Interest Period that would otherwise end on a day that is not a Business Day shall be extended to the next succeeding Business Day unless, in the case of a Eurodollar Rate Loan, such Business Day falls in another calendar month, in which case such Interest Period shall end on the next preceding Business Day;

(ii) any Interest Period pertaining to a Eurodollar Rate Loan that begins on the last Business Day of a calendar month (or on a day for which there is no numerically corresponding day in the calendar month at the end of such Interest Period) shall end on the last Business Day of the calendar month at the end of such Interest Period; and

(iii) no Interest Period shall extend beyond the Maturity Date.

"Investment" means, as to any Person, any direct or indirect acquisition or investment by such Person, whether by means of (a) the purchase or other acquisition of Equity Interests of another Person, (b) a loan, advance or capital contribution to, Guarantee or assumption of debt of, or purchase or other acquisition of any other debt or interest in, another Person, or (c) the purchase or other acquisition (in one transaction or a series of transactions) of assets of another Person that constitute a business unit or all or substantially all of the assets of, such Person. For purposes of covenant compliance, the amount of any Investment shall be the amount actually invested, without adjustment for subsequent increases or decreases in the value of such Investment.

"IP Monetization Transaction" means any transaction or series of transactions pursuant to which the Borrower or any of its Restricted Subsidiaries sells, conveys, assigns, pledges or otherwise transfers for value any IP Rights to any Person that is not an Affiliate of the Borrower, or creates a Lien in IP Rights in favor of any Person that is not an Affiliate of the Borrower to secure Indebtedness incurred in connection with such IP Monetization Transaction, and such Indebtedness is recourse only to the IP Rights so monetized.

"IP Rights" has the meaning specified in Section 5.17.

"IRS" means the United States Internal Revenue Service.

"ISP" means, with respect to any Letter of Credit, the "International Standby Practices 1998" published by the Institute of International Banking Law & Practice, Inc. (or such later version thereof as may be in effect at the time of issuance).

"Issuer Documents" means with respect to any Letter of Credit, the Letter of Credit Application, and any other document, agreement and instrument entered into by the L/C Issuer and the Borrower (or any Restricted Subsidiary) or in favor of the L/C Issuer and relating to such Letter of Credit.

"Laws" means, collectively, all international, foreign, Federal, state and local statutes, treaties, rules, guidelines, regulations, ordinances, codes and administrative or judicial precedents or authorities, including the interpretation or administration thereof by any Governmental Authority charged with the enforcement, interpretation or administration thereof, and all applicable administrative orders, directed duties, requests, licenses, authorizations and permits of, and agreements with, any Governmental Authority, in each case whether or not having the force of law.

"L/C Advance" means, with respect to each Revolving Credit Lender, such Lender's funding of its participation in any L/C Borrowing in accordance with its Applicable Percentage.

"L/C Borrowing" means an extension of credit resulting from a drawing under any Letter of Credit which has not been reimbursed on the date when made or refinanced as a Borrowing.

"L/C Credit Extension" means, with respect to any Letter of Credit, the issuance thereof or extension of the expiry date thereof, or the increase of the amount thereof.

"L/C Issuer" means (i) Citibank, N.A., in its capacity as issuer of Letters of Credit hereunder, or any successor issuer of Letters of Credit hereunder and (ii) any other Revolving Credit Lender (or an Affiliate of any Revolving Credit Lender) which shall become an "L/C Issuer" pursuant to Section 2.03(e). At any time there is more than one L/C Issuer, any singular references to the L/C Issuer shall mean any L/C Issuer, either L/C Issuer, each L/C Issuer, the L/C Issuer that has issued the applicable Letter of Credit, or both (or all) L/C Issuers, as the context may require.

"L/C Obligations" means, as at any date of determination, the aggregate amount available to be drawn under all outstanding Letters of Credit plus the aggregate of all Unreimbursed Amounts, including all L/C Borrowings. For purposes of computing the amount available to be drawn under any Letter of Credit, the amount of such Letter of Credit shall be determined in accordance with Section 1.06. For all purposes of this Agreement, if on any date of determination a Letter of Credit has expired by its terms but any amount may still be drawn thereunder by reason of the operation of Rule 3.14 of the ISP, such Letter of Credit shall be deemed to be "outstanding" in the amount so remaining available to be drawn.

"Lead Arrangers" means Merrill Lynch, Pierce, Fenner & Smith, Incorporated (or any other registered broker-dealer wholly-owned by Bank of America Corporation to which all or substantially all of Bank of America Corporation's or any of its subsidiaries' investment banking, commercial lending services or related businesses may be transferred following the Closing Date), Citibank, N.A. and Wells Fargo Securities, LLC, in their respective capacities as joint arrangers and joint bookrunners or any successor thereto.

"Lender" has the meaning specified in the introductory paragraph hereto and, as the context requires, includes the Swing Line Lender.

"Lending Office" means, as to any Lender, the office or offices of such Lender described as such in such Lender's Administrative Questionnaire, or such other office or offices as a Lender may from time to time notify the Borrower and the Administrative Agent, which office may include any Affiliate of such Lender or any domestic or foreign branch of such Lender or such Affiliate. Unless the context otherwise requires each reference to a Lender shall include its applicable Lending Office.

"Letter of Credit" means any standby letter of credit issued hereunder, providing for the payment of cash upon the honoring of a presentation thereunder.

"Letter of Credit Application" means an application and agreement for the issuance or amendment of a Letter of Credit in the form from time to time in use by the L/C Issuer.

"Letter of Credit Expiration Date" means the day that is seven days prior to the Maturity Date then in effect for the Revolving Credit Facility (or, if such day is not a Business Day, the next preceding Business Day).

"Letter of Credit Fee" has the meaning specified in Section 2.03(h).

"Letter of Credit Sublimit" means an amount equal to $50,000,000; provided that, as to any L/C Issuer, such L/C Issuer's Letter of Credit Sublimit shall not exceed the amount set forth on Schedule 2.01 opposite such L/C Issuer's name or, in the case of an L/C Issuer that becomes an L/C Issuer after the Closing Date, the amount notified in writing to the Administrative Agent by the Borrower and such L/C Issuer; provided that the Letter of Credit Sublimit of any L/C Issuer may be (x) increased or decreased if agreed in writing between the Borrower and such L/C Issuer (each acting in its sole discretion) and notified to the Administrative Agent or (y) decreased upon 30 days' written notice from such L/C Issuer to the Borrower and the Administrative Agent. The Letter of Credit Sublimit is part of, and not in addition to, the Revolving Credit Facility.

"LIBOR Screen Rate" means the LIBOR quote on the applicable screen page the Administrative Agent designates to determine LIBOR (or such other commercially available source providing such quotations as may be designated by the Administrative Agent from time to time).

"LIBOR Successor Rate" has the meaning specified in Section 3.03.

"LIBOR Successor Rate Conforming Changes" means, with respect to any proposed LIBOR Successor Rate, any conforming changes to the definition of Base Rate, Interest Period or Eurodollar Rate, timing and frequency of determining rates and making payments of interest and other administrative matters as may be appropriate, in the discretion of the Administrative Agent, to reflect the adoption of such LIBOR Successor Rate and to permit the administration thereof by the Administrative Agent in a manner substantially consistent with market practice (or, if the Administrative Agent determines that adoption of any portion of such market practice is not administratively feasible or that no market practice for the administration of such LIBOR Successor Rate exists, in such other manner of administration as the Administrative Agent determines in consultation with the Borrower).

"Lien" means any mortgage, pledge, hypothecation, assignment, deposit arrangement, encumbrance, easement, right-of-way or other encumbrance on title to real property, lien (statutory or other), charge, or preference, priority or other security interest or preferential arrangement in the nature of a security interest of any kind or nature whatsoever (including any conditional sale or other title retention agreement, and any financing lease having substantially the same economic effect as any of the foregoing); provided that any operating lease or license (other than an Exclusive License), and any filing of a UCC financing statement that is a protective lease filing in respect of an operating lease and any filings with the Governmental Authority in respect of any license (other than an Exclusive License) do not constitute Liens.

"LLC" means any limited liability company organized or formed under the laws of the State of Delaware or any other jurisdiction.

"LLC Division" means the statutory division of any LLC into two or more LLCs pursuant to Section 18-217 of the Delaware Limited Liability Company Act or any comparable transaction pursuant to a different jurisdiction's laws.

"Loan" means an extension of credit by a Lender to the Borrower under Article II in the form of a Revolving Credit Loan or a Swing Line Loan.

"Loan Documents" means, collectively, (a) this Agreement, (b) the Notes, (c) any agreement creating or perfecting rights in cash collateral pursuant to the provisions of Section 2.14 of this Agreement, (d) the Guaranty, (e) the Disclosure Letter, (f) each Issuer Document and (g) any agreement creating or perfecting rights in Cash Collateral pursuant to the provisions of Section 2.14.

"Loan Parties" means, collectively, the Borrower and each Guarantor.

"London Banking Day" means any day on which dealings in Dollar deposits are conducted by and between banks in the London interbank eurodollar market.

"Market Value" means, with respect to any asset, the amount determined as the mark-to-market value of such asset, as determined by the Administrative Agent, in accordance with customary business practices, based on (x) independent market value pricing information from (i) Interactive Data Corporation for calculations made after the close of each Business Day and (ii) Bloomberg for calculations made at the end of each calendar month or (y) other sources and/or methodologies as may be mutually agreed by the Administrative Agent and the Borrower.

"Material Adverse Effect" means (a) a material adverse change in, or a material adverse effect upon, the operations, business, properties or financial condition or prospects of the Borrower and its Restricted Subsidiaries,

taken as a whole; (b) a material impairment of the rights and remedies of the Administrative Agent or any Lender under any Loan Document, or of the ability of any Loan Party to perform its obligations under any Loan Document to which it is a party; or (c) a material adverse effect upon the legality, validity, binding effect or enforceability against any Loan Party of any Loan Document to which it is a party.

"Material Subsidiary" means as of the Closing Date and thereafter at any date of determination, each Subsidiary (a) whose assets (on a consolidated basis with its Subsidiaries) as of the date of the most recent financial statements required to be delivered pursuant to Section 6.01(a) or (b) were equal to or greater than 5.0% of Consolidated Total Assets at such date or (b) whose revenues (on a consolidated basis with its Subsidiaries) for the latest four fiscal quarter period covered by the most recent financial statements required to be delivered pursuant to Section 6.01(a) or (b) were equal to or greater than 5.0 % of the total revenues of the Borrower and its Restricted Subsidiaries for such period; *provided* that if at any time Subsidiaries that are not Guarantors solely because they do not meet the threshold set forth in clause (a) or (b) (each such Subsidiary, an "Immaterial Subsidiary" and collectively, the "Immaterial Subsidiaries") comprise in the aggregate more than (a) 10.0% of Consolidated Total Assets at such date or (b) 10.0% of the total revenues of the Borrower and its Restricted Subsidiaries for such period, then the Borrower shall, not later than ten (10) days after the date by which financial statements for such quarter are required to be delivered pursuant to this Agreement (or such longer period as the Administrative Agent may agree in its reasonable discretion), (i) designate in writing to the Administrative Agent one or more of such formerly Immaterial Subsidiaries as "Material Subsidiaries" to the extent required such that the foregoing condition ceases to be true and (ii) comply with the provisions of Section 6.12 applicable to such Subsidiary to the extent such Material Subsidiary is not otherwise an Excluded Subsidiary.

"Maturity Date" means October 19, 2021; provided that if, as of the date that is seventy-five (75) days prior to the maturity date of any outstanding convertible notes of the Borrower (including the Subordinated Notes) (a "Springing Maturity Date") at least $100,000,000 aggregate principal amount of such convertible notes remain outstanding, then, unless (x) the applicable convertible notes (either by virtue of their terms or pursuant to any notice of election delivered by the Borrower in accordance therewith) provide that the Borrower's obligations with respect to settlement upon conversion, other repayment and payment at maturity of the principal amount thereof shall be satisfied solely by the issuance of shares of common stock of the Borrower (rather than cash) and/or payment of cash (but only in the case of fractional shares), (y) the Borrower has deposited cash and/or Cash Equivalents (other than proceeds of senior Indebtedness) in an amount sufficient to satisfy the cash settlement, other repayment and payment at maturity obligations under such convertible notes in an account with the trustee for such convertible notes or in another segregated account in a manner otherwise reasonably satisfactory to the Administrative Agent, in each case, solely to be used for any remaining cash settlement, repayment and payment at maturity obligations relating to such convertible notes (it being understood that any such cash and/or Cash Equivalents shall not be considered "unrestricted" for purposes of determining Global Liquidity) or (z) the Global Liquidity at such time is at least equal to the sum of (i) 200% of the aggregate principal amount of Commitments of the Revolving Credit Lenders in respect of the Revolving Credit Facility (e.g., including both drawn and undrawn amounts) at such time and (ii) the aggregate principal amount of the applicable convertible notes, the Maturity Date shall be the Springing Maturity Date; provided further, however, that, in each case, if such date is not a Business Day, the Maturity Date shall be the next preceding Business Day.

"Minimum Collateral Amount" means, at any time, (i) with respect to Cash Collateral consisting of cash or deposit account balances provided to reduce or eliminate Fronting Exposure during the existence of a Defaulting Lender, an amount equal to 103% of the Fronting Exposure of the L/C Issuer with respect to Letters of Credit issued and outstanding at such time, (ii) with respect to Cash Collateral consisting of cash or deposit account balances provided in accordance with the provisions of Section 2.14(a)(i), (a)(ii) or (a)(iii), an amount equal to 103% of the Outstanding Amount of all L/C Obligations, and (iii) otherwise, an amount determined by the Administrative Agent and the L/C Issuer in their sole discretion.

"Moody's" means Moody's Investors Service, Inc. and any successor thereto.

"Multiemployer Plan" means any employee benefit plan of the type described in Section 4001(a)(3) of ERISA, to which the Borrower or any ERISA Affiliate makes or is obligated to make contributions, or during the preceding five plan years, has made or been obligated to make contributions.

"Multiple Employer Plan" means a Plan which has two or more contributing sponsors (including the Borrower or any ERISA Affiliate) at least two of whom are not under common control, as such a plan is described in Section 4064 of ERISA.

"Net Cash Proceeds" means with respect to the sale or issuance of any Equity Interest by the Borrower, the excess of (i) the sum of the cash and Cash Equivalents received in connection with such transaction over (ii) the

underwriting discounts and commissions, and other reasonable and customary out-of-pocket expenses, incurred by the Borrower in connection therewith.

"Net Leverage Ratio" means, as of any date of determination, the ratio of (x) Consolidated Total Debt as of the last day of the most recently ended Test Period *less* Global Liquidity as of such date to (y) Consolidated EBITDA for such Test Period.

"Non-Consenting Lender" means any Lender that does not approve any consent, waiver or amendment that (i) requires the approval of all Lenders or all affected Lenders in accordance with the terms of Section 10.01 and (ii) has been approved by the Required Lenders.

"Non-Defaulting Lender" means, at any time, each Lender that is not a Defaulting Lender at such time.

"Note" means a promissory note made by the Borrower in favor of a Revolving Credit Lender evidencing Revolving Credit Loans or Swing Line Loans, as the case may be, made by such Revolving Credit Lender, substantially in the form of Exhibit C.

"NPL" means the National Priorities List under CERCLA.

"Obligations" means all advances to, and debts, liabilities, obligations, covenants and duties of, any Loan Party arising under any Loan Document or otherwise with respect to any Loan or Letter of Credit, in each case whether direct or indirect (including those acquired by assumption), absolute or contingent, due or to become due, now existing or hereafter arising and including interest and fees that accrue after the commencement by or against any Loan Party or any Affiliate thereof of any proceeding under any Debtor Relief Laws naming such Person as the debtor in such proceeding, regardless of whether such interest and fees are allowed claims in such proceeding.

"OFAC" means the Office of Foreign Assets Control of the United States Department of the Treasury.

"Organization Documents" means, (a) with respect to any corporation, the certificate or articles of incorporation and the bylaws (or equivalent or comparable constitutive documents with respect to any non-U.S. jurisdiction); (b) with respect to any limited liability company, the certificate or articles of formation or organization and operating agreement; and (c) with respect to any partnership, joint venture, trust or other form of business entity, the partnership, joint venture or other applicable agreement of formation or organization and any agreement, instrument, filing or notice with respect thereto filed in connection with its formation or organization with the applicable Governmental Authority in the jurisdiction of its formation or organization and, if applicable, any certificate or articles of formation or organization of such entity.

"Original Closing Date" means November 29, 2016.

"Other Connection Taxes" means, with respect to any Recipient, Taxes imposed as a result of a present or former connection between such Recipient and the jurisdiction imposing such Tax (other than connections arising solely from such Recipient having executed, delivered, become a party to, performed its obligations under, received payments under, received or perfected a security interest under, or engaged in any other transaction pursuant to or enforced any Loan Document, or sold or assigned an interest in any Loan or Loan Documents).

"Other Taxes" means all present or future stamp, court or documentary, intangible, recording, filing or similar Taxes that arise from any payment made under, from the execution, delivery, performance, enforcement or registration of, from the receipt or perfection of a security interest under, or otherwise with respect to any Loan Document, except any such Taxes that are Other Connection Taxes imposed with respect to an assignment (other than an assignment made pursuant to Section 3.06).

"Outstanding Amount" means (a) with respect to Revolving Credit Loans and Swing Line Loans on any date, the aggregate outstanding principal amount thereof after giving effect to any borrowings and prepayments or repayments of Revolving Credit Loans and Swing Line Loans, as the case may be, occurring on such date; and (b) with respect to any L/C Obligations on any date, the amount of such L/C Obligations on such date after giving effect to any L/C Credit Extension occurring on such date and any other changes in the aggregate amount of the L/C Obligations as of such date, including as a result of any reimbursements by the Borrower of Unreimbursed Amounts.

"Participant" has the meaning specified in Section 10.06(d).

"Participant Register" has the meaning specified in Section 10.06(d).

"PBGC" means the Pension Benefit Guaranty Corporation.

"Pension Act" means the Pension Protection Act of 2006.

"Pension Funding Rules" means the rules of the Code and ERISA regarding minimum required contributions (including any installment payment thereof) to Pension Plans and set forth in, with respect to plan years ending prior to the effective date of the Pension Act, Section 412 of the Code and Section 302 of ERISA, each as in effect prior to the Pension Act and, thereafter, Section 412, 430, 431, 432 and 436 of the Code and Sections 302, 303, 304 and 305 of ERISA.

"Pension Plan" means any employee pension benefit plan (including a Multiple Employer Plan or a Multiemployer Plan) that is maintained or is contributed to by the Borrower and any ERISA Affiliate and is either covered by Title IV of ERISA or is subject to the minimum funding standards under Section 412 of the Code.

"Permitted Acquisition" has the meaning specified in Section 7.03(g).

"Permitted Equity Derivatives" means (i) those certain call option transaction confirmations and warrant transaction confirmations dated as of April 23, 2007 and October 8, 2013, October 9, 2013, October 15, 2013 entered into by the Borrower in connection with the issuance of the Subordinated Notes, and (ii) any forward purchase, accelerated share repurchase, call option, warrant or other derivative transactions in respect of the Borrower's Equity Interests; provided, that such transaction shall be classified in the Borrower's stockholders' equity under ASC 815-40 or any successor provision.

"Permitted Exchange" means an exchange of real property of the Borrower or any Restricted Subsidiary that qualifies as a like-kind exchange pursuant to and in compliance with Section 1031 of the Code.

"Permitted Refinancing" means, with respect to any Person, any modification, refinancing, refunding, renewal, replacement, exchange or extension of any Indebtedness of such Person; provided that (a) the principal amount (or accreted value, if applicable) thereof does not exceed the principal amount (or accreted value, if applicable) of the Indebtedness so modified, refinanced, refunded, renewed, replaced, exchanged or extended except by an amount equal to accrued and unpaid interest and premium (including tender premium) thereon plus other reasonable amounts paid, and fees and expenses (including any upfront fees, commissions and original issue discount) reasonably incurred, in connection with such Permitted Refinancing; (b) such modification, refinancing, refunding, renewal, replacement, exchange or extension has a final maturity date equal to or later than the final maturity date of, and has a Weighted Average Life to Maturity equal to or greater than the Weighted Average Life to Maturity of, the Indebtedness being modified, refinanced, refunded, renewed, replaced, exchanged or extended (it being understood that, in each case, any provision requiring an offer to purchase such Indebtedness as a result of a change of control or asset sale shall not violate the foregoing restriction); (c) if the Indebtedness being modified, refinanced, refunded, renewed, replaced, exchanged or extended (other than with respect to the Subordinated Notes to the extent that such Subordinated Notes as so modified, refinanced, refunded, renewed, replaced, exchanged or extended are unsecured) is subordinated in right of payment to the Obligations, such modification, refinancing, refunding, renewal, replacement, exchange or extension is subordinated in right of payment to the Obligations on terms as favorable in all material respects to the Lenders as those contained in the documentation governing the Indebtedness being modified, refinanced, refunded, renewed, replaced, exchanged or extended; (d) the terms and conditions (including, if applicable, as to collateral) of any such modified, refinanced, refunded, renewed, replaced, exchanged or extended Indebtedness are, (A) either (i) on then-prevailing market terms and conditions or (ii) not materially less favorable to the Loan Parties or the Lenders, taken as a whole, than the terms and conditions of the Indebtedness being modified, refinanced, refunded, renewed, replaced, exchanged or extended (as reasonably determined by the Borrower in good faith), and (B) when taken as a whole (other than interest rate and redemption premiums), not more restrictive to the Borrower and the Restricted Subsidiaries than those set forth in this Agreement (as reasonably determined by the Borrower in good faith); provided that any such Indebtedness may contain more restrictive covenants and events of default than those set forth in this Agreement, so long as such more restrictive covenants and events of default are either (i) also added for the benefit of the Lenders, which shall not require consent of the Lenders or (ii) only apply after the Maturity Date; provided, further that a certificate of a Responsible Officer of the Borrower delivered to the Administrative Agent in good faith at least five Business Days prior to the incurrence of such Indebtedness, together with a reasonably detailed description of the material terms and conditions of such Indebtedness or drafts of the documentation relating thereto, stating that the Borrower has determined in good faith that such terms and conditions satisfy the requirement set out in this clause (d), shall be conclusive evidence that such terms and conditions satisfy such requirement unless the Administrative Agent provides notice to the Borrower of its objection during such five Business Day period); (e) such modification, refinancing, refunding, renewal, replacement, exchange or extension is incurred by the Person who is the obligor or guarantor on

the Indebtedness being modified, refinanced, refunded, renewed, replaced or extended; and (f) at the time thereof, no Event of Default shall have occurred and be continuing.

"Person" means any natural person, corporation, limited liability company, trust, joint venture, association, company, partnership, Governmental Authority or other entity.

"Plan" means any employee benefit plan within the meaning of Section 3(3) of ERISA (including a Pension Plan), maintained for employees of the Borrower or any ERISA Affiliate or any such Plan to which the Borrower or any ERISA Affiliate is required to contribute on behalf of any of its employees.

"Platform" has the meaning specified in Section 6.02.

"Pricing Level" shall mean, as to the Borrower as of any date, the existence of Pricing Level 1, Pricing Level 2, Pricing Level 3 or Pricing Level 4, as the case may be, on such date, in accordance with the Net Leverage Ratio levels set forth in the tables under the definitions of "Applicable Fee Rate" and "Applicable Rate", as applicable.

"PTE" means a prohibited transaction class exemption issued by the U.S. Department of Labor, as any such exemption may be amended from time to time.

"Public Lender" has the meaning specified in Section 6.02.

"Qualified Equity Interests" means any Equity Interest other than Disqualified Stock.

"Recipient" means the Administrative Agent, any Lender, the L/C Issuer or any other recipient of any payment to be made by or on account of any obligation of any Loan Party hereunder.

"Register" has the meaning specified in Section 10.06(c).

"Regulation U" means Regulation U, of the Board of Governors of the Federal Reserve System as amended, or any successor regulation.

"Related Parties" means, with respect to any Person, such Person's Affiliates and the partners, directors, officers, employees, agents, trustees and advisors of such Person and of such Person's Affiliates.

"Release" means any release, spill, emission, discharge, deposit, disposal, leaking, pumping, pouring, dumping, emptying, injection or leaching into the Environment, or into, from or through any building, structure or facility.

"Reportable Event" means any of the events set forth in Section 4043(c) of ERISA, other than events for which the 30 day notice period has been waived.

"Request for Credit Extension" means (a) with respect to a Borrowing, conversion or continuation of Revolving Credit Loans, a Committed Loan Notice, (b) with respect to an L/C Credit Extension, a Letter of Credit Application, and (c) with respect to a Swing Line Loan, a Swing Line Loan Notice.

"Required Lenders" means, at any time, Revolving Credit Lenders holding more than 50% of the sum of the (a) Total Outstandings (with the aggregate amount of each Revolving Credit Lender's risk participation and funded participation in L/C Obligations and Swing Line Loans being deemed "held" by such Revolving Credit Lender for purposes of this definition) and (b) aggregate unused Commitments; provided that the unused Commitment of, and the portion of the Total Outstandings held or deemed held by, any Defaulting Lender shall be excluded for purposes of making a determination of Required Lenders.

"Responsible Officer" means the chief executive officer, president, chief financial officer, treasurer, assistant treasurer or controller of a Loan Party, solely for purposes of the delivery of incumbency certificates pursuant to Section 4.01, the secretary or any assistant secretary of a Loan Party and, solely for purposes of notices given pursuant to Article II, any other officer or employee of the applicable Loan Party so designated by any of the foregoing officers in a notice to the Administrative Agent or any other officer or employee of the applicable Loan Party designated in or pursuant to an agreement between the applicable Loan Party and the Administrative Agent. Any document delivered hereunder that is signed by a Responsible Officer of a Loan Party shall be conclusively presumed to have been authorized by all necessary corporate, partnership and/or other action on the part of such Loan Party and such Responsible Officer shall be conclusively presumed to have acted on behalf of such Loan Party.

"Restricted Payment" means any dividend or other distribution (whether in cash, securities or other property) with respect to any capital stock or other Equity Interest of the Borrower or any of its Subsidiaries, or any payment (whether in cash, securities or other property), including any sinking fund or similar deposit, on account of the purchase, redemption, retirement, defeasance, acquisition, cancellation or termination of any such capital stock or other Equity Interest of the Borrower or any of its Subsidiaries (other than any purchase or acquisition (i) by the Borrower of Equity Interests of any Restricted Subsidiary from such Restricted Subsidiary or another Restricted Subsidiary, (ii) by any Restricted Subsidiary of Equity Interests of any other Restricted Subsidiary from such Restricted Subsidiary, the Borrower or another Restricted Subsidiary, in each case to the extent such purchase constitutes an Investment permitted under Section 7.03 or (iii) by any Restricted Subsidiary of its Equity Interests from the Borrower or other Restricted Subsidiary), or on account of any return of capital to the stockholders, partners or members (or the equivalent of any thereof) of the Borrower or any of its Subsidiaries.

"Restricted Subsidiary" means any Subsidiary of the Borrower that is not an Unrestricted Subsidiary.

"Revolving Credit Exposure" means, as to any Lender at any time, the aggregate principal amount at such time of its outstanding Revolving Credit Loans and such Lender's participation in L/C Obligations and Swing Line Loans at such time.

"Revolving Credit Facility" means, at any time, the aggregate amount of the Revolving Credit Lenders' Commitments at such time.

"Revolving Credit Lender" means, at any time, any Lender that has a Commitment at such time.

"Revolving Credit Loan" has the meaning specified in Section 2.01.

"Sanction(s)" means any sanction administered or enforced by the United States government (including without limitation, OFAC), the United Nations Security Council, the European Union, Her Majesty's Treasury ("HMT") or other relevant sanctions authority.

"S&P" means Standard & Poor's Financial Services LLC, a subsidiary of The McGraw-Hill Companies, Inc., and any successor thereto.

"Schedule" means the schedules to the Disclosure Letter dated the Closing Date and attached to this Agreement.

"Scheduled Unavailability Date" has the meaning specified in Section 3.03(b)(ii).

"SEC" means the Securities and Exchange Commission, or any Governmental Authority succeeding to any of its principal functions.

"Securities Act" means the Securities Act of 1933 (15 U.S.C. §77a et seq.), as amended.

"Securities Exchange Act" means the Securities Exchange Act of 1934 (15 U.S.C. §78a et seq.), as amended.

"Solvent" and "Solvency" mean, with respect to any Person on any date of determination, that on such date (a) the fair value of the property of such Person is greater than the total amount of liabilities, including contingent liabilities, of such Person, (b) the present fair salable value of the assets of such Person is not less than the amount that will be required to pay the probable liability of such Person on its debts as they become absolute and matured, (c) such Person does not intend to, and does not believe that it will, incur debts or liabilities beyond such Person's ability to pay such debts and liabilities as they mature, (d) such Person is not engaged in business or a transaction, and is not about to engage in business or a transaction, for which such Person's property would constitute an unreasonably small capital, and (e) such Person is able to pay its debts and liabilities, contingent obligations and other commitments as they mature in the ordinary course of business. The amount of contingent liabilities at any time shall be computed as the amount that, in the light of all the facts and circumstances existing at such time, represents the amount that can reasonably be expected to become an actual or matured liability.

"Specified Foreign Subsidiary" means any Foreign Subsidiary of the Borrower, the Equity Interests of which are directly owned by, or on behalf of, (i) any Loan Party or (ii) any first tier Foreign Subsidiary, the Equity Interests of which are directly owned by or on behalf of any Loan Party; provided that (x) the Foreign Subsidiary receiving such intellectual property shall covenant and agree not to voluntarily pledge any security interest in such intellectual property

to any Person (other than a Loan Party), (y) any Foreign Subsidiary receiving such intellectual property shall not incur any Indebtedness for borrowed money (other than Indebtedness owed to a Loan Party) and (z) in the case of any Foreign Subsidiary whose Equity Interests are owned by, or on behalf of, a first tier Foreign Subsidiary, such first tier Foreign Subsidiary shall not incur Indebtedness for borrowed money (other than Indebtedness owed to a Loan Party) or voluntarily pledge any security interest in such Equity Interests to any Person (other than a Loan Party).

"Specified Indebtedness" means Indebtedness of any Person that is permitted by Section 7.02(h) that has become due and payable as a result of such Person becoming a Restricted Subsidiary after the Closing Date or such acquisition of assets in connection with a Permitted Acquisition by Borrower or any Restricted Subsidiary.

"Springing Maturity Date" has the meaning specified in the definition of "Maturity Date".

"Subordinated Indebtedness" means the collective reference to the Subordinated Notes and any other Indebtedness incurred by the Borrower or any of its Restricted Subsidiaries that is contractually subordinated in right of payment to the Obligations.

"Subordinated Notes" means (i) the 0.75% senior subordinated convertible notes of the Borrower due 2018 in an aggregate principal amount of $375,000,000 issued and sold on October 15, 2013, (ii) the 1.50% senior subordinated convertible notes of the Borrower due 2020 in an aggregate principal amount of $375,000,000 issued and sold on October 15, 2013, and (iii) the 0.599% senior subordinated convertible notes of the Borrower due 2024 in an aggregate principal amount of $495,000,000 issued and sold on August 11, 2017 (the "2024 Subordinated Notes"), in each case, pursuant to the respective Subordinated Notes Documents.

"Subordinated Notes Documents" means the Indenture dated as of October 15, 2013, First Supplemental Indenture dated as of October 15, 2013, Second Supplemental Indenture dated as of October 15, 2013, Indenture dated as of August 11, 2017, First Supplemental Indenture dated as of August 11, 2017, the Subordinated Notes and all other agreements, instruments and other documents pursuant to which the Subordinated Notes have been or will be issued or otherwise setting forth the terms of the Subordinated Notes.

"Subsidiary" of a Person means a corporation, partnership, joint venture, limited liability company or other business entity of which a majority of the shares of securities or other interests having ordinary voting power for the election of directors or other governing body (other than securities or interests having such power only by reason of the happening of a contingency) are at the time beneficially owned, or the management of which is otherwise controlled, directly, or indirectly through one or more intermediaries, or both, by such Person. Unless otherwise specified, all references herein to a "Subsidiary" or to "Subsidiaries" shall refer to a Subsidiary or Subsidiaries of the Borrower.

"Swap Contract" means (a) any and all rate swap transactions, basis swaps, credit derivative transactions, forward rate transactions, commodity swaps, commodity options, forward commodity contracts, equity or equity index swaps or options, bond or bond price or bond index swaps or options or forward bond or forward bond price or forward bond index transactions, interest rate options, forward foreign exchange transactions, cap transactions, floor transactions, collar transactions, currency swap transactions, cross-currency rate swap transactions, currency options, spot contracts, or any other similar transactions or any combination of any of the foregoing (including any options to enter into any of the foregoing), whether or not any such transaction is governed by or subject to any master agreement, and (b) any and all transactions of any kind, and the related confirmations, which are subject to the terms and conditions of, or governed by, any form of master agreement published by the International Swaps and Derivatives Association, Inc., any International Foreign Exchange Master Agreement, or any other master agreement (any such master agreement, together with any related schedules, a "Master Agreement"), including any such obligations or liabilities under any Master Agreement.

"Swap Termination Value" means, in respect of any one or more Swap Contracts, after taking into account the effect of any legally enforceable netting agreement relating to such Swap Contracts, (a) for any date on or after the date such Swap Contracts have been closed out and termination value(s) determined in accordance therewith, such termination value(s), and (b) for any date prior to the date referenced in clause (a), the amount(s) determined as the mark-to-market value(s) for such Swap Contracts, as determined based upon one or more mid-market or other readily available quotations provided by any recognized dealer in such Swap Contracts (which may include a Lender or any Affiliate of a Lender).

"Swing Line Borrowing" means a borrowing of a Swing Line Loan pursuant to Section 2.04.

"Swing Line Lender" means Bank of America in its capacity as provider of Swing Line Loans, or any successor swing line lender hereunder.

"Swing Line Loan" has the meaning specified in Section 2.04(a).

"Swing Line Loan Notice" means a notice of a Swing Line Borrowing pursuant to Section 2.04(b), which shall be substantially in the form of Exhibit B or such other form as approved by the Administrative Agent (including any form on an electronic platform or electronic transmission system as shall be approved by the Administrative Agent), appropriately completed and signed by a Responsible Officer of the Borrower.

"Swing Line Sublimit" means an amount equal to the lesser of (a) $15,000,000 and (b) the Revolving Credit Facility. The Swing Line Sublimit is part of, and not in addition to, the Revolving Credit Facility.

"Synthetic Debt" means, with respect to any Person as of any date of determination thereof, all obligations of such Person in respect of transactions entered into by such Person that are intended to function primarily as a borrowing of funds (including any minority interest transactions that function primarily as a borrowing) but are not otherwise included in the definition of "Indebtedness" or as a liability on the consolidated balance sheet of such Person and its Subsidiaries in accordance with GAAP.

"Synthetic Lease Obligation" means the monetary obligation of a Person under (a) a so-called synthetic, off-balance sheet or tax retention lease, or (b) an agreement for the use or possession of property (including sale and leaseback transactions), in each case, creating obligations that do not appear on the balance sheet of such Person but which, upon the application of any Debtor Relief Laws to such Person, would be characterized as the indebtedness of such Person (without regard to accounting treatment).

"Taxes" means all present or future taxes, levies, imposts, duties, deductions, withholdings (including backup withholding), assessments, fees or other charges imposed by any Governmental Authority, including any interest, additions to tax or penalties applicable thereto.

"Test Period" means, at any date of determination, the period of four consecutive fiscal quarters of the Borrower then last ended for which financial statements have been delivered or were required to have been delivered pursuant to Section 6.01(a) or 6.01(b) or, prior to the first such requirement, the four quarter period ended June 30, 2018.

"Threshold Amount" means $75,000,000.

"Tier Pricing" shall mean, as to the Borrower as of any date, the existence of Tier 1 Pricing or Tier 2 Pricing, as the case may be, on such date, in accordance with the fourth paragraph of the definitions of "Applicable Fee Rate" and "Applicable Rate", as applicable.

"Total Credit Exposure" means, as to any Lender at any time, the unused Commitments and Revolving Credit Exposure of such Lender at such time.

"Total Outstandings" means the aggregate Outstanding Amount of all Loans and all L/C Obligations.

"Transaction" means, collectively, (a) the entering into by the Loan Parties of the Loan Documents, to which they are or are intended to be a party, (b) the Closing Date Refinancing and (c) the payment of the fees and expenses incurred in connection with the consummation of the foregoing.

"Type" means, with respect to a Loan, its character as a Base Rate Loan or a Eurodollar Rate Loan.

"UCC" means the Uniform Commercial Code as in effect in the State of New York provided that, if perfection or the effect of perfection or non-perfection or the priority of any security interest is governed by the Uniform Commercial Code as in effect in a jurisdiction other than the State of New York, "UCC" means the Uniform Commercial Code as in effect from time to time in such other jurisdiction for purposes of the provisions hereof relating to such perfection, effect of perfection or non-perfection or priority.

"United States" and "U.S." mean the United States of America.

"Unreimbursed Amount" has the meaning specified in Section 2.03(c)(i).

"Unrestricted Subsidiary" means (a) any Subsidiary of the Borrower that is designated as an Unrestricted Subsidiary by the Borrower pursuant to Section 6.15 subsequent to the Closing Date and (b) any direct or indirect Subsidiary of an Unrestricted Subsidiary.

"Upfront Payments" means any upfront or similar payments made during the period of twelve months ending on the Closing Date or arising thereafter in connection with (i) any drug or pharmaceutical product research and development or collaboration arrangements or (ii) the closing of any acquisition (including any license or any acquisition of any license), solely or primarily of all or any portion of the rights in respect of one or more drugs or pharmaceutical products, whether in development or on market, and related property or assets, but not of Equity Interests in any Person or any operating business unit.

"U.S. Person" means any Person that is a "United States Person" as defined in Section 7701(a)(30) of the Code.

"U.S. Tax Compliance Certificate" has the meaning specified in Section 3.01(e)(ii)(B)(3).

"Weighted Average Life to Maturity" means, when applied to any Indebtedness at any date, the number of years obtained by dividing: (a) the sum of the products obtained by multiplying (i) the amount of each then remaining installment, sinking fund, serial maturity or other required payments of principal, including payment at final maturity, in respect thereof, by (ii) the number of years (calculated to the nearest one-twelfth) that will elapse between such date and the making of such payment; by (b) the then outstanding principal amount of such Indebtedness.

"Wholly Owned" means, with respect to any Subsidiary of any Person at any date, that all of the shares of capital stock or other ownership interests of such Subsidiary (except Nominal Shares) are at the time directly or indirectly owned by such Person.

"Write-Down and Conversion Powers" means, with respect to any EEA Resolution Authority, the write-down and conversion powers of such EEA Resolution Authority from time to time under the Bail-In Legislation for the applicable EEA Member Country, which write-down and conversion powers are described in the EU Bail-In Legislation Schedule.

1.02 Other Interpretive Provisions

. With reference to this Agreement and each other Loan Document, unless otherwise specified herein or in such other Loan Document:

(a) The definitions of terms herein shall apply equally to the singular and plural forms of the terms defined. Whenever the context may require, any pronoun shall include the corresponding masculine, feminine and neuter forms. The words "include," "includes" and "including" shall be deemed to be followed by the phrase "without limitation." The word "will" shall be construed to have the same meaning and effect as the word "shall." Unless the context requires otherwise, (i) any definition of or reference to any agreement, instrument or other document (including any Organization Document) shall be construed as referring to such agreement, instrument or other document as from time to time amended, supplemented or otherwise modified (subject to any restrictions on such amendments, supplements or modifications set forth herein or in any other Loan Document), (ii) any reference herein to any Person shall be construed to include such Person's successors and assigns, (iii) the words "hereto," "herein," "hereof" and "hereunder," and words of similar import when used in any Loan Document, shall be construed to refer to such Loan Document in its entirety and not to any particular provision thereof, (iv) all references in a Loan Document to Articles, Sections, Preliminary Statements, Exhibits and Schedules shall be construed to refer to Articles and Sections of, and Preliminary Statements, Exhibits and Schedules to, the Loan Document in which such references appear, (v) any reference to any law shall include all statutory and regulatory provisions consolidating, amending, replacing or interpreting such law and any reference to any law or regulation shall, unless otherwise specified, refer to such law or regulation as amended, modified or supplemented from time to time, and (vi) the words "asset" and "property" shall be construed to have the same meaning and effect and to refer to any and all tangible and intangible assets and properties, including cash, securities, accounts and contract rights.

(b) In the computation of periods of time from a specified date to a later specified date, the word "from" means "from and including;" the words "to" and "until" each mean "to but excluding;" and the word "through" means "to and including."

(c) Section headings herein and in the other Loan Documents are included for convenience of reference only and shall not affect the interpretation of this Agreement or any other Loan Document.

1.03 Accounting Terms

. (a) Generally. All accounting terms not specifically or completely defined herein shall be construed in conformity with, and all financial data (including financial ratios and other financial calculations) required to be submitted pursuant to this Agreement shall be prepared in conformity with, GAAP applied on a consistent basis, as in effect from time to time, applied in a manner consistent with that used in preparing the Audited Financial Statements, except as otherwise specifically prescribed herein. Notwithstanding the foregoing, for purposes of determining compliance with any covenant (including the computation of any financial covenant) contained herein, Indebtedness of the Borrower and its Restricted Subsidiaries shall be deemed to be carried at 100% of the outstanding principal amount thereof, and the effects of FASB ASC 825 and FASB ASC 470-20 on financial liabilities shall be disregarded.

(b) Changes in GAAP. If at any time any change in GAAP would affect the computation of any financial ratio or requirement set forth in any Loan Document, and either the Borrower or the Required Lenders shall so request, the Administrative Agent, the Lenders and the Borrower shall negotiate in good faith to amend such ratio or requirement to preserve the original intent thereof in light of such change in GAAP (subject to the approval of the Required Lenders); provided that, until so amended, (A) such ratio or requirement shall continue to be computed in accordance with GAAP prior to such change therein and (B) the Borrower shall provide to the Administrative Agent and the Lenders financial statements and other documents required under this Agreement or as reasonably requested hereunder setting forth a reconciliation between calculations of such ratio or requirement made before and after giving effect to such change in GAAP. Without limiting the foregoing, leases shall continue to be classified and accounted for on a basis consistent with that reflected in the Audited Financial Statements for all purposes of this Agreement, notwithstanding any change in GAAP relating thereto, unless the parties hereto shall enter into a mutually acceptable amendment addressing such changes, as provided for above.

(c) Pro forma Calculations. All pro forma computations required to be made hereunder giving effect to any Permitted Acquisition, Disposition, designation of any Subsidiary as an Unrestricted Subsidiary, or issuance, incurrence or assumption of Indebtedness shall be calculated after giving effect to such acquisition, Disposition, designation or issuance, incurrence or assumption of Indebtedness (and to any other such transaction consummated since the first day of the period for which such pro forma computation is being made and on or prior to the date of such computation) as if such transaction (and any other such transactions) had occurred on the first day of the applicable Test Period, and, to the extent applicable, the historical earnings and cash flows associated with the assets acquired or disposed of, any related incurrence or reduction of Indebtedness. If any Indebtedness bears a floating rate of interest and is being given pro forma effect, the interest on such Indebtedness shall be calculated as if the rate in effect on the date of determination had been the applicable rate for the entire period (taking into account any Swap Contract applicable to such Indebtedness).

1.04 Rounding

. Any financial ratios required to be maintained by the Borrower pursuant to this Agreement shall be calculated by dividing the appropriate component by the other component, carrying the result to one place more than the number of places by which such ratio is expressed herein and rounding the result up or down to the nearest number (with a rounding-up if there is no nearest number).

1.05 Times of Day; Rates

. Unless otherwise specified, all references herein to times of day shall be references to New York City time (daylight or standard, as applicable).

The Administrative Agent does not warrant, nor accept responsibility, nor shall the Administrative Agent have any liability with respect to the administration, submission or any other matter related to the rates in the definition of “Eurodollar Rate” or with respect to any comparable or successor rate thereto.

1.06 Letter of Credit Amounts

. Unless otherwise specified herein, the amount of a Letter of Credit at any time shall be deemed to be the stated amount of such Letter of Credit in effect at such time; provided, however, that with respect to any Letter of Credit that, by its terms or the terms of any Issuer Document related thereto, provides for one or more automatic increases in the stated amount thereof, the amount of such Letter of Credit shall be deemed to be the maximum stated amount of such Letter of Credit after giving effect to all such increases, whether or not such maximum stated amount is in effect at such time.

1.07 Currency Equivalents Generally

. Any amount specified in this Agreement (other than in Articles II, IX and X) or any of the other Loan Documents to be in Dollars shall also include the equivalent of such amount in any currency other than Dollars, such equivalent amount thereof in the applicable currency to be determined by the Administrative Agent at such time on the basis of the Spot Rate (as defined below) for the purchase of such currency with Dollars. For purposes of this Section 1.07, the “Spot Rate” for a currency means the rate determined by the Administrative Agent to be the rate quoted by the Person acting in such capacity as the spot rate for the purchase by

such Person of such currency with another currency through its principal foreign exchange trading office at approximately 11:00 a.m. on the date two Business Days prior to the date of such determination; provided that the Administrative Agent may obtain such spot rate from another financial institution designated by the Administrative Agent if the Person acting in such capacity does not have as of the date of determination a spot buying rate for any such currency.

1.08 Divisions

. For all purposes under the Loan Documents, in connection with any LLC Division or any comparable transaction under any similar law: (a) if any asset, right, obligation or liability of any Person becomes the asset, right, obligation or liability of a different Person, then it shall be deemed to have been transferred from the original Person to the subsequent Person, and (b) if any new Person comes into existence, such new Person shall be deemed to have been organized on the first date of its existence by the holders of its Equity Interests at such time.

ARTICLE II
THE COMMITMENTS AND CREDIT EXTENSIONS

2.01 The Loans

. Subject to the terms and conditions set forth herein, each Revolving Credit Lender severally agrees to make loans (each such loan, a "Revolving Credit Loan") to the Borrower in Dollars from time to time, on any Business Day during the Availability Period, in an aggregate amount not to exceed at any time outstanding the amount of such Lender's Commitment; provided, however, that after giving effect to any Borrowing, (i) the Total Outstandings shall not exceed the Aggregate Commitments at the time of such Borrowing, and (ii) the Revolving Credit Exposure of such Revolving Credit Lender shall not exceed such Revolving Credit Lender's Commitment. Within the limits of each Revolving Credit Lender's Commitment, and subject to the other terms and conditions hereof, the Borrower may borrow under this Section 2.01, prepay under Section 2.05, and reborrow under this Section 2.01. Revolving Credit Loans may be Base Rate Loans or Eurodollar Rate Loans, as further provided herein.

2.02 Borrowings, Conversions and Continuations of Loans

. (a) Each Borrowing, each conversion of Revolving Credit Loans from one Type to the other, and each continuation of Eurodollar Rate Loans shall be made upon the Borrower's irrevocable notice to the Administrative Agent, which may be given by (A) telephone, or (B) a Committed Loan Notice; provided that any telephone notice must be confirmed immediately by delivery to the Administrative Agent of a Committed Loan Notice. Each such Committed Loan Notice must be received by the Administrative Agent not later than 11:00 a.m. (i) three Business Days prior to the requested date of any Borrowing of, conversion to or continuation of Eurodollar Rate Loans or of any conversion of Eurodollar Rate Loans to Base Rate Loans, and (ii) on the requested date of any Borrowing of Base Rate Loans; provided, however, that if the Borrower wishes to request Eurodollar Rate Loans having an Interest Period other than one, two, three or six months in duration as provided in the definition of "Interest Period," the applicable notice must be received by the Administrative Agent not later than 11:00 a.m. four Business Days prior to the requested date of such Borrowing, conversion or continuation, whereupon the Administrative Agent shall give prompt notice to the Appropriate Lenders of such request and determine whether the requested Interest Period is acceptable to all of them. Not later than 11:00 a.m., three Business Days before the requested date of such Borrowing, conversion or continuation, the Administrative Agent shall notify the Borrower (which notice may be by telephone) whether or not the requested Interest Period has been consented to by all the Lenders. Each Borrowing of, conversion to or continuation of Eurodollar Rate Loans shall be in a principal amount of $1,000,000 or a whole multiple of $500,000 in excess thereof. Except as provided in Sections 2.03(c) and 2.04(c), each Borrowing of or conversion to Base Rate Loans shall be in a principal amount of $500,000 or a whole multiple of $100,000 in excess thereof. Each Committed Loan Notice shall specify (i) whether the Borrower is requesting a Borrowing, a conversion of Revolving Credit Loans from one Type to the other, or a continuation of Eurodollar Rate Loans, (ii) the requested date of the Borrowing, conversion or continuation, as the case may be (which shall be a Business Day), (iii) the principal amount of Loans to be borrowed, converted or continued, (iv) the Type of Loans to be borrowed or to which existing Revolving Credit Loans are to be converted, and (v) if applicable, the duration of the Interest Period with respect thereto. If the Borrower fails to specify a Type of Loan in a Committed Loan Notice or if the Borrower fails to give a timely notice requesting a conversion or continuation, then the applicable or Revolving Credit Loans shall be made as, or converted to, Base Rate Loans. Any such automatic conversion to Base Rate Loans shall be effective as of the last day of the Interest Period then in effect with respect to the applicable Eurodollar Rate Loans. If the Borrower requests a Borrowing of, conversion to, or continuation of Eurodollar Rate Loans in any such Committed Loan Notice, but fails to specify an Interest Period, it will be deemed to have specified an Interest Period of one month. Notwithstanding anything to the contrary herein, a Swing Line Loan may not be converted to a Eurodollar Rate Loan.

(b) Following receipt of a Committed Loan Notice, the Administrative Agent shall promptly notify each Lender of the amount of its Applicable Percentage of Revolving Credit Loans, and if no timely notice of a conversion or

continuation is provided by the Borrower, the Administrative Agent shall notify each Lender of the details of any automatic conversion to Base Rate Loans described in Section 2.02(a). Each Appropriate Lender shall make the amount of its Loan available to the Administrative Agent in immediately available funds at the Administrative Agent's Office not later than 1:00 p.m. on the Business Day specified in the applicable Committed Loan Notice. Upon satisfaction of the applicable conditions set forth in Section 4.02 (and, if such Borrowing is the initial Credit Extension, Section 4.01), the Administrative Agent shall make all funds so received available to the Borrower in like funds as received by the Administrative Agent either by (i) crediting the account of the Borrower on the books of Bank of America with the amount of such funds or (ii) wire transfer of such funds, in each case in accordance with instructions provided to (and reasonably acceptable to) the Administrative Agent by the Borrower; provided, however, that if, on the date a Committed Loan Notice with respect to a Borrowing is given by the Borrower, there are L/C Borrowings outstanding, then the proceeds of such Borrowing, first, shall be applied to the payment in full of any such L/C Borrowings, and second, shall be made available to the Borrower as provided above.

(c) Except as otherwise provided herein, a Eurodollar Rate Loan may be continued or converted only on the last day of an Interest Period for such Eurodollar Rate Loan. During the existence of a Default, no Loans may be requested as, converted to or continued as Eurodollar Rate Loans without the consent of the Required Lenders.

(d) The Administrative Agent shall promptly notify the Borrower and the Lenders of the interest rate applicable to any Interest Period for Eurodollar Rate Loans upon determination of such interest rate.

(e) After giving effect to all Borrowings, all conversions of Revolving Credit Loans from one Type to the other, and all continuations of Revolving Credit Loans as the same Type, there shall not be more than eight Interest Periods in effect in respect of the Revolving Credit Facility.

(f) Notwithstanding anything to the contrary in this Agreement, any Lender may exchange, continue or rollover all of the portion of its Loans in connection with any refinancing, extension, loan modification or similar transaction permitted by the terms of this Agreement, pursuant to a cashless settlement mechanism approved by the Borrower, the Administrative Agent, and such Lender.

2.03 Letters of Credit

. (a) The Letter of Credit Commitment. (1) Subject to the terms and conditions set forth herein, (A) the L/C Issuer agrees, in reliance upon the agreements of the Revolving Credit Lenders set forth in this Section 2.03, (1) from time to time on any Business Day during the period from the Closing Date until the Letter of Credit Expiration Date, to issue Letters of Credit for the account of the Borrower or its Restricted Subsidiaries, and to amend Letters of Credit previously issued by it, in accordance with Section 2.03(b), and (2) to honor drawings under the Letters of Credit; and (B) the Revolving Credit Lenders severally agree to participate in Letters of Credit issued for the account of the Borrower or its Restricted Subsidiaries and any drawings thereunder; provided that after giving effect to any L/C Credit Extension with respect to any Letter of Credit, (x) the Total Outstandings shall not exceed the Aggregate Commitments at the time of such L/C Credit Extension, (y) the Revolving Credit Exposure of such Revolving Credit Lender shall not exceed such Revolving Credit Lender's Commitment, and (z) the Outstanding Amount of the L/C Obligations shall not exceed the Letter of Credit Sublimit and the aggregate amount of L/C Obligations of the applicable L/C Issuer shall not exceed the Letter of Credit Sublimit of such L/C Issuer. Each request by the Borrower for the issuance or amendment of a Letter of Credit shall be deemed to be a representation by the Borrower that the L/C Credit Extension so requested complies with the conditions set forth in the proviso to the preceding sentence. Within the foregoing limits, and subject to the terms and conditions hereof, the Borrower's ability to obtain Letters of Credit shall be fully revolving, and accordingly the Borrower may, during the foregoing period, obtain Letters of Credit to replace Letters of Credit that have expired or that have been drawn upon and reimbursed.

(i) The L/C Issuer shall not issue any Letter of Credit if:

(A) the expiry date of the requested Letter of Credit would occur more than twelve months after the date of issuance, unless the Required Lenders have approved such expiry date; or

(B) the expiry date of the requested Letter of Credit would occur after the Letter of Credit Expiration Date, unless (x) all the Revolving Credit Lenders and the L/C Issuer have approved such expiry date or (y) such Letter of Credit is cash collateralized on terms and pursuant to arrangements satisfactory to the L/C Issuer.

(ii) The L/C Issuer shall not be under any obligation to issue any Letter of Credit if:

(A) any order, judgment or decree of any Governmental Authority or arbitrator shall by its terms purport to enjoin or restrain the L/C Issuer from issuing the Letter of Credit, or any Law applicable to the L/C Issuer or any request or directive (whether or not having the force of law) from any Governmental Authority with jurisdiction over the L/C Issuer shall prohibit, or request that the L/C Issuer refrain from, the issuance of letters of credit generally or the Letter of Credit in particular or shall impose upon the L/C Issuer with respect to the Letter of Credit any restriction, reserve or capital requirement (for which the L/C Issuer is not otherwise compensated hereunder) not in effect on the Closing Date, or shall impose upon the L/C Issuer any unreimbursed loss, cost or expense which was not applicable on the Closing Date and which the L/C Issuer in good faith deems material to it;

(B) the issuance of the Letter of Credit would violate one or more policies of the L/C Issuer applicable to letters of credit generally;

(C) except as otherwise agreed by the Administrative Agent and the L/C Issuer, the Letter of Credit is in an initial stated amount less than $100,000;

(D) the Letter of Credit is to be denominated in a currency other than Dollars;

(E) any Revolving Credit Lender is at that time a Defaulting Lender, unless the L/C Issuer has entered into arrangements, including the delivery of Cash Collateral, satisfactory to the L/C Issuer (in its sole discretion) with the Borrower or such Lender to eliminate the L/C Issuer's actual or potential Fronting Exposure (after giving effect to Section 2.15(a)(iv) with respect to the Defaulting Lender arising from either the Letter of Credit then proposed to be issued or that Letter of Credit and all other L/C Obligations as to which the L/C Issuer has actual or potential Fronting Exposure, as it may elect in its sole discretion; or

(F) the Letter of Credit contains any provisions for automatic reinstatement of the stated amount after any drawing thereunder.

(iii) The L/C Issuer shall not amend any Letter of Credit if the L/C Issuer would not be permitted at such time to issue the Letter of Credit in its amended form under the terms hereof.

(iv) The L/C Issuer shall be under no obligation to amend any Letter of Credit if (A) the L/C Issuer would have no obligation at such time to issue the Letter of Credit in its amended form under the terms hereof, or (B) the beneficiary of the Letter of Credit does not accept the proposed amendment to the Letter of Credit.

(v) The L/C Issuer shall act on behalf of the Revolving Credit Lenders with respect to any Letters of Credit issued by it and the documents associated therewith, and the L/C Issuer shall have all of the benefits and immunities (A) provided to the Administrative Agent in Article IX with respect to any acts taken or omissions suffered by the L/C Issuer in connection with Letters of Credit issued by it or proposed to be issued by it and Issuer Documents pertaining to such Letters of Credit as fully as if the term "Administrative Agent" as used in Article IX included the L/C Issuer with respect to such acts or omissions, and (B) as additionally provided herein with respect to the L/C Issuer.

(b) Procedures for Issuance and Amendment of Letters of Credit. (i) Each Letter of Credit shall be issued or amended, as the case may be, upon the request of the Borrower delivered to the L/C Issuer (with a copy to the Administrative Agent) in the form of a Letter of Credit Application, appropriately completed and signed by a Responsible Officer of the Borrower. Such Letter of Credit Application may be sent by facsimile, by United States mail, by overnight courier, by electronic transmission using the system provided by the L/C Issuer, by personal delivery or by any other means acceptable to the L/C Issuer. Such Letter of Credit Application must be received by the L/C Issuer and the Administrative Agent not later than 11:00 a.m. at least two Business Days (or such later date and time as the Administrative Agent and the L/C Issuer may agree in a particular instance in their sole discretion) prior to the proposed issuance date or date of amendment, as the case may be. In the case of a request for an initial issuance of a Letter of Credit, such Letter of Credit Application shall specify in form and detail satisfactory to the L/C Issuer: (A) the proposed issuance date of the requested Letter of Credit (which shall be a Business Day); (B) the amount thereof; (C) the expiry date thereof; (D) the name and address of the beneficiary thereof; (E) the documents to be presented by such beneficiary in case of any drawing thereunder; (F) the full text of any certificate to be presented by such beneficiary in case of any drawing thereunder; (G) the purpose and nature of the requested Letter of Credit; and (H) such other matters as the L/C Issuer may require. In the case of a request for an amendment of any outstanding Letter of Credit, such Letter of Credit Application shall specify in form and detail satisfactory to the L/C Issuer (1) the Letter of Credit to be amended; (2) the proposed date of amendment thereof (which shall be a Business Day); (3) the nature of the proposed amendment; and (4) such other matters as the L/C Issuer may require. Additionally, the Borrower shall furnish to the L/C Issuer and the Administrative Agent such other documents and information pertaining to such

requested Letter of Credit issuance or amendment, including any Issuer Documents, as the L/C Issuer or the Administrative Agent may require.

(ii) Promptly after receipt of any Letter of Credit Application, the L/C Issuer will confirm with the Administrative Agent (by telephone or in writing) that the Administrative Agent has received a copy of such Letter of Credit Application from the Borrower and, if not, the L/C Issuer will provide the Administrative Agent with a copy thereof. Unless the L/C Issuer has received written notice from any Revolving Credit Lender, the Administrative Agent or any Loan Party, at least one Business Day prior to the requested date of issuance or amendment of the applicable Letter of Credit, that one or more applicable conditions contained in Article IV shall not then be satisfied, then, subject to the terms and conditions hereof, the L/C Issuer shall, on the requested date, issue a Letter of Credit for the account of the Borrower (or the applicable Restricted Subsidiary) or enter into the applicable amendment, as the case may be, in each case in accordance with the L/C Issuer's usual and customary business practices. Immediately upon the issuance of each Letter of Credit, each Revolving Credit Lender shall be deemed to, and hereby irrevocably and unconditionally agrees to, purchase from the L/C Issuer a risk participation in such Letter of Credit in an amount equal to the product of such Revolving Credit Lender's Applicable Percentage times the amount of such Letter of Credit.

(iii) Promptly after its delivery of any Letter of Credit or any amendment to a Letter of Credit to an advising bank with respect thereto or to the beneficiary thereof, the L/C Issuer will also deliver to the Borrower and the Administrative Agent a true and complete copy of such Letter of Credit or amendment.

(c) Drawings and Reimbursements; Funding of Participations. (i) Upon receipt from the beneficiary of any Letter of Credit of any notice of a drawing under such Letter of Credit, the L/C Issuer shall notify the Borrower and the Administrative Agent thereof. Not later than 11:00 a.m. on the date of any payment by the L/C Issuer under a Letter of Credit (each such date, an "Honor Date"), the Borrower shall reimburse the L/C Issuer directly in an amount equal to the amount of such drawing. The applicable L/C Issuer shall notify the Administrative Agent of any failure by the Borrower to reimburse such L/C Issuer by such time pursuant to Section 2.03(m)(iv). Promptly upon receipt of such notice, the Administrative Agent shall notify each Revolving Credit Lender of the Honor Date, the amount of the unreimbursed drawing (the "Unreimbursed Amount"), and the amount of such Revolving Credit Lender's Applicable Percentage thereof. In such event, the Borrower shall be deemed to have requested a Borrowing of Base Rate Loans to be disbursed on the Honor Date in an amount equal to the Unreimbursed Amount, without regard to the minimum and multiples specified in Section 2.02 for the principal amount of Base Rate Loans, but subject to the amount of the unutilized portion of the Commitments and the conditions set forth in Section 4.02 (other than the delivery of a Committed Loan Notice). Any notice given by the L/C Issuer or the Administrative Agent pursuant to this Section 2.03(c)(i) may be given by telephone if immediately confirmed in writing; provided that the lack of such an immediate confirmation shall not affect the conclusiveness or binding effect of such notice.

(ii) Each Revolving Credit Lender shall upon any notice pursuant to Section 2.03(c)(i) make funds available (and the Administrative Agent may apply Cash Collateral provided for this purpose) for the account of the L/C Issuer at the Administrative Agent's Office in an amount equal to its Applicable Percentage of the Unreimbursed Amount not later than 1:00 p.m. on the Business Day specified in such notice by the Administrative Agent, whereupon, subject to the provisions of Section 2.03(c)(iii), each Revolving Credit Lender that so makes funds available shall be deemed to have made a Base Rate Loan to the Borrower in such amount. The Administrative Agent shall remit the funds so received to the L/C Issuer.

(iii) With respect to any Unreimbursed Amount that is not fully refinanced by a Borrowing of Base Rate Loans because the conditions set forth in Section 4.02 cannot be satisfied or for any other reason, the Borrower shall be deemed to have incurred from the L/C Issuer an L/C Borrowing in the amount of the Unreimbursed Amount that is not so refinanced, which L/C Borrowing shall be due and payable on demand (together with interest) and shall bear interest at the Default Rate. In such event, each Revolving Credit Lender's payment to the Administrative Agent for the account of the L/C Issuer pursuant to Section 2.03(c)(ii) shall be deemed payment in respect of its participation in such L/C Borrowing and shall constitute an L/C Advance from such Lender in satisfaction of its participation obligation under this Section 2.03.

(iv) Until each Revolving Credit Lender funds its Revolving Credit Loan or L/C Advance pursuant to this Section 2.03(c) to reimburse the L/C Issuer for any amount drawn under any Letter of Credit, interest in respect of such Lender's Applicable Percentage of such amount shall be solely for the account of the L/C Issuer.

(v) Each Revolving Credit Lender's obligation to make Revolving Credit Loans or L/C Advances to reimburse the L/C Issuer for amounts drawn under Letters of Credit, as contemplated by this Section

2.03(c), shall be absolute and unconditional and shall not be affected by any circumstance, including (A) any setoff, counterclaim, recoupment, defense or other right which such Lender may have against the L/C Issuer, the Borrower or any other Person for any reason whatsoever; (B) the occurrence or continuance of a Default, or (C) any other occurrence, event or condition, whether or not similar to any of the foregoing; provided, however, that each Revolving Credit Lender's obligation to make Revolving Credit Loans pursuant to this Section 2.03(c) is subject to the conditions set forth in Section 4.02 (other than delivery by the Borrower of a Committed Loan Notice). No such making of an L/C Advance shall relieve or otherwise impair the obligation of the Borrower to reimburse the L/C Issuer for the amount of any payment made by the L/C Issuer under any Letter of Credit, together with interest as provided herein.

(vi) If any Revolving Credit Lender fails to make available to the Administrative Agent for the account of the L/C Issuer any amount required to be paid by such Lender pursuant to the foregoing provisions of this Section 2.03(c) by the time specified in Section 2.03(c)(ii), then, without limiting the other provisions of this Agreement, the L/C Issuer shall be entitled to recover from such Lender (acting through the Administrative Agent), on demand, such amount with interest thereon for the period from the date such payment is required to the date on which such payment is immediately available to the L/C Issuer at a rate per annum equal to the greater of the Federal Funds Rate and a rate determined by the L/C Issuer in accordance with banking industry rules on interbank compensation, plus any administrative, processing or similar fees customarily charged by the L/C Issuer in connection with the foregoing. If such Lender pays such amount (with interest and fees as aforesaid), the amount so paid shall constitute such Lender's Revolving Credit Loan included in the relevant Revolving Credit Borrowing or L/C Advance in respect of the relevant L/C Borrowing, as the case may be. A certificate of the L/C Issuer submitted to any Revolving Credit Lender (through the Administrative Agent) with respect to any amounts owing under this Section 2.03(c)(vi) shall be conclusive absent manifest error.

(d) Repayment of Participations. (i) At any time after the L/C Issuer has made a payment under any Letter of Credit and has received from any Revolving Credit Lender such Lender's L/C Advance in respect of such payment in accordance with Section 2.03(c), if the Administrative Agent receives for the account of the L/C Issuer any payment in respect of the related Unreimbursed Amount or interest thereon (whether directly from the Borrower or otherwise, including proceeds of Cash Collateral applied thereto by the Administrative Agent), the Administrative Agent will distribute to such Lender its Applicable Percentage thereof in the same funds as those received by the Administrative Agent.

(ii) If any payment received by the Administrative Agent for the account of the L/C Issuer pursuant to Section 2.03(c)(i) is required to be returned under any of the circumstances described in Section 10.05 (including pursuant to any settlement entered into by the L/C Issuer in its discretion), each Revolving Credit Lender shall pay to the Administrative Agent for the account of the L/C Issuer its Applicable Percentage thereof on demand of the Administrative Agent, plus interest thereon from the date of such demand to the date such amount is returned by such Lender, at a rate per annum equal to the Federal Funds Rate from time to time in effect. The obligations of the Lenders under this clause shall survive the payment in full of the Obligations and the termination of this Agreement.

(e) Obligations Absolute. The obligation of the Borrower to reimburse the L/C Issuer for each drawing under each Letter of Credit and to repay each L/C Borrowing shall be absolute, unconditional and irrevocable, and shall be paid strictly in accordance with the terms of this Agreement under all circumstances, including the following:

(i) any lack of validity or enforceability of such Letter of Credit, this Agreement, or any other Loan Document;

(ii) the existence of any claim, counterclaim, setoff, defense or other right that the Borrower or any Restricted Subsidiary may have at any time against any beneficiary or any transferee of such Letter of Credit (or any Person for whom any such beneficiary or any such transferee may be acting), the L/C Issuer or any other Person, whether in connection with this Agreement, the transactions contemplated hereby or by such Letter of Credit or any agreement or instrument relating thereto, or any unrelated transaction;

(iii) any draft, demand, certificate or other document presented under such Letter of Credit proving to be forged, fraudulent, invalid or insufficient in any respect or any statement therein being untrue or inaccurate in any respect; or any loss or delay in the transmission or otherwise of any document required in order to make a drawing under such Letter of Credit;

(iv) waiver by the L/C Issuer of any requirement that exists for the L/C Issuer's protection and not the protection of the Borrower or any waiver by the L/C Issuer which does not in fact materially prejudice the Borrower;

(v) honor of a demand for payment presented electronically even if such Letter of Credit requires that demand be in the form of a draft;

(vi) any payment made by the L/C Issuer in respect of an otherwise complying item presented after the date specified as the expiration date of, or the date by which documents must be received under such Letter of Credit if presentation after such date is authorized by the UCC or the ISP, as applicable;

(vii) any payment by the L/C Issuer under such Letter of Credit against presentation of a draft or certificate that does not strictly comply with the terms of such Letter of Credit; or any payment made by the L/C Issuer under such Letter of Credit to any Person purporting to be a trustee in bankruptcy, debtor-in-possession, assignee for the benefit of creditors, liquidator, receiver or other representative of or successor to any beneficiary or any transferee of such Letter of Credit, including any arising in connection with any proceeding under any Debtor Relief Law; or

(viii) any other circumstance or happening whatsoever, whether or not similar to any of the foregoing, including any other circumstance that might otherwise constitute a defense available to, or a discharge of, the Borrower or any of its Restricted Subsidiaries.

The Borrower shall promptly examine a copy of each Letter of Credit and each amendment thereto that is delivered to it and, in the event of any claim of noncompliance with the Borrower's instructions or other irregularity, the Borrower will immediately notify the L/C Issuer. The Borrower shall be conclusively deemed to have waived any such claim against the L/C Issuer and its correspondents unless such notice is given as aforesaid.

(f) Role of L/C Issuer. Each Lender and the Borrower agree that, in paying any drawing under a Letter of Credit, the L/C Issuer shall not have any responsibility to obtain any document (other than any sight draft, certificates and documents expressly required by the Letter of Credit) or to ascertain or inquire as to the validity or accuracy of any such document or the authority of the Person executing or delivering any such document. None of the L/C Issuer, the Administrative Agent, any of their respective Related Parties nor any correspondent, participant or assignee of the L/C Issuer shall be liable to any Lender for (i) any action taken or omitted in connection herewith at the request or with the approval of the Revolving Credit Lenders or the Required Lenders, as applicable; (ii) any action taken or omitted in the absence of gross negligence or willful misconduct; or (iii) the due execution, effectiveness, validity or enforceability of any document or instrument related to any Letter of Credit or Issuer Document. The Borrower hereby assumes all risks of the acts or omissions of any beneficiary or transferee with respect to its use of any Letter of Credit; provided, however, that this assumption is not intended to, and shall not, preclude the Borrower's pursuing such rights and remedies as it may have against the beneficiary or transferee at law or under any other agreement. None of the L/C Issuer, the Administrative Agent, any of their respective Related Parties nor any correspondent, participant or assignee of the L/C Issuer shall be liable or responsible for any of the matters described in clauses (i) through (v) of Section 2.03(e); provided, however, that anything in such clauses to the contrary notwithstanding, the Borrower may have a claim against the L/C Issuer, and the L/C Issuer may be liable to the Borrower, to the extent, but only to the extent, of any direct, as opposed to consequential or exemplary, damages suffered by the Borrower which the Borrower proves were caused by the L/C Issuer's willful misconduct or gross negligence or the L/C Issuer's willful failure to pay under any Letter of Credit after the presentation to it by the beneficiary of a sight draft and certificate(s) strictly complying with the terms and conditions of a Letter of Credit. In furtherance and not in limitation of the foregoing, the L/C Issuer may accept documents that appear on their face to be in order, without responsibility for further investigation, regardless of any notice or information to the contrary, and the L/C Issuer shall not be responsible for the validity or sufficiency of any instrument transferring or assigning or purporting to transfer or assign a Letter of Credit or the rights or benefits thereunder or proceeds thereof, in whole or in part, which may prove to be invalid or ineffective for any reason. The L/C Issuer may send a Letter of Credit or conduct any communication to or from the beneficiary via the Society for Worldwide Interbank Financial Telecommunication ("SWIFT") message or overnight courier, or any other commercially reasonable means of communicating with a beneficiary.

(g) Applicability of ISP. Unless otherwise expressly agreed by the L/C Issuer and the Borrower when a Letter of Credit is issued the rules of the ISP shall apply. Notwithstanding the foregoing, the L/C Issuer shall not be responsible to the Borrower for, and the L/C Issuer's rights and remedies against the Borrower shall not be impaired by, any action or inaction of the L/C Issuer required or permitted under any law, order, or practice that is required or permitted to be applied to any Letter of Credit or this Agreement, including the Law or any order of a jurisdiction where the L/C Issuer or the beneficiary is located, the practice stated in the ISP, or in the decisions, opinions, practice

statements, or official commentary of the ICC Banking Commission, the Bankers Association for Finance and Trade – International Financial Services Association (BAFT-IFSA), or the Institute of International Banking Law & Practice, whether or not any Letter of Credit chooses such law or practice.

(h) Letter of Credit Fees. The Borrower shall pay to the Administrative Agent for the account of each Revolving Credit Lender in accordance with its Applicable Percentage a Letter of Credit fee (the "Letter of Credit Fee") for each Letter of Credit equal to the Applicable Rate times the daily amount available to be drawn under such Letter of Credit. For purposes of computing the daily amount available to be drawn under any Letter of Credit, the amount of such Letter of Credit shall be determined in accordance with Section 1.06. Letter of Credit Fees shall be (i) due and payable on the first Business Day after the end of each March, June, September and December, commencing with the first such date to occur after the issuance of such Letter of Credit, on the Letter of Credit Expiration Date and thereafter on demand and (ii) computed on a quarterly basis in arrears. If there is any change in the Applicable Rate during any quarter, the daily amount available to be drawn under each Letter of Credit shall be computed and multiplied by the Applicable Rate separately for each period during such quarter that such Applicable Rate was in effect. Notwithstanding anything to the contrary contained herein, upon the request of the Required Lenders, while any Event of Default exists, all Letter of Credit Fees shall accrue at the Default Rate.

(i) Fronting Fee and Documentary and Processing Charges Payable to L/C Issuer. The Borrower shall pay directly to the L/C Issuer for its own account a fronting fee at the rate per annum equal to 0.125%, computed on the daily amount available to be drawn under such Letter of Credit on a quarterly basis in arrears. Such fronting fee shall be due and payable on the tenth Business Day after the end of each March, June, September and December in respect of the most recently-ended quarterly period (or portion thereof, in the case of the first payment), commencing with the first such date to occur after the issuance of such Letter of Credit, on the Letter of Credit Expiration Date and thereafter on demand. For purposes of computing the daily amount available to be drawn under any Letter of Credit, the amount of such Letter of Credit shall be determined in accordance with Section 1.06. In addition, the Borrower shall pay directly to the L/C Issuer for its own account the customary issuance, presentation, amendment and other processing fees, and other standard costs and charges, of the L/C Issuer relating to letters of credit as from time to time in effect. Such customary fees and standard costs and charges are due and payable on demand and are nonrefundable.

(j) Conflict with Issuer Documents. In the event of any conflict between the terms hereof and the terms of any Issuer Document, the terms hereof shall control.

(k) Letters of Credit Issued for Restricted Subsidiaries. Notwithstanding that a Letter of Credit issued or outstanding hereunder is in support of any obligations of, or is for the account of, a Restricted Subsidiary, the Borrower shall be obligated to reimburse the L/C Issuer hereunder for any and all drawings under such Letter of Credit. The Borrower hereby acknowledges that the issuance of Letters of Credit for the account of Restricted Subsidiaries inures to the benefit of the Borrower, and that the Borrower's business derives substantial benefits from the businesses of such Restricted Subsidiaries.

(l) Designation of Additional L/C Issuers. The Borrower may, at any time and from time to time, with the consent of the Administrative Agent (not to be unreasonably withheld), designate as additional L/C Issuers one or more Revolving Credit Lenders that agree to serve in such capacity as provided below. The acceptance by a Revolving Credit Lender of an appointment as an L/C Issuer hereunder shall be evidenced by an agreement, which shall be in form and substance reasonably satisfactory to the Administrative Agent and the Borrower, executed by the Borrower, the Administrative Agent and such designated Revolving Credit Lender and, from and after the effective date of such agreement, (i) such Revolving Credit Lender shall have all the rights and obligations of an L/C Issuer under this Agreement and (ii) references herein to the term "L/C Issuer" shall be deemed to include such Revolving Credit Lender in its capacity as an issuer of Letters of Credit hereunder.

(m) L/C Issuer Reports to the Administrative Agent. Unless otherwise agreed by the Administrative Agent, each L/C Issuer shall, in addition to its notification obligations set forth elsewhere in this Section, report in writing to the Administrative Agent (i) periodic activity (for such period or recurrent periods as shall be reasonably requested by the Administrative Agent) in respect of Letters of Credit issued by such L/C Issuer, including all issuances, extensions, amendments and renewals, all expirations and cancellations and all disbursements and reimbursements, (ii) within five Business Days following the time that such L/C Issuer issues, amends, renews or extends any Letter of Credit, the date of such issuance, amendment, renewal or extension, and the face amount of the Letters of Credit issued, amended, renewed or extended by it and outstanding after giving effect to such issuance, amendment, renewal or extension (and whether the amounts thereof shall have changed), (iii) on each Business Day on which such L/C Issuer makes any L/C Credit Extension, the date and amount of such L/C Credit Extension, (iv) on any Business Day on which the Borrower fails to reimburse an L/C Credit Extension required to be reimbursed to such L/C Issuer on such

day, the date of such failure and amount of such L/C Credit Extension and (v) on any other Business Day, such other information as the Administrative Agent shall reasonably request as to the Letters of Credit issued by such L/C Issuer.

2.04 Swing Line Loans

. (a) The Swing Line. Subject to the terms and conditions set forth herein, the Swing Line Lender, in reliance upon the agreements of the other Lenders set forth in this Section 2.04, may, in its sole discretion, make loans (each such loan, a "Swing Line Loan") to the Borrower from time to time on any Business Day during the Availability Period in an aggregate amount not to exceed at any time outstanding the amount of the Swing Line Sublimit, notwithstanding the fact that such Swing Line Loans, when aggregated with the Applicable Percentage of the Outstanding Amount of Revolving Credit Loans and L/C Obligations of the Lender acting as Swing Line Lender, may exceed the amount of such Lender's Commitment; provided, however, that after giving effect to any Swing Line Loan, (x)(i) the Total Outstandings shall not exceed the Aggregate Commitments at the time of such Swing Line Loan, and (ii) the Revolving Credit Exposure of such Revolving Credit Lender shall not exceed such Revolving Credit Lender's Commitment, (y) the Borrower shall not use the proceeds of any Swing Line Loan to refinance any outstanding Swing Line Loan, and (z) the Swing Line Lender shall not be under any obligation to make any Swing Line Loan if it shall determine (which determination shall be conclusive and binding absent manifest error) that it has, or by such Credit Extension may have, Fronting Exposure. Within the foregoing limits, and subject to the other terms and conditions hereof, the Borrower may borrow under this Section 2.04, prepay under Section 2.05, and reborrow under this Section 2.04. Each Swing Line Loan shall bear interest only at a rate based on the Base Rate. Immediately upon the making of a Swing Line Loan, each Revolving Credit Lender shall be deemed to, and hereby irrevocably and unconditionally agrees to, purchase from the Swing Line Lender a risk participation in such Swing Line Loan in an amount equal to the product of such Revolving Credit Lender's Applicable Percentage times the amount of such Swing Line Loan.

(b) Borrowing Procedures. Each Swing Line Borrowing shall be made upon the Borrower's irrevocable notice to the Swing Line Lender and the Administrative Agent, which may be given by (A) telephone or (B) by a Swing Line Loan Notice; provided that any telephonic notice must be confirmed promptly by delivery to the Swing Line Lender and the Administrative Agent of a Swing Line Loan Notice. Each such notice must be received by the Swing Line Lender and the Administrative Agent not later than 1:00 p.m. on the requested borrowing date, and shall specify (i) the amount to be borrowed, which shall be a minimum of $100,000, and (ii) the requested borrowing date, which shall be a Business Day. Promptly after receipt by the Swing Line Lender of any Swing Line Loan Notice, the Swing Line Lender will confirm with the Administrative Agent (by telephone or in writing) that the Administrative Agent has also received such Swing Line Loan Notice and, if not, the Swing Line Lender will notify the Administrative Agent (by telephone or in writing) of the contents thereof. Unless the Swing Line Lender has received notice (by telephone or in writing) from the Administrative Agent (including at the request of any Revolving Credit Lender) prior to 2:00 p.m. on the date of the proposed Swing Line Borrowing (A) directing the Swing Line Lender not to make such Swing Line Loan as a result of the limitations set forth in the first proviso to the first sentence of Section 2.04(a), or (B) that one or more of the applicable conditions specified in Article IV is not then satisfied, then, subject to the terms and conditions hereof, the Swing Line Lender will, not later than 3:00 p.m. on the borrowing date specified in such Swing Line Loan Notice, make the amount of its Swing Line Loan available to the Borrower at its office by crediting the account of the Borrower on the books of the Swing Line Lender or by wiring the amount to the Borrower, in each case, in immediately available funds.

(c) Refinancing of Swing Line Loans. (i) The Swing Line Lender at any time in its sole and absolute discretion may request, on behalf of the Borrower (which hereby irrevocably authorizes the Swing Line Lender to so request on its behalf), that each Revolving Credit Lender make a Base Rate Loan in an amount equal to such Lender's Applicable Percentage of the amount of Swing Line Loans then outstanding. Such request shall be made in writing (which written request shall be deemed to be a Committed Loan Notice for purposes hereof) and in accordance with the requirements of Section 2.02, without regard to the minimum and multiples specified therein for the principal amount of Base Rate Loans, but subject to the unutilized portion of the Revolving Credit Facility and the conditions set forth in Section 4.02. The Swing Line Lender shall furnish the Borrower with a copy of the applicable Committed Loan Notice promptly after delivering such notice to the Administrative Agent. Each Revolving Credit Lender shall make an amount equal to its Applicable Percentage of the amount specified in such Committed Loan Notice available to the Administrative Agent in immediately available funds (and the Administrative Agent may apply Cash Collateral available with respect to the applicable Swing Line Loan) for the account of the Swing Line Lender at the Administrative Agent's Office not later than 1:00 p.m. on the day specified in such Committed Loan Notice, whereupon, subject to Section 2.04(c)(ii), each Revolving Credit Lender that so makes funds available shall be deemed to have made a Base Rate Loan to the Borrower in such amount. The Administrative Agent shall remit the funds so received to the Swing Line Lender.

(ii) If for any reason any Swing Line Loan cannot be refinanced by such a Revolving Credit Borrowing in accordance with Section 2.04(c)(i), the request for Base Rate Loans submitted by the Swing Line Lender as set forth herein shall be deemed to be a request by the Swing Line Lender that each of the Revolving Credit Lenders fund its risk participation in the relevant Swing Line Loan and each Revolving Credit Lender's

payment to the Administrative Agent for the account of the Swing Line Lender pursuant to Section 2.04(c)(i) shall be deemed payment in respect of such participation.

(iii) If any Revolving Credit Lender fails to make available to the Administrative Agent for the account of the Swing Line Lender any amount required to be paid by such Lender pursuant to the foregoing provisions of this Section 2.04(c) by the time specified in Section 2.04(c)(i), the Swing Line Lender shall be entitled to recover from such Lender (acting through the Administrative Agent), on demand, such amount with interest thereon for the period from the date such payment is required to the date on which such payment is immediately available to the Swing Line Lender at a rate per annum equal to the greater of the Federal Funds Rate and a rate determined by the Swing Line Lender in accordance with banking industry rules on interbank compensation, plus any administrative, processing or similar fees customarily charged by the Swing Line Lender in connection with the foregoing. If such Lender pays such amount (with interest and fees as aforesaid), the amount so paid shall constitute such Lender's Revolving Credit Loan included in the relevant Revolving Credit Borrowing or funded participation in the relevant Swing Line Loan, as the case may be. A certificate of the Swing Line Lender submitted to any Lender (through the Administrative Agent) with respect to any amounts owing under this clause (iii) shall be conclusive absent manifest error.

(iv) Each Revolving Credit Lender's obligation to make Revolving Credit Loans or to purchase and fund risk participations in Swing Line Loans pursuant to this Section 2.04(c) shall be absolute and unconditional and shall not be affected by any circumstance, including (A) any setoff, counterclaim, recoupment, defense or other right which such Lender may have against the Swing Line Lender, the Borrower or any other Person for any reason whatsoever, (B) the occurrence or continuance of a Default, or (C) any other occurrence, event or condition, whether or not similar to any of the foregoing; provided, however, that each Revolving Credit Lender's obligation to make Revolving Credit Loans pursuant to this Section 2.04(c) is subject to the conditions set forth in Section 4.02. No such funding of risk participations shall relieve or otherwise impair the obligation of the Borrower to repay Swing Line Loans, together with interest as provided herein.

(d) Repayment of Participations. (i) At any time after any Revolving Credit Lender has purchased and funded a risk participation in a Swing Line Loan, if the Swing Line Lender receives any payment on account of such Swing Line Loan, the Swing Line Lender will distribute to such Revolving Credit Lender its Applicable Percentage thereof in the same funds as those received by the Swing Line Lender.

(ii) If any payment received by the Swing Line Lender in respect of principal or interest on any Swing Line Loan is required to be returned by the Swing Line Lender under any of the circumstances described in Section 10.05 (including pursuant to any settlement entered into by the Swing Line Lender in its discretion), each Revolving Credit Lender shall pay to the Swing Line Lender its Applicable Percentage thereof on demand of the Administrative Agent, plus interest thereon from the date of such demand to the date such amount is returned, at a rate per annum equal to the Federal Funds Rate. The Administrative Agent will make such demand upon the request of the Swing Line Lender. The obligations of the Lenders under this clause shall survive the payment in full of the Obligations and the termination of this Agreement.

(e) Interest for Account of Swing Line Lender. The Swing Line Lender shall be responsible for invoicing the Borrower for interest on the Swing Line Loans. Until each Revolving Credit Lender funds its Base Rate Loan or risk participation pursuant to this Section 2.04 to refinance such Revolving Credit Lender's Applicable Percentage of any Swing Line Loan, interest in respect of such Applicable Percentage shall be solely for the account of the Swing Line Lender.

(f) Payments Directly to Swing Line Lender. The Borrower shall make all payments of principal and interest in respect of the Swing Line Loans directly to the Swing Line Lender.

2.05 Prepayments

. (a) Optional. (i) Subject to the last sentence of this Section 2.05(a)(i), the Borrower may, upon notice to the Administrative Agent, at any time or from time to time voluntarily prepay Revolving Credit Loans in whole or in part without premium or penalty; provided that (A) such notice must be in a form acceptable to the Administrative Agent and be received by the Administrative Agent not later than 11:00 a.m. (1) three Business Days prior to any date of prepayment of Eurodollar Rate Loans and (2) on the date of prepayment of Base Rate Loans; (B) any prepayment of Eurodollar Rate Loans shall be in a principal amount of $1,000,000 or a whole multiple of $500,000 in excess thereof; and (C) any prepayment of Base Rate Loans shall be in a principal amount of $500,000 or a whole multiple of $100,000 in excess thereof or, in each case, if less, the entire principal amount thereof then outstanding. Each such notice shall specify the date and amount of such prepayment and the Type(s) of Loans to be prepaid and, if Eurodollar Rate Loans are to be prepaid, the Interest Period(s) of such Loans. The Administrative Agent will promptly

notify each Lender of its receipt of each such notice, and of the amount of such Lender's ratable portion of such prepayment (based on such Lender's Applicable Percentage). If such notice is given by the Borrower, the Borrower shall make such prepayment and the payment amount specified in such notice shall be due and payable on the date specified therein; provided that such notice may be conditioned upon the occurrence of certain events specified therein. Any prepayment of a Eurodollar Rate Loan shall be accompanied by all accrued interest on the amount prepaid, together with any additional amounts required pursuant to Section 3.05.

(ii) The Borrower may, upon notice to the Swing Line Lender (with a copy to the Administrative Agent), at any time or from time to time, voluntarily prepay Swing Line Loans in whole or in part without premium or penalty; provided that (A) such notice must be received by the Swing Line Lender and the Administrative Agent not later than 1:00 p.m. on the date of the prepayment, and (B) any such prepayment shall be in a minimum principal amount of $100,000. Each such notice shall specify the date and amount of such prepayment. If such notice is given by the Borrower, the Borrower shall make such prepayment and the payment amount specified in such notice shall be due and payable on the date specified therein; provided further that such notice may be conditioned upon the occurrence of certain events specified therein.

(b) Mandatory.

(i) If for any reason the Total Outstandings at any time exceed the Aggregate Commitments at such time, the Borrower shall immediately prepay Revolving Credit Loans, Swing Line Loans and L/C Borrowings and/or Cash Collateralize the L/C Obligations (other than the L/C Borrowings) in an aggregate amount equal to such excess.

(ii) Prepayments of the Revolving Credit Facility made pursuant to this Section 2.05(b), first, shall be applied ratably to the L/C Borrowings and the Swing Line Loans, second, shall be applied ratably to the outstanding Revolving Credit Loans, and, third, shall be used to Cash Collateralize the remaining L/C Obligations. Upon the drawing of any Letter of Credit that has been Cash Collateralized, the funds held as Cash Collateral shall be applied (without any further action by or notice to or from the Borrower or any other Loan Party) to reimburse the L/C Issuer or the Revolving Credit Lenders, as applicable.

2.06 Termination or Reduction of Commitments

. (a) Optional. The Borrower may, upon notice to the Administrative Agent, terminate the Revolving Credit Facility, the Letter of Credit Sublimit or the Swing Line Sublimit, or from time to time permanently reduce the Revolving Credit Facility, the Letter of Credit Sublimit or the Swing Line Sublimit; provided that (i) any such notice shall be received by the Administrative Agent not later than 11:00 a.m. five Business Days prior to the date of termination or reduction, (ii) any such partial reduction shall be in an aggregate amount of $10,000,000 or any whole multiple of $1,000,000 in excess thereof and (iii) the Borrower shall not terminate or reduce (A) the Revolving Credit Facility if, after giving effect thereto and to any concurrent prepayments hereunder, the Total Outstandings would exceed Aggregate Commitments, (B) the Letter of Credit Sublimit if, after giving effect thereto, the Outstanding Amount of L/C Obligations not fully Cash Collateralized hereunder would exceed the Letter of Credit Sublimit, or (C) the Swing Line Sublimit if, after giving effect thereto and to any concurrent prepayments hereunder, the Outstanding Amount of Swing Line Loans would exceed the Swing Line Sublimit. Such notice may be conditioned upon the occurrence of certain events specified therein.

(b) Mandatory. If after giving effect to any reduction or termination of Commitments under this Section 2.06, the Letter of Credit Sublimit or the Swing Line Sublimit exceeds the Revolving Credit Facility at such time, the Letter of Credit Sublimit or the Swing Line Sublimit, as the case may be, shall be automatically reduced by the amount of such excess.

(c) Application of Commitment Reductions; Payment of Fees. The Administrative Agent will promptly notify the Lenders of any termination or reduction of the Letter of Credit Sublimit, Swing Line Sublimit or the Commitment under this Section 2.06. Upon any reduction of the Commitments, the Commitment of each Revolving Credit Lender shall be reduced by such Lender's Applicable Percentage of such reduction amount. All fees in respect of the Revolving Credit Facility accrued until the effective date of any termination of the Revolving Credit Facility shall be paid on the effective date of such termination.

2.07 Repayment of Loans

. (a) Revolving Credit Loans. The Borrower shall repay to the Revolving Credit Lenders on the Maturity Date for the Revolving Credit Facility the aggregate principal amount of all Revolving Credit Loans outstanding on such date.

(b) Swing Line Loans. The Borrower shall repay each Swing Line Loan on the earlier to occur of (i) the date ten Business Days after such Loan is made and (ii) the Maturity Date for the Revolving Credit Facility.

2.08 Interest

. (a) Subject to the provisions of Section 2.08(b), (i) each Eurodollar Rate Loan shall bear interest on the outstanding principal amount thereof for each Interest Period at a rate per annum equal to the Eurodollar Rate for such Interest Period plus the Applicable Rate; (ii) each Base Rate Loan shall bear interest on the outstanding principal amount thereof from the applicable borrowing date at a rate per annum equal to the Base Rate plus the Applicable Rate; and (iii) each Swing Line Loan shall bear interest on the outstanding principal amount thereof from the applicable borrowing date at a rate per annum equal to the Base Rate plus the Applicable Rate.

(b) (i)If any amount of principal of any Loan is not paid when due (without regard to any applicable grace periods), whether at stated maturity, by acceleration or otherwise, such amount shall thereafter bear interest at a fluctuating interest rate per annum at all times equal to the Default Rate to the fullest extent permitted by applicable Laws.

(ii) If any amount (other than principal of any Loan, but including overdue interest) payable by the Borrower under any Loan Document is not paid when due (without regard to any applicable grace periods), whether at stated maturity, by acceleration or otherwise, then upon the request of the Required Lenders such amount shall thereafter bear interest at a fluctuating interest rate per annum at all times equal to the Default Rate to the fullest extent permitted by applicable Laws.

(iii) Accrued and unpaid interest on past due amounts (including interest on past due interest) shall be due and payable upon demand.

(c) Interest on each Loan shall be due and payable in arrears on each Interest Payment Date applicable thereto and at such other times as may be specified herein. Interest hereunder shall be due and payable in accordance with the terms hereof before and after judgment, and before and after the commencement of any proceeding under any Debtor Relief Law.

2.09 Fees

. In addition to certain fees described in Sections 2.03(i) and (j):

(a) Commitment Fee. The Borrower shall pay to the Administrative Agent for the account of each Revolving Credit Lender in accordance with its Applicable Percentage, a commitment fee equal to the Applicable Fee Rate times the actual daily amount by which the Revolving Credit Facility exceeds the sum of (i) the Outstanding Amount of Revolving Credit Loans and (ii) the Outstanding Amount of L/C Obligations, subject to adjustment as provided in Section 2.15. For the avoidance of doubt, the Outstanding Amount of Swing Line Loans shall not be counted towards or considered usage of the Aggregate Commitments for purposes of determining the commitment fee. The commitment fee shall accrue at all times during the Availability Period, including at any time during which one or more of the conditions in Article IV is not met, and shall be due and payable quarterly in arrears on the last Business Day of each March, June, September and December, commencing with the first such date to occur after the Closing Date, and on the last day of the Availability Period. The commitment fee shall be calculated quarterly in arrears, and if there is any change in the Applicable Fee Rate during any quarter, the actual daily amount shall be computed and multiplied by the Applicable Fee Rate separately for each period during such quarter that such Applicable Fee Rate was in effect.

(b) Closing Fee. The Borrower agrees to pay on the Closing Date to the Administrative Agent for the account of each Lender party to this Agreement on the Closing Date, as fee compensation for such Lender's Commitment, a closing fee (the "Closing Fee") in an amount equal to 0.15% of such Lender's Commitment on the Closing Date. Such Closing Fee will be in all respects fully earned, due and payable on the Closing Date and non-refundable and non-creditable thereafter.

(c) Other Fees. The Borrower shall pay to the Administrative Agent, the Lead Arrangers and the Lenders such fees as shall have been separately agreed upon in writing in the amounts and at the times so specified. Such fees shall be fully earned when paid and shall not be refundable for any reason whatsoever.

2.10 Computation of Interest and Fees

. All computations of interest for Base Rate Loans (including Base Rate Loans determined by reference to the Eurodollar Rate) shall be made on the basis of a year of 365 or 366 days, as the case may be, and actual days elapsed. All other computations of fees and interest shall be made on the basis of a 360-day year and actual days elapsed (which results in more fees or interest, as applicable, being paid than if computed on the basis of a 365-day year). Interest shall accrue on each Loan for the day on which the Loan is made, and shall not accrue on a Loan, or any portion thereof, for the day on which the Loan or such portion is paid; provided that any Loan that is repaid on the same day on which it is made shall, subject to Section 2.12(a), bear interest for one day. Each determination by the Administrative Agent of an interest rate or fee hereunder shall be conclusive and binding for all purposes, absent manifest error.

2.11 Evidence of Debt

. (a) The Credit Extensions made by each Lender shall be evidenced by one or more accounts or records maintained by such Lender and by the Administrative Agent in the ordinary course of business. The accounts or records maintained by the Administrative Agent and each Lender shall be conclusive absent manifest error of the amount of the Credit Extensions made by the Lenders to the Borrower and the interest and payments thereon. Any failure to so record or any error in doing so shall not, however, limit or otherwise affect the obligation of the Borrower hereunder to pay any amount owing with respect to the Obligations. In the event of any conflict between the accounts and records maintained by any Lender and the accounts and records of the Administrative Agent in respect of such matters, the accounts and records of the Administrative Agent shall control in the absence of manifest error. Upon the request of any Lender made through the Administrative Agent, the Borrower shall execute and deliver to such Lender (through the Administrative Agent) a Note, which shall evidence such Lender's Loans in addition to such accounts or records. Each Lender may attach schedules to its Note and endorse thereon the date, Type (if applicable), amount and maturity of its Loans and payments with respect thereto.

(b) In addition to the accounts and records referred to in Section 2.11(a), each Lender and the Administrative Agent shall maintain in accordance with its usual practice accounts or records evidencing the purchases and sales by such Lender of participations in Letters of Credit and Swing Line Loans. In the event of any conflict between the accounts and records maintained by the Administrative Agent and the accounts and records of any Lender in respect of such matters, the accounts and records of the Administrative Agent shall control in the absence of manifest error.

2.12 Payments Generally; Administrative Agent's Clawback

. (a) General. All payments to be made by the Borrower shall be made free and clear of and without condition or deduction for any counterclaim, defense, recoupment or setoff. Except as otherwise expressly provided herein, all payments by the Borrower hereunder shall be made to the Administrative Agent, for the account of the respective Lenders to which such payment is owed, at the Administrative Agent's Office in Dollars and in immediately available funds not later than 2:00 p.m. on the date specified herein. The Administrative Agent will promptly distribute to each Lender its Applicable Percentage (or other applicable share as provided herein) of such payment in like funds as received by wire transfer to such Lender's Lending Office. All payments received by the Administrative Agent after 2:00 p.m. shall be deemed received on the next succeeding Business Day and any applicable interest or fee shall continue to accrue. If any payment to be made by the Borrower shall come due on a day other than a Business Day, payment shall be made on the next following Business Day, and such extension of time shall be reflected on computing interest or fees, as the case may be.

(b) Funding by Lenders; Presumption by Administrative Agent. Unless the Administrative Agent shall have received notice from a Lender prior to the proposed date of any Borrowing of Eurodollar Rate Loans (or, in the case of any Borrowing of Base Rate Loans, prior to 12:00 noon on the date of such Borrowing) that such Lender will not make available to the Administrative Agent such Lender's share of such Borrowing, the Administrative Agent may assume that such Lender has made such share available on such date in accordance with Section 2.02 (or, in the case of a Borrowing of Base Rate Loans, that such Lender has made such share available in accordance with and at the time required by Section 2.02) and may, in reliance upon such assumption, make available to the Borrower a corresponding amount. In such event, if a Lender has not in fact made its share of the applicable Borrowing available to the Administrative Agent, then the applicable Lender and the Borrower severally agree to pay to the Administrative Agent forthwith on demand such corresponding amount in immediately available funds with interest thereon, for each day from and including the date such amount is made available to the Borrower to but excluding the date of payment to the Administrative Agent, at (A) in the case of a payment to be made by such Lender, the greater of the Federal Funds Rate and a rate determined by the Administrative Agent in accordance with banking industry rules on interbank compensation, plus any administrative, processing or similar fees customarily charged by the Administrative Agent in connection with the foregoing, and (B) in the case of a payment to be made by the Borrower, the interest rate applicable to Base Rate Loans. If the Borrower and such Lender shall pay such interest to the Administrative Agent for the same or an overlapping period, the Administrative Agent shall promptly remit to the Borrower the amount of such interest paid by the Borrower for such period. If such Lender pays its share of the applicable Borrowing to the Administrative Agent, then the amount so paid shall constitute such Lender's Loan included in such Borrowing. Any payment by the Borrower shall be without prejudice to any claim the Borrower may have against a Lender that shall have failed to make such payment to the Administrative Agent.

(i) Payments by Borrower; Presumptions by Administrative Agent. Unless the Administrative Agent shall have received notice from the Borrower prior to the time at which any payment is due to the Administrative Agent for the account of the Lenders or the L/C Issuer hereunder that the Borrower will not make such payment, the Administrative Agent may assume that the Borrower has made such payment on such date in accordance herewith and may, in reliance upon such assumption, distribute to the Appropriate Lenders or the L/C Issuer, as the case may be, the amount due. In such event, if the Borrower has not in fact made such payment, then each of the Appropriate Lenders or the L/C Issuer, as the case may be, severally

agrees to repay to the Administrative Agent forthwith on demand the amount so distributed to such Lender or the L/C Issuer, in immediately available funds with interest thereon, for each day from and including the date such amount is distributed to it to but excluding the date of payment to the Administrative Agent, at the greater of the Federal Funds Rate and a rate determined by the Administrative Agent in accordance with banking industry rules on interbank compensation.

A notice of the Administrative Agent to any Lender or the Borrower with respect to any amount owing under this subsection (b) shall be conclusive, absent manifest error.

(c) Failure to Satisfy Conditions Precedent. If any Lender makes available to the Administrative Agent funds for any Loan to be made by such Lender as provided in the foregoing provisions of this Article II, and such funds are not made available to the Borrower by the Administrative Agent because the conditions to the applicable Credit Extension set forth in Article IV are not satisfied or waived in accordance with the terms hereof, the Administrative Agent shall return such funds (in like funds as received from such Lender) to such Lender, without interest.

(d) Obligations of Lenders Several. The obligations of the Lenders hereunder to make Revolving Credit Loans, to fund participations in Letters of Credit and Swing Line Loans and to make payments pursuant to Section 10.04(c) are several and not joint. The failure of any Lender to make any Loan, to fund any such participation or to make any payment under Section 10.04(c) on any date required hereunder shall not relieve any other Lender of its corresponding obligation to do so on such date, and no Lender shall be responsible for the failure of any other Lender to so make its Loan, to purchase its participation or to make its payment under Section 10.04(c).

(e) Funding Source. Nothing herein shall be deemed to obligate any Lender to obtain the funds for any Loan in any particular place or manner or to constitute a representation by any Lender that it has obtained or will obtain the funds for any Loan in any particular place or manner.

(f) Insufficient Funds. If at any time insufficient funds are received by and available to the Administrative Agent to pay fully all amounts of principal, L/C Borrowings, interest and fees then due hereunder, such funds shall be applied (i) first, toward payment of interest and fees then due hereunder, ratably among the parties entitled thereto in accordance with the amounts of interest and fees then due to such parties, and (ii) second, toward payment of principal and L/C Borrowings then due hereunder, ratably among the parties entitled thereto in accordance with the amounts of principal and L/C Borrowings then due to such parties.

2.13 Sharing of Payments by Lenders

. If any Lender shall, by exercising any right of setoff or counterclaim or otherwise, obtain payment in respect of (a) Obligations due and payable to such Lender hereunder and under the other Loan Documents at such time in excess of its ratable share (according to the proportion of (i) the amount of such Obligations due and payable to such Lender at such time to (ii) the aggregate amount of the Obligations due and payable to all Lenders hereunder and under the other Loan Documents at such time) of payments on account of the Obligations due and payable to all Lenders hereunder and under the other Loan Documents at such time obtained by all the Lenders at such time or (b) Obligations owing (but not due and payable) to such Lender hereunder and under the other Loan Documents at such time in excess of its ratable share (according to the proportion of (i) the amount of such Obligations owing (but not due and payable) to such Lender at such time to (ii) the aggregate amount of the Obligations owing (but not due and payable) to all Lenders hereunder and under the other Loan Parties at such time) of payment on account of the Obligations owing (but not due and payable) to all Lenders hereunder and under the other Loan Documents at such time obtained by all of the Lenders at such time then the Lender receiving such greater proportion shall (a) notify the Administrative Agent of such fact, and (b) purchase (for cash at face value) participations in the Loans and subparticipations in L/C Obligations and Swing Line Loans of the other Lenders, or make such other adjustments as shall be equitable, so that the benefit of all such payments shall be shared by the Lenders ratably in accordance with the aggregate amount of Obligations then due and payable to the Lenders or owing (but not due and payable) to the Lenders, as the case may be, provided that:

(i) if any such participations or subparticipations are purchased and all or any portion of the payment giving rise thereto is recovered, such participations or subparticipations shall be rescinded and the purchase price restored to the extent of such recovery, without interest; and

(ii) the provisions of this Section shall not be construed to apply to (x) any payment made by or on behalf of the Borrower pursuant to and in accordance with the express terms of this Agreement (including the application of funds arising from the existence of a Defaulting Lender), (y) the application of Cash Collateral provided for in Section 2.14, or (z) any payment obtained by a Lender as consideration for the assignment of or sale of a participation in any of its Loans or subparticipations in L/C Obligations or Swing Line Loans to any

assignee or participant, other than an assignment to the Borrower or any Affiliate thereof (as to which the provisions of this Section shall apply).

The Borrower consents to the foregoing and agrees, to the extent it may effectively do so under applicable law, that any Lender acquiring a participation pursuant to the foregoing arrangements may exercise against the Borrower rights of setoff and counterclaim with respect to such participation as fully as if such Lender were a direct creditor of the Borrower in the amount of such participation.

2.14 Cash Collateral

. (a) Certain Credit Support Events. If (i) the L/C Issuer has honored any full or partial drawing request under any Letter of Credit and such drawing has resulted in an L/C Borrowing, (ii) as of the Letter of Credit Expiration Date, any L/C Obligation for any reason remains outstanding, (iii) the Borrower shall be required to provide Cash Collateral pursuant to Section 8.02(c), or (iv) there shall exist a Defaulting Lender, the Borrower shall immediately (in the case of clause (iii) above) or within one Business Day (in all other cases), following any request by the Administrative Agent or the L/C Issuer, provide Cash Collateral in an amount not less than the applicable Minimum Collateral Amount (determined in the case of Cash Collateral provided pursuant to clause (iv) above, after giving effect to Section 2.15 (a)(iv) and any Cash Collateral provided by the Defaulting Lender). If at any time the Administrative Agent determines that any funds held as Cash Collateral are subject to any right or claim of any Person other than the Administrative Agent or that the total amount of such funds is less than the aggregate Outstanding Amount of all L/C Obligations, the Borrower will, forthwith upon demand by the Administrative Agent, pay to the Administrative Agent, as additional funds to be deposited as Cash Collateral, an amount equal to the excess of (x) such aggregate Outstanding Amount over (y) the total amount of funds, if any, then held as Cash Collateral that the Administrative Agent determines to be free and clear of any such right and claim. Upon the drawing of any Letter of Credit for which funds are on deposit as Cash Collateral, such funds shall be applied, to the extent permitted under applicable Laws, to reimburse the L/C Issuer.

(b) Grant of Security Interest. The Borrower, and to the extent provided by any Defaulting Lender, such Defaulting Lender, hereby grants to (and subjects to the control of) the Administrative Agent, for the benefit of the Administrative Agent, the L/C Issuer and the Lenders, and agrees to maintain, a first priority security interest in all such cash, deposit accounts and all balances therein, and all other property so provided as collateral pursuant hereto, and in all proceeds of the foregoing, all as security for the obligations to which such Cash Collateral may be applied pursuant to Section 2.14(c). If at any time the Administrative Agent determines that Cash Collateral is subject to any right or claim of any Person other than the Administrative Agent or the L/C Issuer as herein provided, or that the total amount of such Cash Collateral is less than the Minimum Collateral Amount, the Borrower will, promptly upon demand by the Administrative Agent, pay or provide to the Administrative Agent additional Cash Collateral in an amount sufficient to eliminate such deficiency. All Cash Collateral (other than credit support not constituting funds subject to deposit) shall be maintained in one or more blocked, non-interest bearing deposit accounts at Bank of America. The Borrower shall pay on demand therefor from time to time all customary account opening, activity and other administrative fees and charges in connection with the maintenance and disbursement of Cash Collateral.

(c) Application. Notwithstanding anything to the contrary contained in this Agreement, Cash Collateral provided under any of this Section 2.14 or Sections 2.04, 2.05, 2.06, 2.15 or 8.02 in respect of Letters of Credit or Swing Line Loans shall be held and applied to the satisfaction of the specific L/C Obligations, Swing Line Loans, obligations to fund participations therein (including, as to Cash Collateral provided by a Defaulting Lender, any interest accrued on such obligation) and other obligations for which the Cash Collateral was so provided, prior to any other application of such property as may be provided for herein.

(d) Release. Cash Collateral (or the appropriate portion thereof) provided to reduce Fronting Exposure or to secure other obligations shall be released promptly following (i) the elimination of the applicable Fronting Exposure or other obligations giving rise thereto (including by the termination of Defaulting Lender status of the applicable Lender (or, as appropriate, its assignee following compliance with Section 10.06(b)(vi))) or (ii) the determination by the Administrative Agent and the L/C Issuer that there exists excess Cash Collateral; provided, however, (x) any such release shall be without prejudice to, and any disbursement or other transfer of Cash Collateral shall be and remain subject to, any other Lien conferred under the Loan Documents and the other applicable provisions of the Loan Documents, and (y) the Person providing Cash Collateral and the L/C Issuer may agree that Cash Collateral shall not be released but instead held to support future anticipated Fronting Exposure or other obligations.

2.15 Defaulting Lenders

. (a) Adjustments. Notwithstanding anything to the contrary contained in this Agreement, if any Lender becomes a Defaulting Lender, then, until such time as that Lender is no longer a Defaulting Lender, to the extent permitted by applicable Law:

(i) Waivers and Amendments. Such Defaulting Lender's right to approve or disapprove any amendment, waiver or consent with respect to this Agreement shall be restricted as set forth in Section 10.01 and in the definition of "Required Lenders".

(ii) Defaulting Lender Waterfall. Any payment of principal, interest, fees or other amounts received by the Administrative Agent for the account of such Defaulting Lender (whether voluntary or mandatory, at maturity, pursuant to Article VIII or otherwise) or received by the Administrative Agent from a Defaulting Lender pursuant to Section 10.08 shall be applied at such time or times as may be determined by the Administrative Agent as follows: *first*, to the payment of any amounts owing by such Defaulting Lender to the Administrative Agent hereunder; *second*, to the payment on a pro rata basis of any amounts owing by such Defaulting Lender to the L/C Issuer or Swing Line Lender hereunder; *third*, to Cash Collateralize the L/C Issuer's Fronting Exposure with respect to such Defaulting Lender in accordance with Section 2.14; *fourth*, as the Borrower may request (so long as no Default or Event of Default exists), to the funding of any Loan in respect of which such Defaulting Lender has failed to fund its portion thereof as required by this Agreement, as deter-mined by the Administrative Agent; *fifth*, if so determined by the Administrative Agent and the Borrower, to be held in a deposit account and released pro rata in order to (x) satisfy such Defaulting Lender's potential future funding obligations with respect to Loans under this Agreement and (y) Cash Collateralize the L/C Issuer's future Fronting Exposure with respect to such Defaulting Lender with respect to future Letters of Credit issued under this Agreement, in accordance with Section 2.14; *sixth*, to the payment of any amounts owing to the Lenders, the L/C Issuer or Swing Line Lender as a result of any judgment of a court of competent jurisdiction obtained by any Lender, the L/C Issuer or the Swing Line Lender against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; *seventh*, so long as no Default or Event of Default exists, to the payment of any amounts owing to the Borrower as a result of any judgment of a court of competent jurisdiction obtained by the Borrower against such Defaulting Lender as a result of such Defaulting Lender's breach of its obligations under this Agreement; and *eighth*, to such Defaulting Lender or as otherwise directed by a court of competent jurisdiction; provided that if (x) such payment is a payment of the principal amount of any Loans or L/C Borrowings in respect of which such Defaulting Lender has not fully funded its appropriate share, and (y) such Loans were made or the related Letters of Credit were issued at a time when the conditions set forth in Section 4.02 were satisfied or waived, such payment shall be applied solely to pay the Loans of, and L/C Obligations owed to, all Non-Defaulting Lenders on a pro rata basis prior to being applied to the payment of any Loans of, or L/C Obligations owed to, such Defaulting Lender until such time as all Loans and funded and unfunded participations in L/C Obligations and Swing Line Loans are held by the Lenders pro rata in accordance with the Commitments hereunder without giving effect to Section 2.15(a)(iv). Any payments, prepayments or other amounts paid or payable to a Defaulting Lender that are applied (or held) to pay amounts owed by a Defaulting Lender or to post Cash Collateral pursuant to this Section 2.15(a)(ii) shall be deemed paid to and redirected by such Defaulting Lender, and each Lender irrevocably consents hereto.

(iii) Certain Fees.

(A) No Defaulting Lender shall be entitled to receive any fee payable under Section 2.09(a) for any period during which that Lender is a Defaulting Lender (and the Borrower shall not be required to pay any such fee that otherwise would have been required to have been paid to that Defaulting Lender).

(B) Each Defaulting Lender shall be entitled to receive Letter of Credit Fees for any period during which that Lender is a Defaulting Lender only to the extent allocable to its Applicable Percentage of the stated amount of Letters of Credit for which it has provided Cash Collateral pursuant to Section 2.14.

(C) With respect to any fee payable under Section 2.09(a) or any Letter of Credit Fee not required to be paid to any Defaulting Lender pursuant to clause (A) or (B) above, the Borrower shall (x) pay to each Non-Defaulting Lender that portion of any such fee otherwise payable to such Defaulting Lender with respect to such Defaulting Lender's participation in L/C Obligations or Swing Line Loans that has been reallocated to such Non-Defaulting Lender pursuant to clause (iv) below, (y) pay to the L/C Issuer and Swing Line Lender, as applicable, the amount of any such fee otherwise payable to such Defaulting Lender to the extent allocable to such L/C Issuer's or Swing Line Lender's Fronting Exposure to such Defaulting Lender, and (z) not be required to pay the remaining amount of any such fee.

(iv) Reallocation of Applicable Percentages to Reduce Fronting Exposure. All or any part of such Defaulting Lender's participation in L/C Obligations and Swing Line Loans shall be reallocated among the Non-Defaulting Lenders in accordance with their respective Applicable Percentages (calculated without regard to such Defaulting Lender's Commitment) but only to the extent that such reallocation does not cause the aggregate Revolving Credit Exposure of any Non-Defaulting Lender to exceed such Non-Defaulting Lender's Commitment. Subject to Section 10.19, no reallocation hereunder shall constitute a waiver or release of any claim of any party hereunder against a Defaulting Lender arising from that Lender having become a Defaulting Lender, including any claim of a Non-Defaulting Lender as a result of such Non-Defaulting Lender's increased exposure following such reallocation.

(v) Cash Collateral, Repayment of Swing Line Loans. If the reallocation described in clause (a)(iv) above cannot, or can only partially, be effected, the Borrower shall, without prejudice to any right or remedy available to it hereunder or under applicable Law, (x) first, prepay Swing Line Loans in an amount equal to the Swing Line Lenders' Fronting Exposure and (y) second, Cash Collateralize the L/C Issuer's Fronting Exposure in accordance with the procedures set forth in Section 2.14.

(b) Defaulting Lender Cure. If the Borrower, the Administrative Agent, Swing Line Lender and the L/C Issuer agree in writing that a Lender is no longer a Defaulting Lender, the Administrative Agent will so notify the parties hereto, whereupon as of the effective date specified in such notice and subject to any conditions set forth therein (which may include arrangements with respect to any Cash Collateral), that Lender will, to the extent applicable, purchase at par that portion of outstanding Loans of the other Lenders or take such other actions as the Administrative Agent may determine to be necessary to cause the Revolving Credit Loans and funded and unfunded participations in Letters of Credit and Swing Line Loans to be held on a pro rata basis by the Lenders in accordance with their Applicable Percentages (without giving effect to Section 2.15(a)(iv)), whereupon such Lender will cease to be a Defaulting Lender; provided that no adjustments will be made retroactively with respect to fees accrued or payments made by or on behalf of the Borrower while that Lender was a Defaulting Lender; and provided, further, that except to the extent otherwise expressly agreed by the affected parties, no change hereunder from Defaulting Lender to Lender will constitute a waiver or release of any claim of any party hereunder arising from that Lender's having been a Defaulting Lender.

ARTICLE III
TAXES, YIELD PROTECTION AND ILLEGALITY

3.01 Taxes

. (a) Payments Free of Taxes; Obligation to Withhold; Payments on Account of Taxes.

(i) Any and all payments by or on account of any obligation of any Loan Party under any Loan Document shall be made without deduction or withholding for any Taxes, except as required by applicable Laws.

(ii) If any applicable withholding agent shall be required by any applicable Laws to withhold or deduct any Taxes from any such payment, then (A) the applicable withholding agent, as required by such Laws, shall withhold or make such deductions as are determined by it to be required, (B) such withholding agent, to the extent required by such Laws, shall timely pay the full amount withheld or deducted to the relevant Governmental Authority in accordance with such Laws, and (C) to the extent that the withholding or deduction is made on account of Indemnified Taxes, the sum payable by the applicable Loan Party shall be increased as necessary so that after any required withholding or the making of all required deductions (including deductions applicable to additional sums payable under this Section 3.01) the applicable Lender (or, in the case of a payment received by the Administrative Agent for its own account, the Administrative Agent) receives an amount equal to the sum it would have received had no such withholding or deduction been made.

(b) Payment of Other Taxes by the Borrower. Without limiting the provisions of subsection (a) above, the Borrower shall timely pay to the relevant Governmental Authority in accordance with applicable law, or at the option of the Administrative Agent timely reimburse it for the payment of, any Other Taxes.

(c) Tax Indemnifications. The Borrower shall, and does hereby, indemnify each Recipient, and shall make payment in respect thereof within 10 days after demand therefor, for the full amount of any Indemnified Taxes (including Indemnified Taxes imposed or asserted on or attributable to amounts payable under this Section 3.01) payable or paid by such Recipient or required to be withheld or deducted from a payment to such Recipient, and any reasonable expenses arising therefrom or with respect thereto, whether or not such Indemnified Taxes were correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to the Borrower by a Lender (with a copy to the Administrative Agent), or by the Administrative Agent on its own behalf or on behalf of a Lender, shall be conclusive absent manifest error.

(d) Evidence of Payments. As soon as practicable after any payment of Taxes by any Loan Party or by the Administrative Agent to a Governmental Authority as provided in this Section 3.01, such Loan Party shall deliver to the Administrative Agent, or the Administrative Agent shall deliver to the Borrower, as the case may be, the original or a certified copy of a receipt issued by such Governmental Authority evidencing such payment, a copy of any return required by Laws to report such payment or other evidence of such payment reasonably satisfactory to the Borrower or the Administrative Agent, as the case may be.

(e) Status of Lenders; Tax Documentation.

(i) Any Lender that is entitled to an exemption from or reduction of withholding Tax with respect to payments made under any Loan Document shall deliver to the Borrower and the Administrative Agent, at the time or times reasonably requested by the Borrower or the Administrative Agent, such properly completed and executed documentation reasonably requested by the Borrower or the Administrative Agent as will permit such payments to be made without withholding or at a reduced rate of withholding. In addition, any Lender, if reasonably requested by the Borrower or the Administrative Agent, shall deliver such other documentation prescribed by applicable law or reasonably requested by the Borrower or the Administrative Agent as will enable the Borrower or the Administrative Agent to determine whether or not such Lender is subject to backup withholding or information reporting requirements. Notwithstanding anything to the contrary in the preceding two sentences, the completion, execution and submission of such documentation (other than such documentation set forth in Section 3.01(e)(ii)(A), (ii)(B) and (ii)(D) below) shall not be required if in the Lender's reasonable judgment such completion, execution or submission would subject such Lender to any material unreimbursed cost or expense or would materially prejudice the legal or commercial position of such Lender.

(ii) Without limiting the generality of the foregoing,

(A) any Lender that is a U.S. Person shall deliver to the Borrower and the Administrative Agent, on or prior to the date on which such Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), two executed copies of IRS Form W-9 certifying that such Lender is exempt from U.S. federal backup withholding tax;

(B) any Foreign Lender shall deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), whichever of the following is applicable:

(1) in the case of a Foreign Lender claiming the benefits of an income tax treaty to which the United States is a party, two executed copies of IRS Form W-8BEN-E (or W-8BEN, as applicable) establishing an exemption from, or reduction of, U.S. federal withholding Tax pursuant to such tax treaty;

(2) two executed copies of IRS Form W-8ECI;

(3) in the case of a Foreign Lender claiming the benefits of the exemption for portfolio interest under Section 881(c) of the Code, (x) a certificate substantially in the form of Exhibit G-1 to the effect that such Foreign Lender is not a "bank" within the meaning of Section 881(c)(3)(A) of the Code, a "10 percent shareholder" of the Borrower within the meaning of Section 881(c)(3)(B) of the Code, or a "controlled foreign corporation" described in Section 881(c)(3)(C) of the Code (a "U.S. Tax Compliance Certificate") and (y) two executed copies of IRS Form W-8BEN-E (or W-8BEN, as applicable); or

(4) to the extent a Foreign Lender is not the beneficial owner, two executed copies of IRS Form W-8IMY, accompanied by IRS Form W-8ECI, IRS Form W-8BEN-E (or W-8BEN, as applicable), a U.S. Tax Compliance Certificate substantially in the form of Exhibit G-2 or Exhibit G-3, IRS Form W-9, and/or other certification documents from each beneficial owner, as applicable; provided that if the Foreign Lender is a partnership and one or more direct or indirect partners of such Foreign Lender are claiming the portfolio interest exemption, such Foreign Lender may provide a U.S. Tax Compliance Certificate substantially in the form of Exhibit G-4 on behalf of each such direct and indirect partner;

(C) any Foreign Lender shall deliver to the Borrower and the Administrative Agent (in such number of copies as shall be requested by the recipient) on or prior to the date on which such Foreign Lender becomes a Lender under this Agreement (and from time to time thereafter upon the reasonable request of the Borrower or the Administrative Agent), executed copies of any other form prescribed by applicable law as a basis for claiming exemption from or a reduction in U.S. federal withholding Tax, duly completed, together with such supplementary documentation as may be prescribed by applicable law to permit the Borrower or the Administrative Agent to determine the withholding or deduction required to be made; and

(D) if a payment made to a Lender under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if such Lender were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), such Lender shall deliver to the Borrower and the Administrative Agent at the time or times prescribed by law and at such time or times reasonably requested by the Borrower or the Administrative Agent such documentation prescribed by applicable law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower or the Administrative Agent as may be necessary for the Borrower and the Administrative Agent to comply with their obligations under FATCA to determine whether such Lender has complied with such Lender's obligations under FATCA or to determine the amount, if any, to deduct and withhold from such payment. Solely for purposes of this clause (D), "FATCA" shall include any amendments made to FATCA after the date of this Agreement.

(iii) On or prior to the date the Administrative Agent becomes a party to this Agreement, the Administrative Agent shall, in the event that the Administrative Agent is a U.S. Person, deliver an IRS Form W-9 to the Borrower, and in the event the Administrative Agent is not a U.S. Person, deliver (a) with respect to amounts payable by the Administrative Agent for its own account, an IRS Form W-8ECI, (b) with respect to amounts payable to the Administrative Agent on behalf of a Lender, an IRS Form W-8IMY certifying that the Administrative Agent agrees to be treated as a "U.S. person" for purposes of U.S. federal withholding taxes and (c) if a payment made to the Administrative Agent under any Loan Document would be subject to U.S. federal withholding Tax imposed by FATCA if the Administrative Agent were to fail to comply with the applicable reporting requirements of FATCA (including those contained in Section 1471(b) or 1472(b) of the Code, as applicable), the Administrative Agent shall deliver to the Borrower such documentation prescribed by applicable Law (including as prescribed by Section 1471(b)(3)(C)(i) of the Code) and such additional documentation reasonably requested by the Borrower as may be necessary for the Borrower to comply with its obligations under FATCA, to determine whether the Administrative Agent has complied with the Administrative Agent's obligations under FATCA or to determine the amount, if any, to deduct and withhold from such payment (solely for purposes of this clause (iii) "FATCA" shall include any amendments made to FATCA after the date of this Agreement); provided that no Administrative Agent shall be required to provide any documentation pursuant to this clause (iii) that such Administrative Agent is not legally eligible to deliver as a result of a Change in Law after the date hereof.

(iv) The Administrative Agent and each Lender agrees that if any form or certification it previously delivered pursuant to this Section 3.01 expires or becomes obsolete or inaccurate in any respect, it shall update such form or certification or promptly notify the Borrower and the Administrative Agent, if applicable, in writing of its legal ineligibility to do so.

(v) Notwithstanding anything to the contrary in this Section 3.01(e), no Lender shall be required to deliver any documentation that it is not legally eligible to deliver.

(vi) Each Lender hereby authorizes the Administrative Agent to deliver to the Loan Parties and to any successor Administrative Agent any documentation provided by such Lender to the Administrative Agent pursuant to this Section 3.01(e).

(f) Treatment of Certain Refunds. Unless required by applicable Laws, at no time shall the Administrative Agent have any obligation to file for or otherwise pursue on behalf of a Lender or the L/C Issuer, or have any obligation to pay to any Lender or the L/C Issuer, any refund of Taxes withheld or deducted from funds paid for the account of such Lender or the L/C Issuer, as the case may be. If any Recipient determines, in its sole discretion exercised in good faith, that it has received a refund of any Taxes as to which it has been indemnified by the Borrower or with respect to which the Borrower has paid additional amounts pursuant to this Section 3.01, it shall pay to the Borrower an amount equal to such refund (but only to the extent of indemnity payments made, or additional amounts paid, by the Borrower under this Section 3.01 with respect to the Taxes giving rise to such refund), net of all out-of-

pocket expenses (including Taxes) incurred by such Recipient, and without interest (other than any interest paid by the relevant Governmental Authority with respect to such refund), provided that the Borrower, upon the request of the Recipient, agrees to repay the amount paid over to the Borrower (plus any penalties, interest or other charges imposed by the relevant Governmental Authority) to the Recipient in the event the Recipient is required to repay such refund to such Governmental Authority. Notwithstanding anything to the contrary in this subsection, in no event will the applicable Recipient be required to pay any amount to the Borrower pursuant to this subsection the payment of which would place the Recipient in a less favorable net after-Tax position than such Recipient would have been in if Tax subject to indemnification and giving rise to such refund had not been deducted, withheld or otherwise imposed and the indemnification payments or additional amounts with respect to such Tax had never been paid. This subsection shall not be construed to require any Recipient to make available its tax returns (or any other information relating to its Taxes that it deems confidential) to the Borrower or any other Person.

(g) Survival. Each party's obligations under this Section 3.01 shall survive the resignation or replacement of the Administrative Agent or any assignment of rights by, or the replacement of, a Lender or the L/C Issuer, the termination of the Commitments and the repayment, satisfaction or discharge of all other Obligations.

(h) For the avoidance of doubt, for purposes of this Section 3.01, the term "Lender" includes any L/C Issuer and any Swing Line Lender.

3.02 Illegality

. If any Lender determines that any Law has made it unlawful, or that any Governmental Authority has asserted that it is unlawful, for any Lender or its applicable Lending Office to perform any of its obligations hereunder or make, maintain or fund or charge interest with respect to any Credit Extension or to determine or charge interest rates based upon the Eurodollar Rate, or any Governmental Authority has imposed material restrictions on the authority of such Lender to purchase or sell, or to take deposits of, Dollars in the London interbank market, then, on notice thereof by such Lender to the Borrower through the Administrative Agent, (i) any obligation of such Lender to issue, make, maintain, fund or charge interest with respect to any such Credit Extension or continue Eurodollar Rate Loans or to convert Base Rate Loans to Eurodollar Rate Loans shall be suspended, and (ii) if such notice asserts the illegality of such Lender making or maintaining Base Rate Loans the interest rate on which is determined by reference to the Eurodollar Rate component of the Base Rate, the interest rate on which Base Rate Loans of such Lender shall, if necessary to avoid such illegality, be determined by the Administrative Agent without reference to the Eurodollar Rate component of the Base Rate, in each case until such Lender notifies the Administrative Agent and the Borrower that the circumstances giving rise to such determination no longer exist. Upon receipt of such notice, (x) the Borrower shall, upon demand from such Lender (with a copy to the Administrative Agent), prepay or, if applicable, convert all Eurodollar Rate Loans of such Lender to Base Rate Loans (the interest rate on which Base Rate Loans of such Lender shall, if necessary to avoid such illegality, be determined by the Administrative Agent without reference to the Eurodollar Rate component of the Base Rate), either on the last day of the Interest Period therefor, if such Lender may lawfully continue to maintain such Eurodollar Rate Loans to such day, or immediately, if such Lender may not lawfully continue to maintain such Eurodollar Rate Loans and (y) if such notice asserts the illegality of such Lender determining or charging interest rates based upon the Eurodollar Rate, the Administrative Agent shall during the period of such suspension compute the Base Rate applicable to such Lender without reference to the Eurodollar Rate component thereof until the Administrative Agent is advised in writing by such Lender that it is no longer illegal for such Lender to determine or charge interest rates based upon the Eurodollar Rate. Upon any such prepayment or conversion, the Borrower shall also pay accrued interest on the amount so prepaid or converted.

3.03 Inability to Determine Rates

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(a) If in connection with any request for a Eurodollar Rate Loan or a conversion to or continuation thereof, (1) the Administrative Agent determines that (i) Dollar deposits are not being offered to banks in the interbank Eurodollar market for the applicable amount and Interest Period of such Eurodollar Rate Loan, or (ii) adequate and reasonable means do not exist for determining the Eurodollar Rate for any requested Interest Period with respect to a proposed Eurodollar Rate Loan or in connection with an existing or proposed Base Rate Loan (in each case with respect to clause (a)(1)(i) above, "Impacted Loans"), or (2) the Administrative Agent or affected Lenders determine that for any reason the Eurodollar Rate for any requested Interest Period with respect to a proposed Eurodollar Rate Loan does not adequately and fairly reflect the cost to such Lenders of funding such Eurodollar Rate Loan, the Administrative Agent will promptly so notify the Borrower and each Lender. Thereafter, (x) the obligation of the Lenders to make or maintain Eurodollar Rate Loans shall be suspended (to the extent of the affected Eurodollar Rate Loans or Interest Periods) and (y) in the event of a determination described in the preceding sentence with respect to the Eurodollar Rate component of the Base Rate, the utilization of the Eurodollar Rate component in determining the Base Rate shall be suspended, in each case until the Administrative Agent upon the instruction of the affected Lenders revokes such notice. Upon receipt of such notice, the Borrower may revoke any pending request for a Borrowing of, conversion to or continuation of Eurodollar Rate Loans (to the extent of the affected Eurodollar Rate Loans or Interest Periods) or,

failing that, will be deemed to have converted such request into a request for a Revolving Credit Borrowing of Base Rate Loans in the amount specified therein.

Notwithstanding the foregoing, if the Administrative Agent has made the determination described in clause (a)(1)(i) of this Section, the Administrative Agent, in consultation with the Borrower and the affected Lenders, may establish an alternative interest rate for the Impacted Loans, in which case, such alternative rate of interest shall apply with respect to the Impacted Loans until (1) the Administrative Agent revokes the notice delivered with respect to the Impacted Loans under clause (a) of the first sentence of this Section, (2) the Administrative Agent or the affected Lenders notify the Administrative Agent and the Borrower that such alternative interest rate does not adequately and fairly reflect the cost to such Lenders of funding the Impacted Loans, or (3) any Lender determines that any Law has made it unlawful, or that any Governmental Authority has asserted that it is unlawful, for such Lender or its applicable Lending Office to make, maintain or fund Loans whose interest is determined by reference to such alternative rate of interest or to determine or charge interest rates based upon such rate or any Governmental Authority has imposed material restrictions on the authority of such Lender to do any of the foregoing and provides the Administrative Agent and the Borrower written notice thereof.

(b) Notwithstanding anything to the contrary in this Agreement or any other Loan Documents, if the Administrative Agent determines (which determination shall be conclusive absent manifest error), or the Borrower or Required Lenders notify the Administrative Agent (with, in the case of the Required Lenders, a copy to Borrower) that the Borrower or Required Lenders (as applicable) have determined, that:

(i) adequate and reasonable means do not exist for ascertaining LIBOR for any requested Interest Period, including, without limitation, because the LIBOR Screen Rate is not available or published on a current basis and such circumstances are unlikely to be temporary; or

(ii) the administrator of the LIBOR Screen Rate or a Governmental Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which LIBOR or the LIBOR Screen Rate shall no longer be made available, or used for determining the interest rate of loans (such specific date, the "Scheduled Unavailability Date"), or

(iii) syndicated loans currently being executed, or that include language similar to that contained in this Section, are being executed or amended (as applicable) to incorporate or adopt a new benchmark interest rate to replace LIBOR,

then, reasonably promptly after such determination by the Administrative Agent or receipt by the Administrative Agent of such notice, as applicable, the Administrative Agent and the Borrower may amend this Agreement to replace LIBOR with an alternate benchmark rate (including any mathematical or other adjustments to the benchmark (if any) incorporated therein), giving due consideration to any evolving or then existing convention for similar U.S. dollar denominated syndicated credit facilities for such alternative benchmarks (any such proposed rate, a "LIBOR Successor Rate"), together with any proposed LIBOR Successor Rate Conforming Changes and any such amendment shall become effective at 5:00 p.m. (New York time) on the fifth Business Day after the Administrative Agent shall have posted such proposed amendment to all Lenders and the Borrower unless, prior to such time, Lenders comprising the Required Lenders have delivered to the Administrative Agent written notice that such Required Lenders do not accept such amendment.

If no LIBOR Successor Rate has been determined and the circumstances under clause (i) above exist or the Scheduled Unavailability Date has occurred (as applicable), the Administrative Agent will promptly so notify the Borrower and each Lender. Thereafter, (x) the obligation of the Lenders to make or maintain Eurodollar Rate Loans shall be suspended (to the extent of the affected Eurodollar Rate Loans or Interest Periods), and (y) the Eurodollar Rate component shall no longer be utilized in determining the Base Rate. Upon receipt of such notice, the Borrower may revoke any pending request for a Borrowing of, conversion to or continuation of Eurodollar Rate Loans (to the extent of the affected Eurodollar Rate Loans or Interest Periods) or, failing that, will be deemed to have converted such request into a request for a Borrowing of Base Rate Loans (subject to the foregoing clause (y)) in the amount specified therein.

Notwithstanding anything else herein, any definition of LIBOR Successor Rate shall provide that in no event shall such LIBOR Successor Rate be less than zero for purposes of this Agreement.

3.04 Increased Costs: Reserves on Eurodollar Rate Loans

. (a) Increased Costs Generally. If any Change in Law shall:

(i) impose, modify or deem applicable any reserve, special deposit, compulsory loan, insurance charge or similar requirement against assets of, deposits with or for the account of, or credit extended or participated in by, any Lender (except any reserve requirement contemplated by Section 3.04(e)) or the L/C Issuer;

(ii) subject any Recipient to any Taxes (other than (A) Indemnified Taxes, (B) Taxes described in clauses (b) through (d) of the definition of "Excluded Taxes" and (C) Connection Income Taxes) with respect to its loans, letters of credit, commitments, or other obligations, or its deposits, reserves, other liabilities or capital attributable thereto; or

(iii) impose on any Lender or the L/C Issuer or the London interbank market any other condition, cost or expense affecting this Agreement or Eurodollar Rate Loans made by such Lender or any Letter of Credit or participation therein;

and the result of any of the foregoing shall be to increase the cost to such Lender of making, converting to, continuing or maintaining any Loan (or, in the case of clause (ii) above, any Loan), or of maintaining its obligation to make any such Loan, or to increase the cost to such Lender or the L/C Issuer of participating in, issuing or maintaining any Letter of Credit (or of maintaining its obligation to participate in or to issue any Letter of Credit), or to reduce the amount of any sum received or receivable by such Lender or the L/C Issuer hereunder (whether of principal, interest or any other amount) then, upon request of such Lender or the L/C Issuer, the Borrower will pay to such Lender or the L/C Issuer, as the case may be, such additional amount or amounts as will compensate such Lender or the L/C Issuer, as the case may be, for such additional costs incurred or reduction suffered.

(b) Capital Requirements. If any Lender or the L/C Issuer determines that any Change in Law affecting such Lender or the L/C Issuer or any Lending Office of such Lender or such Lender's or the L/C Issuer's holding company, if any, regarding capital or liquidity requirements has or would have the effect of reducing the rate of return on such Lender's or the L/C Issuer's capital or on the capital of such Lender's or the L/C Issuer's holding company, if any, as a consequence of this Agreement, the Commitments of such Lender or the Loans made by, or participations in Letters of Credit or Swing Line Loans held by, such Lender, or the Letters of Credit issued by the L/C Issuer, to a level below that which such Lender or the L/C Issuer or such Lender's or the L/C Issuer's holding company could have achieved but for such Change in Law (taking into consideration such Lender's or the L/C Issuer's policies and the policies of such Lender's or the L/C Issuer's holding company with respect to capital adequacy), then from time to time the Borrower will pay to such Lender or the L/C Issuer, as the case may be, such additional amount or amounts as will compensate such Lender or the L/C Issuer or such Lender's or the L/C Issuer's holding company for any such reduction suffered.

(c) Certificates for Reimbursement. A certificate of a Lender or the L/C Issuer setting forth the amount or amounts necessary to compensate such Lender or the L/C Issuer or its holding company, as the case may be, as specified in subsection (a) or (b) of this Section and delivered to the Borrower shall be conclusive absent manifest error. The Borrower shall pay such Lender or the L/C Issuer, as the case may be, the amount shown as due on any such certificate within 10 days after receipt thereof.

(d) Delay in Requests. Failure or delay on the part of any Lender or the L/C Issuer to demand compensation pursuant to the foregoing provisions of this Section 3.04 shall not constitute a waiver of such Lender's or the L/C Issuer's right to demand such compensation, provided that the Borrower shall not be required to compensate a Lender or the L/C Issuer pursuant to the foregoing provisions of this Section for any increased costs incurred or reductions suffered more than nine months prior to the date that such Lender or the L/C Issuer, as the case may be, notifies the Borrower of the Change in Law giving rise to such increased costs or reductions and of such Lender's or the L/C Issuer's intention to claim compensation therefor (except that, if the Change in Law giving rise to such increased costs or reductions is retroactive, then the nine-month period referred to above shall be extended to include the period of retroactive effect thereof).

(e) Reserves on Eurodollar Rate Loans. The Borrower shall pay to each Lender, as long as such Lender shall be required to maintain reserves with respect to liabilities or assets consisting of or including Eurocurrency funds or deposits (currently known as "Eurocurrency liabilities"), additional interest on the unpaid principal amount of each Eurodollar Rate Loan equal to the actual costs of such reserves allocated to such Loan by such Lender (as determined by such Lender in good faith, which determination shall be conclusive), which shall be due and payable on each date on which interest is payable on such Loan, provided the Borrower shall have received at least 10 days' prior notice (with a copy to the Administrative Agent) of such additional interest from such Lender. If a Lender fails to give notice 10 days prior to the relevant Interest Payment Date, such additional interest shall be due and payable 10 days from receipt of such notice.

3.05 Compensation for Losses

. Upon demand of any Lender (with a copy to the Administrative Agent) from time to time, the Borrower shall promptly compensate such Lender for and hold such Lender harmless from any loss, cost or expense incurred by it as a result of:

(a) any continuation, conversion, payment or prepayment of any Loan other than a Base Rate Loan on a day other than the last day of the Interest Period for such Loan (whether voluntary, mandatory, automatic, by reason of acceleration, or otherwise);

(b) any failure by the Borrower (for a reason other than the failure of such Lender to make a Loan) to prepay, borrow, continue or convert any Loan other than a Base Rate Loan on the date or in the amount notified by the Borrower; or

(c) any assignment of a Eurodollar Rate Loan on a day other than the last day of the Interest Period therefor as a result of a request by the Borrower pursuant to Section 10.13;

including any loss of anticipated profits and any loss or expense arising from the liquidation or reemployment of funds obtained by it to maintain such Loan or from fees payable to terminate the deposits from which such funds were obtained. The Borrower shall also pay any customary administrative fees charged by such Lender in connection with the foregoing.

For purposes of calculating amounts payable by the Borrower to the Lenders under this Section 3.05, each Lender shall be deemed to have funded each Eurodollar Rate Loan made by it at the Eurodollar Rate for such Loan by a matching deposit or other borrowing in the London interbank eurodollar market for a comparable amount and for a comparable period, whether or not such Eurodollar Rate Loan was in fact so funded.

3.06 Mitigation Obligations; Replacement of Lenders

. (a) Designation of a Different Lending Office. Each Lender may make any Credit Extension to the Borrower through any Lending Office, provided that the exercise of this option shall not affect the obligation of the Borrower to repay the Credit Extension in accordance with the terms of this Agreement. If any Lender requests compensation under Section 3.04, or requires the Borrower to pay any Indemnified Taxes or additional amounts to any Lender, the L/C Issuer, or any Governmental Authority for the account of any Lender or the L/C Issuer pursuant to Section 3.01, or if any Lender gives a notice pursuant to Section 3.02, then at the request of the Borrower such Lender or the L/C Issuer shall, as applicable, use reasonable efforts to designate a different Lending Office for funding or booking its Loans hereunder or to assign its rights and obligations hereunder to another of its offices, branches or affiliates, if, in the judgment of such Lender or the L/C Issuer, such designation or assignment (i) would eliminate or reduce amounts payable pursuant to Section 3.01 or 3.04, as the case may be, in the future, or eliminate the need for the notice pursuant to Section 3.02, as applicable, and (ii) in each case, would not subject such Lender or the L/C Issuer, as the case may be, to any unreimbursed cost or expense and would not otherwise be disadvantageous to such Lender or the L/C Issuer, as the case may be. The Borrower hereby agrees to pay all reasonable costs and expenses incurred by any Lender or the L/C Issuer in connection with any such designation or assignment.

(b) Replacement of Lenders. If any Lender requests compensation under Section 3.04, or if the Borrower is required to pay any Indemnified Taxes or additional amounts to any Lender or any Governmental Authority for the account of any Lender pursuant to Section 3.01, and in each case, such Lender has declined or is unable to designate a different lending office in accordance with Section 3.06(a), the Borrower may replace such Lender in accordance with Section 10.13.

3.07 Survival

. All of the Borrower's obligations under this Article III shall survive termination of the Aggregate Commitments, repayment of all other Obligations hereunder, and resignation of the Administrative Agent.

ARTICLE IV
CONDITIONS PRECEDENT TO EFFECTIVENESS AND CREDIT EXTENSIONS

4.01 Conditions to Effectiveness

. The effectiveness of this Agreement and the obligations of the L/C Issuer and each Lender hereunder are subject to satisfaction of the following conditions precedent:

(a) The Administrative Agent's receipt of the following, each of which shall be originals or telecopies (followed promptly by originals) unless otherwise specified, each properly executed by a Responsible Officer of the signing Loan Party, each dated the Closing Date (or, in the case of certificates of governmental officials, a recent date

before the Closing Date) and each in form and substance satisfactory to the Administrative Agent and each of the Lenders:

(i) executed counterparts of this Agreement and the Guaranty, sufficient in number for distribution to the Administrative Agent, each Lender and the Borrower;

(ii) a Note executed by the Borrower in favor of each Lender requesting a Note;

(iii) such certificates of resolutions or other action, incumbency certificates and/or other certificates of Responsible Officers of each Loan Party as the Administrative Agent may require evidencing the identity, authority and capacity of each Responsible Officer thereof authorized to act as a Responsible Officer in connection with this Agreement and the other Loan Documents to which such Loan Party is a party or is to be a party;

(iv) such documents and certifications as the Administrative Agent may reasonably require to evidence that each Loan Party is duly organized or formed, and that each Loan Party is validly existing and in good standing in their respective jurisdictions of organization;

(v) a favorable opinion of Cooley LLP, counsel to the Borrower, addressed to the Administrative Agent and each Lender, in form and substance reasonably acceptable to the Administrative Agent;

(vi) [Reserved];

(vii) a certificate signed by a Responsible Officer of the Borrower certifying (A) that the conditions specified in Sections 4.02(a) and (b) have been satisfied and (B) that there has been no event or circumstance since the date of the Audited Financial Statements that has had or could be reasonably expected to have, either individually or in the aggregate, a Material Adverse Effect;

(viii) a certificate attesting to the Solvency of the Borrower and its Subsidiaries on a consolidated basis after giving effect to the Transaction, from its chief financial officer, substantially in the form of Exhibit H;

(ix) [Reserved];

(x) such other assurances, certificates, documents, consents or opinions as the Administrative Agent, the L/C Issuer, the Swing Line Lender or any Lender reasonably may require.

(b) (i) All fees required to be paid to the Administrative Agent and the Lead Arrangers on or before the Closing Date shall have been paid and (ii) all fees required to be paid to the Administrative Agent for the account of Lenders on or before the Closing Date shall have been paid.

(c) Unless waived by the Administrative Agent, the Borrower shall have paid all fees, charges and disbursements of counsel to the Administrative Agent (directly to such counsel if requested by the Administrative Agent) to the extent invoiced prior to or on the Closing Date, plus such additional amounts of such fees, charges and disbursements as shall constitute its reasonable estimate of such fees, charges and disbursements incurred or to be incurred by it through the closing proceedings (provided that such estimate shall not thereafter preclude a final settling of accounts between the Borrower and the Administrative Agent).

(d) (i) The Borrower and each of the Guarantors shall have provided to the Administrative Agent and the Lenders the documentation and other information requested by the Administrative Agent in order to comply with requirements of the Act and any applicable "know your customer" and anti-money-laundering rules and regulations at least 3 Business Days prior to the Closing Date to the extent requested in writing at least 10 days prior to the Closing Date.

(ii) At least three (3) Business Days prior to the Closing Date, the Borrower shall deliver, to each Lender that so requests to the extent requested in in writing at least 7 days prior to the Closing Date, a Beneficial Ownership Certification.

(e) Since the date of the balance sheet included in the Audited Financial Statements, there shall have not been any event or circumstance, either individually or in the aggregate, that has had or could reasonably be expected to have a Material Adverse Effect. Without limiting the generality of the provisions of the last paragraph of

Section 9.03, for purposes of determining compliance with the conditions specified in this Section 4.01, each Lender that has signed this Agreement shall be deemed to have consented to, approved or accepted or to be satisfied with, each document or other matter required thereunder to be consented to or approved by or acceptable or satisfactory to a Lender unless the Administrative Agent shall have received notice from such Lender prior to the proposed Closing Date specifying its objection thereto.

(f) The Closing Date Refinancing shall have been consummated on or prior to the Closing Date.

4.02 Conditions to All Credit Extensions

. The obligations of the L/C Issuer and each Lender to honor any Request for Credit Extension (other than a Committed Loan Notice requesting only a conversion of Loans to the other Type, or a continuation of Eurodollar Rate Loans) are subject to the following conditions precedent:

(a) The representations and warranties of the Borrower and each other Loan Party contained in Article V or any other Loan Document, or which are contained in any document furnished at any time under or in connection herewith or therewith, shall be true and correct in all material respects, except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects, on and as of the date of such Credit Extension, except to the extent that such representations and warranties specifically refer to an earlier date, in which case they shall be true and correct in all material respects as of such earlier date except for any representation and warranty that is qualified by materiality or reference to Material Adverse Effect, which such representation and warranty shall be true and correct in all respects as of such earlier date, and except that for purposes of this Section 4.02, the representations and warranties contained in Sections 5.05(a) and (b) shall be deemed to refer to the most recent statements furnished pursuant to Sections 6.01(a) and (b), respectively.

(b) No Default or Event of Default shall exist, or would result from such proposed Credit Extension or from the application of the proceeds thereof.

(c) The Administrative Agent and, if applicable, the L/C Issuer or the Swing Line Lender shall have received a Request for Credit Extension in accordance with the requirements hereof.

Each Request for Credit Extension (other than a Committed Loan Notice requesting only a conversion of Loans to the other Type or a continuation of Eurodollar Rate Loans) submitted by the Borrower shall be deemed to be a representation and warranty that the conditions specified in Sections 4.02(a) and (b) have been satisfied on and as of the date of the applicable Credit Extension.

ARTICLE V
REPRESENTATIONS AND WARRANTIES

The Borrower represents and warrants to the Administrative Agent and the Lenders that:

5.01 Existence, Qualification and Power

. Each Loan Party and each of its Subsidiaries (a) is duly organized or formed, validly existing and, as applicable, in good standing under the Laws of the jurisdiction of its incorporation or organization, (b) has all requisite power and authority and all requisite governmental licenses, authorizations, consents and approvals to (i) own or lease its assets and carry on its business and (ii) execute, deliver and perform its obligations under the Loan Documents to which it is a party and consummate the Transaction, and (c) is duly qualified and is licensed and, as applicable, in good standing under the Laws of each jurisdiction where its ownership, lease or operation of properties or the conduct of its business requires such qualification or license; except in each case referred to in clause (b)(i) or (c), to the extent that failure to do so could not reasonably be expected to have a Material Adverse Effect.

5.02 Authorization; No Contravention

. The execution, delivery and performance by each Loan Party of each Loan Document to which such Person is or is to be a party have been duly authorized by all necessary corporate or other organizational action, and do not and will not (a) contravene the terms of any of such Person's Organization Documents; (b) conflict with or result in any breach or contravention of, or the creation of any Lien under, or require any payment to be made under (i) any Contractual Obligation to which such Person is a party or affecting such Person or the properties of such Person or any of its Subsidiaries or (ii) any order, injunction, writ or decree of any Governmental Authority or any arbitral award to which such Person or its property is subject; or (c) violate any Law, except in each case referred to in the foregoing clauses (b) and (c), to the extent that such conflict, breach, contravention or violation could not reasonably be expected to have a Material Adverse Effect.

5.03 Governmental Authorization; Other Consents

. No approval, consent, exemption, authorization, or other action by, or notice to, or filing with, any Governmental Authority or any other Person is necessary or required in connection with (a) the execution, delivery or performance by, or enforcement against, any Loan Party of this Agreement or any other Loan Document, or for the consummation of the Transaction, or (b) the exercise by the Administrative Agent or any Lender of its rights under the Loan Documents, except for (1) the authorizations, approvals, actions, notices and filings that have been duly obtained, taken, given or made and are in full force effect, or (2) other approvals, consents, exemptions, authorizations, actions, notices or filing where the failure to obtain the same could not individually or aggregately, reasonably be expected to have a Material Adverse Effect.

5.04 Binding Effect

. This Agreement has been, and each other Loan Document, when delivered hereunder, will have been, duly executed and delivered by each Loan Party that is party thereto. This Agreement constitutes, and each other Loan Document when so delivered will constitute, a legal, valid and binding obligation of such Loan Party, enforceable against each Loan Party that is party thereto in accordance with its terms, except as enforceability may be limited by applicable Debtor Relief Laws and by equitable principles regardless of whether considered in a proceeding in equity or at law.

5.05 Financial Statements; No Material Adverse Effect

. (a) The Audited Financial Statements (i) were prepared in accordance with GAAP consistently applied throughout the period covered thereby, except as otherwise expressly noted therein; (ii) fairly present in all material respects the financial condition of the Borrower and its Subsidiaries as of the date thereof and their results of operations, cash flows and changes in shareholders' equity for the period covered thereby in accordance with GAAP consistently applied throughout the period covered thereby, except as otherwise expressly noted therein; and (iii) show all material indebtedness and other liabilities, direct or contingent, of the Borrower and its Subsidiaries as of the date thereof, including liabilities for Taxes, material commitments and Indebtedness.

(b) The unaudited consolidated balance sheet of the Borrower and its Subsidiaries dated June 30, 2018, and the related consolidated statements of operations, comprehensive income (or loss), stockholders' equity and cash flows for the six month period ended on that date (i) were prepared in accordance with GAAP consistently applied throughout the period covered thereby, except as otherwise expressly noted therein, and (ii) fairly present in all material respects the financial condition of the Borrower and its Subsidiaries as of the date thereof and their results of operations, cash flows and changes in shareholders' equity for the period covered thereby, subject, in the case of clauses (i) and (ii), to normal year-end audit adjustments.

(c) Since the date of the balance sheet included in the Audited Financial Statements, except as disclosed in Borrower's public filings with the SEC made prior to the Closing Date, there has been no event or circumstance, either individually or in the aggregate, that has had or could reasonably be expected to have a Material Adverse Effect.

(d) The consolidated forecasted balance sheet, statements of income and cash flows of the Borrower and its Restricted Subsidiaries delivered pursuant to Section 6.01(d) were prepared in good faith on the basis of the assumptions stated therein, which assumptions were believed by management to be reasonable in light of the conditions existing at the time of delivery of such forecasts.

5.06 Litigation

. There are no actions, suits, proceedings, claims or disputes pending or, to the knowledge of the Borrower, threatened in writing, at law, in equity, in arbitration or before any Governmental Authority, by or against the Borrower or any of its Subsidiaries or against any of their properties or revenues, other than those specifically disclosed in Schedule 5.06, that (a) purport to affect or pertain to this Agreement, any other Loan Document or the consummation of the Transaction, or (b) either individually or in the aggregate, that could reasonably be expected to have a Material Adverse Effect.

5.07 No Default

. Neither any Loan Party nor any Subsidiary thereof is in default under or with respect to, or a party to, any Contractual Obligation that could, either individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. No Default has occurred and is continuing or would result from the consummation of the transactions contemplated by this Agreement or any other Loan Document.

5.08 Ownership of Property; Liens; Investments

. (a) Each Loan Party and each of its Subsidiaries has good record and marketable title in fee simple to, or valid leasehold interests in, all real and personal property necessary or used in the ordinary conduct of its business, except for such defects in title as could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

(b) The property of each Loan Party and each of its Restricted Subsidiaries is subject to no Liens, other than Liens permitted by Section 7.01.

5.09 Environmental Compliance

. (a) The Loan Parties and their respective Subsidiaries conduct in the ordinary course of business a review of the effect of existing Environmental Laws and claims alleging potential liability or responsibility for violation of any Environmental Law on their respective businesses, operations and properties, and as a result thereof the Borrower has reasonably concluded that such Environmental Laws and claims could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect,

(b) none of the properties currently or formerly owned or operated by any Loan Party or any of its Subsidiaries is listed or formally proposed for listing on the NPL or on the CERCLIS or any analogous foreign, state or local list or is adjacent to any such property; there are no and to the knowledge of the Loan Parties and their Subsidiaries never have been any underground or above-ground storage tanks or any surface impoundments, septic tanks, pits, sumps or lagoons in which Hazardous Materials are being or have been treated, stored or disposed on any property currently owned or operated by any Loan Party or any of its Subsidiaries or, to the best of the knowledge of the Loan Parties, on any property formerly owned or operated by any Loan Party or any of its Restricted Subsidiaries, in each case except in compliance with all applicable Environmental laws; there is no asbestos or asbestos-containing material on, at or in any property currently owned or operated by any Loan Party or any of its Restricted Subsidiaries, in each case except in compliance with all applicable Environmental laws; and there has been no Release of Hazardous Materials on, at, under or from any property currently or formerly owned or operated by any Loan Party or any of its Subsidiaries in a manner, form or amount which could reasonably be expected to result in liability of any Loan Party or any Subsidiary,

(c) neither any Loan Party nor any of its Subsidiaries is undertaking, and has not completed, either individually or together with other potentially responsible parties, any investigation or assessment or remedial or response action relating to any actual or threatened Release of Hazardous Materials at, on, under, or from any site, location or operation, either voluntarily or pursuant to the order of any Governmental Authority or the requirements of any Environmental Law; and all Hazardous Materials generated, used, treated, handled or stored at, or transported to or from, any property currently or formerly owned or operated by any Loan Party or any of its Subsidiaries have been disposed of in a manner which could not reasonably expected to result in liability to any Loan Party or any of its Subsidiaries, and

(d) the Loan Parties and their respective Subsidiaries: (i) are, and within the period of all applicable statutes of limitation have been, in compliance with all applicable Environmental Laws; (ii) hold all Environmental Permits (each of which is in full force and effect) required for any of their current or intended operations or for any property owned, leased, or otherwise operated by any of them; (iii) are, and within the period of all applicable statutes of limitation have been, in compliance with all of their Environmental Permits; and (iv) to the extent within the control of the Loan Parties and their respective Subsidiaries, each of their Environmental Permits will be timely renewed and complied with, any additional Environmental permits that may be required of any of them will be timely obtained and complied with, without material expense, and compliance with any Environmental Law that is or is expected to become applicable to any of them will be timely attained and maintained, without material expense,

except in each case referred to in the foregoing clauses (b) through (d), to the extent that such action, investigation, violation or conduct could not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect.

5.10 Insurance

. The properties of the Borrower and its Subsidiaries are insured with financially sound and reputable insurance companies not Affiliates of the Borrower, in such amounts, with such deductibles and covering such risks as are customarily carried by companies engaged in similar businesses and owning similar properties in localities where the Borrower or the applicable Subsidiary operates.

5.11 Taxes

. The Borrower and each of its Subsidiaries have filed all material federal, state and other tax returns and reports required to be filed, and have paid all material federal, state and other Taxes (whether or not shown on a tax return), including in its capacity as a withholding agent, levied or imposed upon it or its properties, income or assets otherwise due and payable, except those which are being contested in good faith by appropriate proceedings diligently conducted and for which adequate reserves have been provided in accordance with GAAP. To the knowledge of the Borrower, except as set forth in the Disclosure Letter, there is no proposed material tax assessment or other tax claim against, and no material tax audit with respect to, the Borrower or any Subsidiary. Neither any Loan Party nor any Subsidiary thereof is party to any tax sharing agreement other than an agreement (such as a lease) the principal purpose of which is not the sharing of Tax.

5.12 ERISA Compliance

. (a) Each Plan is in compliance in all material respects with the applicable provisions of ERISA, the Code and other Federal or state laws. Each Pension Plan that is intended to be a qualified plan under Section 401(a) of the Code has received a favorable determination letter from the Internal Revenue Service to the effect that the form of such Plan is qualified under Section 401(a) of the Code and the trust related thereto has been determined by the Internal Revenue Service to be exempt from federal income tax under Section 501(a) of the Code, or an application for such a letter is currently being processed by the Internal Revenue Service. To the knowledge of the Borrower, nothing has occurred that would prevent or cause the loss of such tax-qualified status.

(b) There are no pending or, to the knowledge of the Borrower, threatened claims, actions or lawsuits, or action by any Governmental Authority, with respect to any Plan that could reasonably be expected to have a Material Adverse Effect. There has been no prohibited transaction or violation of the fiduciary responsibility rules with respect to any Plan that has resulted or could reasonably be expected to result in a Material Adverse Effect.

(c) (i) No ERISA Event has occurred, and neither the Borrower nor any ERISA Affiliate is aware of any fact, event or circumstance that could reasonably be expected to constitute or result in an ERISA Event with respect to any Pension Plan or Multiemployer Plan; (ii) as of the most recent valuation date for any Pension Plan, the funding target attainment percentage (as defined in Section 430(d)(2) of the Code) is 60% or higher and neither the Borrower nor any ERISA Affiliate knows of any facts or circumstances that could reasonably be expected to cause the funding target attainment percentage for any such plan to drop below 60% as of the most recent valuation date; (iii) neither the Borrower nor any ERISA Affiliate has incurred any liability to the PBGC other than for the payment of premiums, and there are no premium payments which have become due that are unpaid; (iv) neither the Borrower nor any ERISA Affiliate has engaged in a transaction that could be subject to Section 4069 or Section 4212(c) of ERISA; and (v) no Pension Plan has been terminated by the plan administrator thereof nor by the PBGC, and no event or circumstance has occurred or exists that could reasonably be expected to cause the PBGC to institute proceedings under Title IV of ERISA to terminate any Pension Plan.

(d) The Borrower represents and warrants as of the Closing Date that the Borrower is not and will not be using "plan assets" (within the meaning of 29 CFR § 2510.3-101, as modified by Section 3(42) of ERISA) of one or more Benefit Plans in connection with the Loans, the Letters of Credit or the Commitments.

5.13 Subsidiaries; Equity Interests; Loan Parties

. As of the Closing Date, no Loan Party has any Subsidiaries other than those specifically disclosed in Part (a) of Schedule 5.13, and all of the outstanding Equity Interests in such Subsidiaries have been validly issued, are fully paid and non-assessable and are owned by a Loan Party in the amounts specified on Part (a) of Schedule 5.13 free and clear of all Liens except those permitted by Section 7.01. As of the Closing Date, no Loan Party has any equity investments in any other corporation or entity other than those specifically disclosed in Part (b) of Schedule 5.13. All of the outstanding Equity Interests in the Borrower have been validly issued, are fully paid and non-assessable. Set forth on Part (d) of Schedule 5.13 is a complete and accurate list of all Loan Parties, showing as of the Closing Date (as to each Loan Party) the jurisdiction of its incorporation, the address of its principal place of business and its U.S. taxpayer identification number or, in the case of any non-U.S. Loan Party that does not have a U.S. taxpayer identification number, its unique identification number issued to it by the jurisdiction of its incorporation. As of the Closing Date, the copy of the charter of each Loan Party and each amendment thereto provided pursuant to Section 4.01(a)(iii) is a true and correct copy of each such document, each of which is valid and in full force and effect as of the Closing Date.

5.14 Margin Regulations; Investment Company Act

. (a) The Borrower is not engaged and will not engage, principally or as one of its important activities, in the business of purchasing or carrying margin stock (within the meaning of Regulation U issued by the FRB), or extending credit for the purpose of purchasing or carrying margin stock. No proceeds of any Credit Extension will be used, whether directly or indirectly, and whether immediately, incidentally or ultimately, to purchase or carry margin stock (within the meaning of Regulation U issued by the FRB) or to extend credit to others for the purpose of purchasing or carrying margin stock or to refund Indebtedness originally incurred for such purpose.

(b) None of the Borrower, any Person Controlling the Borrower, or any Subsidiary is or is required to be registered as an "investment company" under the Investment Company Act of 1940.

5.15 Disclosure

. (a) No written report, financial statement, certificate or other information furnished by or on behalf of any Loan Party to the Administrative Agent or any Lender in connection with the transactions contemplated hereby and the negotiation of this Agreement or delivered hereunder or under any other Loan Document, at the Closing Date or at the time furnished (in the case of all other reports, financial statements, certificates or other information), contains any material misstatement of fact or omitted to state any material fact necessary to make the statements

therein, in the light of the circumstances under which they were made, not misleading; provided that, with respect to projected or forward-looking information and information of a general or industry-specific nature, the Borrower represents only that such information was prepared in good faith based upon assumptions believed by management to be reasonable at the time of preparation; it being understood that such projections may vary from actual results and that such variances may be material.

(b) As of the Closing Date, to the best knowledge of the Borrower, the information included in the Beneficial Ownership Certification delivered hereunder is true and correct in all respects.

5.16 Compliance with Laws

. Each Loan Party and each Subsidiary thereof is in compliance in all material respects with the requirements of all Laws and all orders, writs, injunctions and decrees applicable to it or to its properties, except in such instances in which (a) such requirement of Law or order, writ, injunction or decree is being contested in good faith by appropriate proceedings diligently conducted or (b) the failure to comply therewith, either individually or in the aggregate, could not reasonably be expected to have a Material Adverse Effect.

5.17 Intellectual Property; Licenses, Etc

. Each Loan Party and each of its Subsidiaries own, or possess the right to use, all of the trademarks, service marks, trade names, copyrights, patents, patent rights, franchises, licenses and other intellectual property rights (collectively, "IP Rights") that are reasonably necessary for the operation of their respective businesses, without conflict with the rights of any other Person. To the knowledge of the Borrower, no slogan or other advertising device, product, process, method, substance, part or other material now employed, or now contemplated to be employed, by any Loan Party or any of its Subsidiaries infringes upon any rights held by any other Person, except for such infringements, individually or in the aggregate, which could not reasonably be expected to have a Material Adverse Effect. No claim or litigation regarding any of the foregoing is pending or, to the knowledge of the Borrower, threatened, which, either individually or in the aggregate, could reasonably be expected to have a Material Adverse Effect.

5.18 Solvency

. The Borrower and its Subsidiaries, on a consolidated basis, are Solvent.

5.19 Labor Matters

. There are no collective bargaining agreements or Multiemployer Plans covering the employees of the Borrower or any of its Subsidiaries as of the Closing Date and neither the Borrower nor any Subsidiary has suffered any strikes, walkouts, work stoppages or other labor difficulty within the last five years except, in each case, as would not reasonably be expected to have, individually or in the aggregate, a Material Adverse Effect.

5.20 Anti-Money Laundering Laws

. Each of the Borrower, its Subsidiaries and, to the knowledge of the Borrower and its Subsidiaries, each director, officer, employee, agent, affiliate or representative thereof, has not violated any applicable anti-money laundering law any other applicable law, regulation or other binding measure implementing the "Forty Recommendations" and "Nine Special Recommendations" published by the Organisation for Economic Cooperation and Development's Financial Action Task Force on Money Laundering.

5.21 Sanctions

. Neither the Borrower, nor any of its Subsidiaries, nor, to the knowledge of the Borrower and its Subsidiaries, any director, officer, employee, agent, affiliate or representative thereof, is an individual or entity that is, or is owned or controlled by any individual or entity that is (i) currently the subject or target of any Sanctions, (ii) included on OFAC's List of Specially Designated nationals, HMT's Consolidated List of Financial Sanctions Targets and the Investment Ban List, or any similar list enforced by any other relevant sanctions authority or (iii) located, organized or resident in a Designated Jurisdiction.

5.22 Anti-Corruption Laws

. The Borrower and its Subsidiaries have conducted their businesses in compliance with the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010, and other similar anti-corruption legislation in other jurisdictions and have instituted and maintained policies and procedures designed to promote and achieve compliance with such laws.

5.23 EEA Financial Institutions

. No Loan Party is an EEA Financial Institution.

ARTICLE VI
AFFIRMATIVE COVENANTS

So long as any Lender shall have any Commitment hereunder, any Loan or other Obligation hereunder shall remain unpaid or unsatisfied, or any Letter of Credit shall remain outstanding, the Borrower shall, and shall (except in the case of the covenants set forth in Sections 6.01, 6.02, 6.03 and 6.11) cause each Restricted Subsidiary to:

6.01 Financial Statements

. Deliver to the Administrative Agent (which shall promptly make such information available to the Lenders in accordance with its customary practice):

(a) within 90 days after the end of each fiscal year of the Borrower (commencing with the fiscal year ended December 31, 2018), a consolidated balance sheet of the Borrower and its Subsidiaries as at the end of such fiscal year, and the related consolidated statements of operations, comprehensive income (or loss), stockholders' equity, and cash flows for such fiscal year, setting forth in each case in comparative form the figures for the previous fiscal year, all in reasonable detail and certified by a Responsible Officer of the Borrower to have been prepared in accordance with GAAP, audited and accompanied by (x) a customary management discussion and analysis of results of operations and (y) a report and opinion of KPMG LLP or any other independent certified public accountant of nationally recognized standing, which report and opinion shall be prepared in accordance with generally accepted auditing standards and shall not be subject to any "going concern" or like qualification or exception or any qualification or exception as to the scope of such audit;

(b) within 45 days after the end of each of the first three fiscal quarters of each fiscal year of the Borrower (commencing with the fiscal quarter ended September 30, 2018), (i) a consolidated balance sheet of the Borrower and its Subsidiaries as at the end of such fiscal quarter, (ii) the related consolidated statements of operations and comprehensive income (or loss) for such fiscal quarter and for the portion of the Borrower's fiscal year then ended and (iii) the related statement of cash flows for the portion of the Borrower's fiscal year then ended, setting forth in comparative form the figures for the corresponding fiscal quarter of the previous fiscal year and the corresponding portion of the previous fiscal year, as applicable, all in reasonable detail, accompanied by a customary management discussion and analysis of results of operations and certified by a Responsible Officer of the Borrower as fairly presenting in all material respects the financial condition, results of operations, and cash flows of the Borrower and its Subsidiaries in accordance with GAAP, subject only to normal year-end audit adjustments;

(c) within 60 days after the end of each fiscal year of the Borrower, an annual business plan and budget of the Borrower and its Subsidiaries on a consolidated basis, including forecasts prepared by management of the Borrower, of consolidated balance sheets and statements of operations, comprehensive income (or loss) and cash flows of the Borrower and its Restricted Subsidiaries on a quarterly basis for the fiscal year then in progress; and

(d) concurrently with the delivery of each set of consolidated financial statements referred to in Sections 6.01(a) and 6.01(b) above, the related consolidating financial statements reflecting the adjustments necessary to eliminate the accounts of Unrestricted Subsidiaries (if any) from such consolidated financial statements.

6.02 Certificates; Other Information

. Deliver to the Administrative Agent (which shall promptly make such information available to the Lenders in accordance with its customary practice):

(a) concurrently with the delivery of the financial statements referred to in Section 6.01(a), a certificate of its independent certified public accountants certifying such financial statements;

(b) concurrently with the delivery of the financial statements referred to in Sections 6.01(a) and (b) (commencing with the delivery of the financial statements for the fiscal quarter ended September 30, 2018 in the case of clauses (i) and (ii) below, but commencing with the delivery of the financial statements for the fiscal year ended December 31, 2018 in the case of clause (iii) below), a duly completed Compliance Certificate signed by the chief executive officer, chief financial officer, treasurer or controller of the Borrower (which delivery may, unless the Administrative Agent, or a Lender requests executed originals, be by electronic communication including fax or email and shall be deemed to be an original authentic counterpart thereof for all purposes) (i) certifying as to whether a Default has occurred and, if a Default has occurred, specifying the details thereof and any action taken or proposed to be taken with respect thereto, (ii) setting forth reasonably detailed calculations of the Global Liquidity and the Net Leverage Ratio (in each case, accompanied by reasonable supporting documentation) and (iii) demonstrating compliance with Section 7.13;

(c) promptly after any request by the Administrative Agent or any Lender, copies of any detailed audit reports, management letters or recommendations submitted to the board of directors (or the audit committee of the board of directors) of any Loan Party by independent accountants in connection with the accounts or books of any Loan Party or any of its Subsidiaries, or any audit of any of them;

(d) [reserved];

(e) promptly after the furnishing thereof, copies of any material statement or report furnished to any holder of debt securities of any Loan Party or of any of its Subsidiaries pursuant to the terms of any indenture, loan or credit or similar agreement evidencing Indebtedness having an aggregate principal amount in excess of the Threshold Amount and not otherwise required to be furnished to the Lenders pursuant to Section 6.01 or any other clause of this Section 6.02;

(f) [reserved];

(g) promptly, and in any event within five Business Days after receipt thereof by any Loan Party or any Subsidiary thereof, copies of each notice or other correspondence received from the SEC (or comparable agency in any applicable non-U.S. jurisdiction) concerning any investigation or possible investigation or other inquiry by such agency regarding financial or other operational results of any Loan Party or any Subsidiary thereof;

(h) within five Business Days after receipt thereof by any Loan Party or any Subsidiary thereof, copies of all material notices, requests and other documents (including amendments, waivers and other modifications) so received under or pursuant to any instrument, indenture, loan or credit or similar agreement evidencing Indebtedness having an aggregate principal amount in excess of the Threshold Amount;

(i) promptly after the assertion or occurrence thereof, notice of any action or proceeding against or of any noncompliance by any Loan Party or any of its Subsidiaries with any Environmental Law or Environmental Permit that could reasonably be expected to have a Material Adverse Effect;

(j) [reserved]; and

(k) promptly, such additional information regarding the business, financial, legal or corporate affairs of any Loan Party or any Subsidiary thereof, or compliance with the terms of the Loan Documents, as the Administrative Agent or any Lender may from time to time reasonably request.

Documents required to be delivered pursuant to Section 6.01(a) or (b) (to the extent any such documents are included in materials otherwise filed with the SEC) may be delivered electronically and if so delivered, shall be deemed to have been delivered on the date (i) on which the Borrower posts such documents, or provides a link thereto on the Borrower's website on the Internet at the website address listed on Schedule 10.02; or (ii) on which such documents are posted on the Borrower's behalf on an Internet or intranet website, if any, to which each Lender and the Administrative Agent have access (whether a commercial, third-party website or whether sponsored by the Administrative Agent); provided that: (i) the Borrower shall deliver paper copies of such documents to the Administrative Agent or any Lender upon its request to the Borrower to deliver such paper copies until a written request to cease delivering paper copies is given by the Administrative Agent or such Lender and (ii) the Borrower shall notify the Administrative Agent and each Lender (by telecopier or electronic mail) of the posting of any such documents and provide to the Administrative Agent by electronic mail electronic versions (i.e., soft copies) of such documents. The Administrative Agent shall have no obligation to request the delivery of or to maintain paper copies of the documents referred to above, and in any event shall have no responsibility to monitor compliance by the Borrower with any such request by a Lender for delivery, and each Lender shall be solely responsible for requesting delivery to it or maintaining its copies of such documents.

The Borrower hereby acknowledges that (a) the Administrative Agent and/or the Lead Arrangers may, but shall not be obligated to, make available to the Lenders and the L/C Issuer materials and/or information provided by or on behalf of the Borrower hereunder (collectively, "Borrower Materials") by posting the Borrower Materials on IntraLinks, Syndtrak, ClearPar, or a substantially similar electronic transmission system (the "Platform") and (b) certain of the Lenders (each, a "Public Lender") may have personnel who do not wish to receive material non-public information with respect to the Borrower or its Affiliates, or the respective securities of any of the foregoing, and who may be engaged in investment and other market-related activities with respect to such Persons' securities. The Borrower hereby agrees that it will use commercially reasonable efforts to identify that portion of the Borrower Materials that may be distributed to the Public Lenders and that (w) all such Borrower Materials shall be clearly and conspicuously marked "PUBLIC" which, at a minimum, shall mean that the word "PUBLIC" shall appear prominently on the first page thereof; (x) by marking Borrower Materials "PUBLIC," the Borrower shall be deemed to have authorized the Administrative Agent, the Lead Arrangers, the L/C Issuer and the Lenders to treat such Borrower Materials as not containing any material non-public information (although it may be sensitive and proprietary) with respect to the Borrower or its securities for purposes of United States Federal and state securities laws (provided, however, that to the extent such Borrower Materials constitute Information, they shall be treated as set forth in Section 10.07); (y) all Borrower Materials marked "PUBLIC" are permitted to be made available through a portion of the Platform designated "Public Side Information;" and (z) the Administrative Agent and the Lead Arrangers shall be entitled to treat any Borrower Materials that are not

marked “PUBLIC” as being suitable only for posting on a portion of the Platform not designated “Public Side Information.”

6.03 Notices

. Promptly notify the Administrative Agent (which shall promptly notify the Lenders in accordance with its customary practice) upon notice or knowledge thereof by a Responsible Officer:

(a) of the occurrence of any Default;

(b) of any matter that has resulted or could reasonably be expected to result in a Material Adverse Effect, including (i) breach or non-performance of, or any default under, a Contractual Obligation of the Borrower or any Restricted Subsidiary; (ii) any dispute, litigation, investigation, proceeding or suspension between the Borrower or any Restricted Subsidiary and any Governmental Authority; or (iii) the commencement of, or any material development in, any litigation or proceeding affecting the Borrower or any Restricted Subsidiary, including pursuant to any applicable Environmental Laws; or

(c) of the occurrence of any ERISA Event.

Each notice pursuant to this Section 6.03 shall be accompanied by a statement of a Responsible Officer of the Borrower setting forth details of the occurrence referred to therein (other than in the case of Section 6.03(e)) and stating what action the Borrower has taken and proposes to take with respect thereto. Each notice pursuant to Section 6.03(a) shall describe with particularity any and all provisions of this Agreement and any other Loan Document that have been breached.

6.04 Payment of Obligations

. (a) Pay and discharge as the same shall become due and payable, all its obligations and liabilities, including (i) all Tax liabilities, assessments and governmental charges or levies upon it or its properties or assets, unless the same are being contested in good faith by appropriate proceedings diligently conducted and adequate reserves in accordance with GAAP are being maintained by the Borrower or such Restricted Subsidiary; (ii) all lawful claims which, if unpaid, would by law become a Lien upon its property; and (iii) all Indebtedness, as and when due and payable, but subject to any subordination provisions contained in any instrument or agreement evidencing such Indebtedness; and (b) timely file all material tax returns required to be filed.

6.05 Preservation of Existence, Etc

. (a) Preserve, renew and maintain in full force and effect its legal existence and good standing under the Laws of the jurisdiction of its organization except in a transaction permitted by Section 7.04 or 7.05; (b) take all reasonable action to maintain all rights, privileges, permits, licenses and franchises necessary or desirable in the normal conduct of its business, except to the extent that failure to do so could not reasonably be expected to have a Material Adverse Effect; and (c) preserve or renew all of its registered patents, trademarks, trade names and service marks, the non-preservation of which could reasonably be expected to have a Material Adverse Effect.

6.06 Maintenance of Properties

. (a) Maintain, preserve and protect all of its material properties and equipment necessary in the operation of its business in good working order and condition, ordinary wear and tear excepted; and (b) make all necessary repairs thereto and renewals and replacements thereof except where the failure to do so could not reasonably be expected to have a Material Adverse Effect.

6.07 Maintenance of Insurance

. Maintain with financially sound and reputable insurance companies not Affiliates of the Borrower, insurance with respect to its properties and business against loss or damage of the kinds customarily insured against by Persons engaged in the same or similar business, of such types and in such amounts (after giving effect to any self-insurance compatible with the following standards) as are customarily carried under similar circumstances by such other Persons.

6.08 Compliance with Laws

. Comply in all material respects with the requirements of all Laws and all orders, writs, injunctions and decrees applicable to it or to its business or property, except in such instances in which (a) such requirement of Law or order, writ, injunction or decree is being contested in good faith by appropriate proceedings diligently conducted; or (b) the failure to comply therewith could not reasonably be expected to have a Material Adverse Effect.

6.09 Books and Records

. Maintain proper books of record and account, in which full, true and correct entries in conformity with GAAP consistently applied shall be made of all financial transactions and matters involving the assets and business of the Borrower or such Restricted Subsidiary, as the case may be.

6.10 Inspection Rights

. Permit representatives and independent contractors of the Administrative Agent and each Lender to visit and inspect any of its properties, to examine its corporate, financial and operating records, and make copies thereof or abstracts therefrom, and to discuss its affairs, finances and accounts with its directors, officers, and independent public accountants, all at the expense of the Borrower and at such reasonable times during normal business hours not more frequently than one time per year (unless an Event of Default has occurred and is continuing), upon reasonable advance notice to the Borrower; provided, however, that when an Event of Default has occurred and is continuing the Administrative Agent or any Lender (or any of their respective representatives or independent contractors) may do any of the foregoing at the expense of the Borrower at any time during normal business hours and without advance notice.

6.11 [Reserved

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6.12 Covenant to Guarantee Obligations

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(a) Additional Material Domestic Subsidiaries. Upon the formation or acquisition of any new direct or indirect Subsidiary (other than any Excluded Subsidiary) by any Loan Party (including, without limitation, upon the formation of any Subsidiary that is a Divided LLC or any Subsidiary that is formed by means of a comparable transaction under any similar law)(provided that (i) any Subsidiary redesignation resulting in an Unrestricted Subsidiary becoming a Restricted Subsidiary and (ii) any Excluded Subsidiary ceasing to be an Excluded Subsidiary but remaining a Restricted Subsidiary shall, at the time of any determination thereof, be deemed to constitute the acquisition of a Restricted Subsidiary for all purposes of this Section 6.12), then the Borrower shall, at the Borrower's expense: within 30 days after such formation or acquisition, cause such Subsidiary, and cause each direct and indirect parent of such Subsidiary (if it has not already done so), to duly execute and deliver to the Administrative Agent a guaranty or guaranty supplement, in form and substance reasonably satisfactory to the Administrative Agent, guaranteeing the other Loan Parties' obligations under the Loan Documents.

6.13 Compliance with Environmental Laws

. Comply, and cause all lessees and other Persons operating or occupying its properties to comply, in all material respects, with all applicable Environmental Laws and Environmental Permits; obtain and renew all Environmental Permits necessary for its operations and properties; and conduct any investigation, study, sampling and testing, and undertake any cleanup, response or other corrective action necessary to address all Hazardous Materials at, on, under or emanating from any of properties owned, leased or operated by it in accordance with the requirements of all Environmental Laws; provided, however, that neither the Borrower nor any of its Restricted Subsidiaries shall be required to undertake any such cleanup, removal, remedial or other action to the extent that its obligation to do so is being contested in good faith and by proper proceedings and appropriate reserves are being maintained with respect to such circumstances in accordance with GAAP.

6.14 Further Assurances

. Promptly upon request by the Administrative Agent, or any Lender through the Administrative Agent, (a) correct any material defect or error that may be discovered in any Loan Document or in the execution, acknowledgment, filing or recordation thereof, and (b) do, execute, acknowledge, deliver, record, re-record, file, re-file, register and re-register any and all such further acts, deeds, certificates, assurances and other instruments as the Administrative Agent, or any Lender through the Administrative Agent, may reasonably require from time to time in order to carry out more effectively the purposes of the Loan Documents.

6.15 Designation of Subsidiaries

. The Borrower may at any time designate any Subsidiary as an Unrestricted Subsidiary or any Unrestricted Subsidiary as a Restricted Subsidiary by delivering to the Administrative Agent a certificate of an Responsible Officer of the Borrower specifying such designation and certifying that the conditions to such designation set forth in this Section 6.15 are satisfied; provided that:

(a) after giving effect to any such designation, no Default or Event of Default shall have occurred and be continuing;

(b) in the case of the designation of a Subsidiary as an Unrestricted Subsidiary, (i) the Subsidiary to be so designated does not (directly, or indirectly through its Subsidiaries) own any Equity Interests or Indebtedness of, or own or hold any Lien on any property of, the Borrower or any of its Restricted Subsidiaries and (ii) neither the Borrower nor any of its Restricted Subsidiaries shall at any time be directly or indirectly liable for any Indebtedness of such Unrestricted Subsidiary that provides that the holder thereof may (with the passage of time or notice or both) declare a default thereon or cause the payment thereof to be accelerated or payable prior to its stated maturity upon the occurrence of a default with respect to any Indebtedness, Lien or other obligation of such Unrestricted Subsidiary (including any right to take enforcement action against such Subsidiary); and

(c) after giving effect to such designation, the Borrower shall be in compliance with clauses (a) and (b) of Section 7.13 on a pro forma basis; and

(d) no Restricted Subsidiary may be designated as an Unrestricted Subsidiary if it is a "restricted subsidiary" pursuant to the terms of any other Indebtedness of the Borrower or any of its Subsidiaries; provided that the foregoing requirement shall apply only to the extent that the Borrower or any Subsidiary has the ability under such documents to designate any such Restricted Subsidiary as an "unrestricted subsidiary" under the terms of such other Indebtedness.

The designation of any Subsidiary as an Unrestricted Subsidiary after the Closing Date shall constitute an Investment by the Borrower in such Subsidiary on the date of designation in an amount equal to the Fair Market Value of the Borrower's Investment therein. The designation of any Unrestricted Subsidiary as a Restricted Subsidiary shall constitute the incurrence at the time of designation of any Investment, Indebtedness or Liens of such Subsidiary existing at such time.

6.16 Designation as Senior Debt

. Designate all Obligations as "Senior Debt" under, and defined in, any Subordinated Notes Documents and all supplemental indentures thereto.

6.17 Anti-Corruption Laws

. Conduct its businesses in compliance with the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010, and other similar anti-corruption legislation in other jurisdictions, and maintain policies and procedures designed to promote and achieve compliance with such laws.

ARTICLE VII
NEGATIVE COVENANTS

So long as any Lender shall have any Commitment hereunder, any Loan or other Obligation hereunder shall remain unpaid or unsatisfied, or any Letter of Credit shall remain outstanding, the Borrower shall not, nor shall it permit any Restricted Subsidiary to, directly or indirectly:

7.01 Liens

. Create, incur, assume or suffer to exist any Lien upon any of its property, assets or revenues, whether now owned or hereafter acquired, other than the following:

(a) Liens pursuant to any Loan Document (including, without limitation, Liens in favor of the Swing Line Lender and/or the L/C Issuer, as applicable, on Cash Collateral granted pursuant to the Loan Documents);

(b) Liens existing on the date hereof and listed on Schedule 7.01 and any renewals, modifications or extensions thereof and any Lien granted as a replacement or substitute therefor; provided that (i) such Lien shall not apply to any other property or asset of the Borrower or any Restricted Subsidiary other than improvements thereon or proceeds from the Disposition of such property or asset, (ii) the amount secured or benefited thereby is not increased except as contemplated by Section 7.02(e), and (iii) any renewal, modification or extension of the obligations secured or benefited thereby is permitted by Section 7.02(e);

(c) Liens for *ad valorem* property taxes not yet due or Liens for taxes which are being contested in good faith and by appropriate proceedings diligently conducted, if adequate reserves with respect thereto are maintained on the books of the applicable Person in accordance with GAAP;

(d) carriers', warehousemen's, mechanics', materialmen's, repairmen's or other like Liens arising in the ordinary course of business which are not overdue for a period of more than 30 days or which are being contested in good faith and by appropriate proceedings diligently conducted (which proceedings have the effect of preventing the forfeiture or sale of the property or assets subject to any such Lien), if adequate reserves with respect thereto are maintained on the books of the applicable Person in accordance with GAAP;

(e) pledges or deposits in the ordinary course of business in connection with workers' compensation, unemployment insurance and other social security legislation, other than any Lien imposed by ERISA;

(f) deposits to secure the performance of bids, trade contracts and leases (other than Indebtedness), statutory obligations, surety and appeal bonds, performance bonds and other obligations of a like nature incurred in the ordinary course of business;

(g) easements, rights-of-way, restrictions and other similar encumbrances affecting real property which, in the aggregate, are not substantial in amount, and which do not in any case materially detract from the value of the property subject thereto or materially interfere with the ordinary conduct of the business of the applicable Person;

(h) Liens securing judgments for the payment of money not constituting an Event of Default under Section 8.01(h);

(i) Liens securing Indebtedness permitted under Section 7.02(g); provided that (i) such Liens do not at any time encumber any property other than the property financed by such Indebtedness and (ii) the Indebtedness secured thereby does not exceed the cost or Fair Market Value, whichever is lower, of the property being acquired (measured as of the date of such financing);

(j) Liens on property of a Person existing at the time such Person is merged into or consolidated with the Borrower or any Restricted Subsidiary of the Borrower or becomes a Restricted Subsidiary of the Borrower; provided that such Liens were not created in contemplation of such merger, consolidation or Investment and do not extend to any assets other than those of the Person merged into or consolidated with the Borrower or such Restricted Subsidiary or acquired by the Borrower or such Restricted Subsidiary, and the applicable Indebtedness secured by such Lien is permitted under Section 7.02(h);

(k) Liens securing Indebtedness outstanding in an aggregate principal amount not to exceed $10,000,000;

(l) Liens on assets or property of Foreign Subsidiaries securing Indebtedness of such Foreign Subsidiaries permitted to be incurred pursuant to Section 7.02(i) or (t);

(m) Liens on cash collateral supporting Indebtedness permitted to be incurred pursuant to Section 7.02(a), (j) or (p);

(n) Liens on real property securing Indebtedness permitted to be incurred pursuant to Section 7.02(k); provided that (i) such Liens do not at any time encumber any property other than the real property financed by such Indebtedness and (ii) the Indebtedness secured thereby does not exceed the cost or Fair Market Value, whichever is lower, of the real property being acquired on the date of incurrence of such Indebtedness;

(o) Liens on IP Rights in connection with IP Monetization Transactions permitted to be incurred pursuant to Section 7.02(l);

(p) (i) Dispositions of assets not prohibited by Section 7.05 and in connection therewith, customary rights and restrictions contained in agreements relating to such Dispositions pending the completion thereof, or in the case of a license, during the term thereof and (ii) any option or other agreement to Dispose any asset not prohibited by Section 7.05;

(q) in the case of (A) any Subsidiary that is not a Wholly Owned Subsidiary or (B) the Equity Interests in any Person that is not a Subsidiary, any encumbrance or restriction, including any put and call arrangements, related to Equity Interests in such Subsidiary or such other Person set forth in the Organization Documents of such Subsidiary or such other Person or any related joint venture, shareholders' or similar agreement;

(r) licenses, sublicenses, leases or subleases granted to other Persons permitted under Section 7.05;

(s) Liens on earnest money deposits of cash or cash equivalents made, or escrow or similar arrangements entered into, in connection with any Investment permitted pursuant to Section 7.03 or other acquisitions not prohibited hereunder;

(t) any interest or title of a lessor or sublessor under leases or subleases entered into by the Borrower or any of its Restricted Subsidiaries in the ordinary course of business;

(u) Liens arising out of conditional sale, title retention, consignment or similar arrangements for sale of goods entered into by the Borrower or any of its Restricted Subsidiaries in the ordinary course of business;

(v) Liens that are contractual rights of set-off (i) relating to the establishment of depository relations with banks or other financial institutions not given in connection with the incurrence of Indebtedness, (ii) relating to pooled

deposit or sweep accounts of the Borrower or any Restricted Subsidiary to permit satisfaction of overdraft or similar obligations incurred in the ordinary course of business of the Borrower or its Restricted Subsidiaries or (iii) relating to purchase orders and other agreements entered into with customers of the Borrower or any Restricted Subsidiary in the ordinary course of business;

(w) Liens arising from precautionary Uniform Commercial Code financing statement filings;

(x) Liens on insurance policies and the proceeds thereof securing the financing of the premiums with respect thereto;

(y) any zoning or similar law or right reserved to or vested in any Governmental Authority to control or regulate the use of any real property that does not materially interfere with the ordinary conduct of the business of the Borrower or any Restricted Subsidiary; and

(z) Liens on specific items of inventory or other goods and the proceeds thereof securing such Person's obligations in respect of documentary letters of credit issued for the account of such Person to facilitate the purchase, shipment or storage of such inventory or goods.

7.02 Indebtedness

. Create, incur, assume or suffer to exist any Indebtedness, except:

(a) obligations (contingent or otherwise) existing or arising under any Swap Contract, provided that such obligations are (or were) entered into by such Person in the ordinary course of business and not for speculative purposes;

(b) Indebtedness in the form of unsecured senior subordinated or subordinated convertible notes of the Borrower in an aggregate principal amount not to exceed $1,000,000,000 at any time outstanding (it being understood that the subordination terms applicable to such Indebtedness, taken as a whole, shall be no less favorable to the interests of the Lenders in any material respect than those applicable to the 2024 Subordinated Notes);

(c) Indebtedness of a Restricted Subsidiary of the Borrower owed to the Borrower or a Wholly Owned Restricted Subsidiary of the Borrower, which Indebtedness shall be otherwise permitted under the provisions of Section 7.03 (other than Section 7.03(e));

(d) Indebtedness under the Loan Documents;

(e) (i) Indebtedness outstanding on the date hereof and listed on Schedule 7.02 (including the Subordinated Notes) and (ii) any Permitted Refinancing thereof;

(f) Guarantees of the Borrower or any Restricted Subsidiary in respect of Indebtedness otherwise permitted hereunder of the Borrower or any Wholly Owned Restricted Subsidiary; provided that: (i) if the Indebtedness being Guaranteed is subordinated to the Obligations, such Guarantee shall be subordinated to the Guarantee of the Obligations on terms at least as favorable to the Lenders as those contained in the subordination provisions of such Indebtedness; and (ii) in the case of any Guarantee by a Loan Party of any Indebtedness of a Restricted Subsidiary that is not a Loan Party such Guarantee shall be permitted under this Section 7.02(f), solely to the extent that such Guarantee would be permitted as an Investment pursuant to Section 7.03 (other than Section 7.03(e));

(g) Indebtedness in respect of Capitalized Leases, Synthetic Lease Obligations and purchase money obligations for fixed or capital assets within the limitations set forth in Section 7.01(i); provided that the aggregate amount of all such Indebtedness shall not exceed $25,000,000 in any fiscal year;

(h) (i) Indebtedness of any Person that becomes a Restricted Subsidiary of the Borrower after the date hereof in accordance with the terms of Section 7.03(g), which Indebtedness is existing at the time such Person becomes a Restricted Subsidiary of the Borrower (other than Indebtedness incurred solely in contemplation of such Person's becoming a Restricted Subsidiary of the Borrower) and (ii) any Permitted Refinancing thereof;

(i) (x) Indebtedness of Foreign Subsidiaries in an aggregate principal amount not to exceed $10,000,000 at any time outstanding and (y) Guarantees thereof by any direct or indirect parent entity of such Foreign Subsidiary;

(j) Indebtedness in the form of letters of credit (other than Letters of Credit issued under the Revolving Credit Facility) in an amount not to exceed $30,000,000 at any time outstanding;

(k) Indebtedness in the form of real property financings in an aggregate principal amount not to exceed $10,000,000 at any time outstanding;

(l) Indebtedness incurred in connection with IP Monetization Transactions in an aggregate outstanding principal amount not to exceed (x) $400,000,000 *minus* (y) an amount equal to the aggregate amount of Dispositions made under Section 7.05(j) *minus* (z) an amount equal to the aggregate amount of Investments made under Section 7.03(j);

(m) Indebtedness consisting of obligations under deferred or contingent consideration arrangements (including earn-outs, incentive non-competes, milestone payments and other contingent or deferred obligations that constitute Indebtedness) incurred in connection with any acquisition or other Investment permitted under this Agreement;

(n) Indebtedness (i) under warranty or contractual service obligations, letters of credit for operating purposes, payment (other than for payment of Indebtedness) and completion guarantees, indemnity, bid and performance bonds, surety bonds, release, appeal and similar bonds, (ii) with respect to workers' compensation claims, payment obligations in connection with health or other types of social security benefits, unemployment or other insurance obligations, reclamation and statutory obligations, or (iii) in connection with the financing of insurance premiums or self-insurance obligations or take-or-pay obligations contained in supply agreements in each case incurred in the ordinary course of business, and reimbursement obligations in respect of any of the foregoing;

(o) reimbursement obligations incurred, and customer advances or deposits received, in the ordinary course of business;

(p) Indebtedness in respect of treasury or cash management services, including deposit accounts, overnight draft, credit cards, debit cards, pcards (including purchasing cards and commercial cards), funds transfer, automated clearinghouse, zero balance accounts, returned check concentration, controlled disbursement, lockbox, account reconciliation and reporting and trade finance services and other cash management services;

(q) Indebtedness arising from the honoring by a bank or other financial institution of a check, draft or other similar instrument drawn against insufficient funds in the ordinary course of business;

(r) Indebtedness consisting of the financing of insurance premiums;

(s) Indebtedness in the form of an intercompany note issued in connection with an acquisition permitted under Section 7.03 involving a tender offer followed by a short form merger (i.e. a statutory short form merger that requires no further approvals to consummate); provided that (i) such short form merger is consummated within five Business Days of the incurrence of such Indebtedness and (ii) not later than three Business Days after consummation of the related short form merger, such Indebtedness (x) is extinguished or retired or (y) otherwise becomes a permitted Investment; and

(t) other Indebtedness in an aggregate principal amount not to exceed $10,000,000 at any time outstanding.

7.03 Investments

. Make or hold any Investments, except:

(a) Investments held by the Borrower and its Restricted Subsidiaries in the form of Cash Equivalents;

(b) advances to officers, directors and employees of the Borrower and Restricted Subsidiaries in an aggregate amount not to exceed $1,000,000 at any time outstanding, for travel, entertainment, relocation and other ordinary course purposes;

(c) (i) Investments by the Borrower and its Restricted Subsidiaries in their respective Restricted Subsidiaries outstanding on the date hereof, (ii) additional Investments by the Borrower and its Restricted Subsidiaries in Loan Parties, (iii) additional Investments by Restricted Subsidiaries of the Borrower that are not Loan Parties in other Restricted Subsidiaries that are not Loan Parties and (iv) so long as no Default has occurred and is continuing or would result from such Investment, additional Investments by the Loan Parties in Restricted Subsidiaries that are not Loan

Parties for the sole purpose of financing (A) product development expense that is reasonably expected to be payable within 120 days of the making of such Investment or (B) milestone payments and other similar contingent or deferred payments owed to third parties;

(d) Investments consisting of extensions of credit in the nature of accounts receivable or notes receivable arising from the grant of trade credit in the ordinary course of business, and Investments received in satisfaction or partial satisfaction thereof;

(e) Guarantees permitted by Section 7.02;

(f) Investments existing on the date hereof (other than those referred to in Section 7.03(c)(i)) and set forth on Schedule 7.03;

(g) the purchase or other acquisition of all (other than directors' qualifying shares) of the Equity Interests (including Equity Interests purchased or acquired in connection with a Drug Acquisition) in, or all or substantially all of the property (including property purchased or acquired in connection with a Drug Acquisition) of, any Person that, upon the consummation thereof, will be a Restricted Subsidiary Wholly Owned directly by the Borrower or one or more of its Wholly Owned Restricted Subsidiaries or such property will be held directly by such a Restricted Subsidiary (including as a result of a merger or consolidation); provided that, with respect to each purchase or other acquisition made pursuant to this Section 7.03(g):

(i) any such newly-created or acquired Subsidiary shall comply with the requirements of Section 6.12;

(ii) the lines of business of the Person to be (or the property of which is to be) so purchased or otherwise acquired shall be permitted by Section 7.07;

(iii) to the extent the purchase or acquisition is of a Person that does not become a Guarantor or of assets by a Restricted Subsidiary that is not a Guarantor, the total cash and noncash consideration (including the Fair Market Value of all Equity Interests issued or transferred to the sellers thereof (but excluding Qualified Equity Interests of the Borrower)), all indemnities, earnouts and other contingent payment obligations to, and the aggregate amounts paid or to be paid under noncompete, consulting and other affiliated agreements with, the sellers thereof, all write-downs of property and reserves for liabilities with respect thereto and all assumptions of debt, liabilities and other obligations in connection therewith (provided that any of the foregoing constituting a contingent obligation shall only be included as noncash consideration to the extent that such contingent obligation would be reflected as a liability on the consolidated balance sheet of the Borrower and its Subsidiaries in accordance with GAAP) paid by or on behalf of the Borrower and its Restricted Subsidiaries for any such purchase or other acquisition, when aggregated with the total cash and noncash consideration (excluding Qualified Equity Interests of the Borrower) paid by or on behalf of the Borrower and its Restricted Subsidiaries for all other purchases and other acquisitions made by the Borrower and its Restricted Subsidiaries pursuant to this Section 7.03(g) of a Person that does not become a Guarantor or of assets by a Restricted Subsidiary that is not a Guarantor, shall not exceed $75,000,000;

(iv) immediately before and immediately after giving pro forma effect to any such purchase or other acquisition, no Default shall have occurred and be continuing; and

(v) the Borrower shall have delivered to the Administrative Agent and each Lender, at least five Business Days prior to the date on which any such purchase or other acquisition is to be consummated, a certificate of a Responsible Officer, in form and substance reasonably satisfactory to the Administrative Agent and the Required Lenders, certifying that all of the requirements set forth in this clause (iv) have been satisfied or will be satisfied on or prior to the consummation of such purchase or other acquisition (a "Permitted Acquisition");

(h) Investments by the Borrower and its Restricted Subsidiaries not otherwise permitted under this Section 7.03 in an aggregate amount not to exceed 10% of Consolidated Total Assets (measured at the time such Investment is made) at any time outstanding; provided that, with respect to each Investment made pursuant to this Section 7.03(h):

(i) any determination of the amount of such Investment shall include all cash and noncash consideration (including the Fair Market Value of all Equity Interests issued or transferred to the sellers thereof,

all indemnities, earnouts and other contingent payment obligations to, and the aggregate amounts paid or to be paid under noncompete, consulting and other affiliated agreements with, the sellers thereof, all write-downs of property and reserves for liabilities with respect thereto and all assumptions of debt, liabilities and other obligations in connection therewith) paid by or on behalf of the Borrower and its Restricted Subsidiaries in connection with such Investment; and

(ii) immediately before and immediately after giving pro forma effect to any such purchase or other acquisition, no Default shall have occurred and be continuing;

(i) [reserved];

(j) Investments (i) consisting of co-development agreements or the licensing or contribution of intellectual property, new drug applications or similar assets pursuant to development, marketing or manufacturing agreements, alliances or arrangements or similar agreements or arrangements with other Persons or (ii) in the form of contributions of IP Rights in connection with IP Monetization Transactions, in an aggregate amount for clauses (i) and (ii) taken together not to exceed (x) $400,000,000 *minus* (y) an amount equal to the aggregate outstanding principal amount of Indebtedness incurred under Section 7.02(l) *minus* (z) an amount equal to the aggregate amount of Dispositions made under Section 7.05(j);

(k) Investments made with the portion, if any, of the Available Amount that the Borrower elects to apply to this Section 7.03(k); provided that immediately before and immediately after giving pro forma effect to any such Investment, no Default or Event of Default shall have occurred and be continuing or would result therefrom;

(l) Investments consisting of extensions of credit to the customers of the Borrower or of any of its Restricted Subsidiaries in the nature of accounts receivable, prepaid royalties, or notes receivable, arising from the grant of trade credit or licensing activities of the Borrower or such Restricted Subsidiary, in each case in the ordinary course of business;

(m) Investments received in settlement or partial settlement of obligations owed to the Borrower or any Restricted Subsidiary, including in satisfaction or compromise or partial satisfaction or compromise of judgments or claims or as a result of bankruptcy or insolvency proceedings or upon the foreclosure, perfection or enforcement of any Lien in favor of the Borrower or any Restricted Subsidiary;

(n) Investments the payment for which consists solely of Qualified Equity Interests of the Borrower;

(o) Payroll, travel and similar advances to cover matters that are expected at the time of such advances ultimately to be treated as expenses for accounting purposes and that are made in the ordinary course of business and consistent with past practice;

(p) Non-exclusive licenses of IP Rights;

(q) Investments arising out of the repurchase of any Indebtedness of the Borrower or any Restricted Subsidiary

(r) Investments consisting of UCC Article 3 endorsements of negotiable instruments for deposit or collection or similar transactions in the ordinary course of business;

(s) any customary upfront, milestone, marketing or other funding payment in the ordinary course of business to another Person in connection with obtaining a right to receive royalty or other payments in the future in connection with commercialization and/or collaboration agreements and any Investments in joint ventures or strategic alliances or collaboration agreements in an aggregate amount not to exceed $25,000,000 in any fiscal year;

(t) Investments by the Borrower in Swap Contracts permitted under Section 7.02(a); and

(u) the purchase by the Borrower of any option (or similar instrument) to purchase Equity Interests (other than Disqualified Stock) of the Borrower entered into contemporaneously and otherwise in connection with the issuance of convertible notes otherwise permitted to be issued under this Agreement; provided that the aggregate consideration for such option or options shall not exceed $175,000,000 plus the amount of any Net Cash Proceeds received by the Borrower from the sale of Equity Interests (other than Disqualified Stock) of the Borrower entered into

contemporaneously and otherwise in connection with the purchase of such option and incurrence of such convertible notes; provided, further, that no Default or Event of Default has occurred and is continuing or would result therefrom.

7.04 Fundamental Changes

. Merge, dissolve, liquidate, consolidate with or into another Person, or Dispose of (whether in one transaction or in a series of transactions) all or substantially all of its assets (whether now owned or hereafter acquired) to or in favor of any Person (including, in each case, pursuant to an LLC Division or any comparable transaction under any similar law), except that:

(a) any Restricted Subsidiary may merge or consolidate with or into, or be dissolved or liquidated into (i) the Borrower, provided that the Borrower shall be the continuing or surviving Person, or (ii) any one or more other Restricted Subsidiaries, provided that when any Loan Party is merging with another Restricted Subsidiary that is not a Loan Party, such Loan Party shall be the continuing or surviving Person;

(b) any Restricted Subsidiary may Dispose of all or substantially all of its assets (upon voluntary liquidation or otherwise) to the Borrower or to another Loan Party;

(c) any Restricted Subsidiary that is not a Loan Party may dispose of all or substantially all its assets (including any Disposition that is in the nature of a liquidation) to (i) another Restricted Subsidiary that is not a Loan Party or (ii) to a Loan Party;

(d) in connection with any acquisition permitted under Section 7.03, any Restricted Subsidiary of the Borrower may merge into or consolidate with any other Person or permit any other Person to merge into or consolidate with it; provided that (i) the Person surviving such merger shall be a Wholly Owned Restricted Subsidiary of the Borrower and (ii) in the case of any such merger to which any Loan Party is a party, such Loan Party is the surviving Person;

(e) so long as no Default has occurred and is continuing or would result therefrom, each of the Borrower and any of its Restricted Subsidiaries may merge into or consolidate with any other Person or permit any other Person to merge into or consolidate with it; provided, however, that in each case, immediately after giving effect thereto (i) in the case of any such merger to which the Borrower is a party, the Borrower is the surviving corporation and (ii) in the case of any such merger to which any Loan Party (other than the Borrower) is a party, such Loan Party is the surviving corporation; and

(f) the Borrower and any of its Restricted Subsidiaries may make Dispositions permitted by Section 7.05.

7.05 Dispositions

. Make any Disposition, except:

(a) Dispositions of used, surplus, obsolete or worn out property, whether now owned or hereafter acquired, in the ordinary course of business;

(b) Dispositions of cash, cash equivalents, and inventory in the ordinary course of business;

(c) Dispositions of equipment or real property to the extent that (i) such property is exchanged for credit against the purchase price of similar replacement property or (ii) the proceeds of such Disposition are reasonably promptly applied to the purchase price of such replacement property;

(d) Dispositions of property to any Loan Party or by any Restricted Subsidiary to the Borrower or to a Wholly Owned Restricted Subsidiary; provided that if the transferor of such property is a Guarantor, the transferee thereof must either be the Borrower or a Guarantor;

(e) Dispositions permitted by Section 7.04;

(f) assignment, cancelation, abandonment or other Disposition of IP that is in the reasonable judgment of the Borrower, no longer economically practicable to maintain or useful in the conduct of the business of the Borrower and its Restricted Subsidiaries, taken as a whole;

(g) non-exclusive licenses of IP Rights;

(h) Dispositions by the Borrower and its Restricted Subsidiaries not otherwise permitted under this Section 7.05 up to, in the aggregate, 7.5% of Consolidated Total Assets (measured at the time of such Disposition); provided that (i) at the time of such Disposition, no Default shall exist or would result from such Disposition and (ii) such Disposition is made for at least the Fair Market Value thereof and (iii) no less than 75% of the consideration paid to the Borrower or such Restricted Subsidiary shall be paid in cash or Cash Equivalents, it being understood that solely for purposes of the 75% cash consideration requirement set forth in this clause (h), any consideration represented by deferred cash consideration (including, without limitation, any consideration arising from the assumption of liabilities other than Indebtedness, purchase price adjustment, milestone payments, royalty, earnout, contingent payment, back-end payment or any other deferred payment of a similar nature that may be payable in connection with any such asset Disposition) shall be excluded from such calculation altogether;

(i) so long as no Default shall occur and be continuing, the grant of any option or other right to purchase any asset in a transaction that would be permitted under the provisions of Section 7.05(h);

(j) Dispositions of IP Rights in connection with IP Monetization Transactions in an aggregate amount not to exceed (x) $400,000,000 *minus* (y) an amount equal to the aggregate outstanding principal amount of Indebtedness incurred under Section 7.02(l) *minus* (z) an amount equal to the aggregate amount of Investments made under Section 7.03(j);

(k) the Dispositions specified on Schedule 7.05;

(l) Dispositions of products or other assets that on an individual basis have generated less than $100,000,000 of revenue for the most recent (as of the time of each such Disposition) four fiscal quarter period for which financial statements were required to have been delivered pursuant to Section 6.01(a) or (b);

(m) Dispositions of intellectual property owned by a Loan Party to a Specified Foreign Subsidiary;

(n) sublicenses, leases and subleases of real or personal property in the ordinary course of business;

(o) Permitted Exchanges;

(p) Dispositions of investments in joint ventures, to the extent required by, or made pursuant to buy/sell arrangements between the joint venture parties set forth in joint venture arrangements and similar binding arrangements; and

(q) the Disposition or termination of any Swap Contract or any Permitted Equity Derivative or the entry into any Permitted Equity Derivatives;

(r) the write-off, discount, sale or other disposition of doubtful, defaulted or past-due receivables and similar obligations in the ordinary course of business and not undertaken as part of an accounts receivable financing transaction;

(s) the incurrence of any Lien permitted pursuant to Section 7.01;

(t) the surrender, waiver or settlement of contractual rights in the ordinary course of business, or the surrender, waiver or settlement of claims and litigation claims (whether or not in the ordinary course of business); and

(u) any other Dispositions or series of related Dispositions of property in respect of which the Fair Market Value of such property does not exceed $50,000,000;

provided, however, that any Disposition pursuant to Sections 7.05(f), 7.05(h), 7.05(j), 7.05(k), 7.05(l), 7.05(m), 7.05(q) and 7.05(u) shall be for not less than Fair Market Value.

7.06 Restricted Payments

. Declare or make, directly or indirectly, any Restricted Payment, except that:

(a) each Restricted Subsidiary may make Restricted Payments to the Borrower, any Restricted Subsidiaries of the Borrower that are Guarantors and any other Person that owns a direct Equity Interest in such Restricted Subsidiary, ratably according to their respective holdings of the type of Equity Interest in respect of which such Restricted Payment is being made;

(b) the Borrower and each Restricted Subsidiary may declare and make dividend payments or other distributions payable solely in the common stock or other Equity Interests of such Person that are not Disqualified Stock;

(c) the Borrower and each Restricted Subsidiary may make Restricted Payments with the proceeds received from the substantially concurrent issue of Equity Interests that are not Disqualified Stock;

(d) the Borrower and each Restricted Subsidiary may make Restricted Payments with the portion, if any, of the Available Amount that the Borrower elects to apply to this Section 7.06(d); provided that immediately before and immediately after giving pro forma effect to any such Restricted Payment, no Default or Event of Default shall have occurred and be continuing or would result therefrom;

(e) [reserved];

(f) the Borrower and each Restricted Subsidiary may make other Restricted Payments in an aggregate amount not to exceed 10% of Consolidated Total Assets (measured at the time such Restricted Payment is made); provided that immediately before and immediately after giving pro forma effect to any such Restricted Payment, no Default or Event of Default shall have occurred and be continuing or would result therefrom;

(g) the Borrower and each Restricted Subsidiary may repurchase the Borrower's Equity Interests in connection with the issuance of any convertible notes permitted under Section 7.02 (including through payments under or pursuant to accelerated or forward stock repurchase arrangements or settlement of call spreads entered into at the time of and in connection with such issuance), but in each case under this clause (g) solely to the extent necessary to repurchase the "delta hedge" amount related to such issuance, determined in accordance with customary practices;

(h) the Borrower and each Restricted Subsidiary may repurchase Equity Interests of the Borrower (including any outstanding warrants) in connection with the settlement of call options outstanding on the Closing Date originally entered into in connection with the issuance of the Subordinated Notes;

(i) the Borrower and each Restricted Subsidiary may purchase, redeem, retire or otherwise acquire for value of Equity Interests (and any related stock appreciation rights, plans, equity incentive or achievement plans or any similar plans) in a Person being acquired in any Permitted Acquisition or other Investment permitted by Section 7.03 in connection with such Permitted Acquisition or other Investment;

(j) the Borrower and each Restricted Subsidiary may make the payment of any dividend or distribution, or the consummation of any irrevocable redemption, within 60 days after the date of declaration of the dividend or distribution or giving of the redemption notice, as the case may be, if at such date of declaration or redemption notice such dividend, distribution or redemption, as the case may be, would have complied with this Section 7.06; and

(k) the Borrower and each Restricted Subsidiary may make cash payments, in lieu of issuance of fractional shares in connection with the exercise of warrants, options or other securities convertible into or exchangeable for the Equity Interests of the Borrower or such Restricted Subsidiary.

7.07 Change in Nature of Business

. Engage in any material line of business substantially different from those lines of business conducted by the Borrower and its Restricted Subsidiaries on the date hereof or any business substantially related or incidental thereto, not including lines of business which are a reasonable extension of Borrower's existing business.

7.08 Transactions with Affiliates

. Enter into any transaction of any kind with any Affiliate of the Borrower, whether or not in the ordinary course of business, on terms and conditions materially less favorable to the Borrower or such Restricted Subsidiary as would be obtainable by the Borrower or such Restricted Subsidiary at the time in a comparable arm's length transaction with a Person other than an Affiliate; provided that the foregoing restriction shall not apply to (a) any Restricted Payment permitted by Section 7.06, (b) customary fees paid and indemnifications provided to directors of the Borrower and its Restricted Subsidiaries, (c) compensation and indemnification of, and other employment agreements and arrangements, employee benefit plans, and stock incentive plans with, directors, officers and employees of the Borrower or any Restricted Subsidiary entered in the ordinary course of business, (d) Investments permitted by Section 7.03, (e) transactions between or among the Borrower and/or any Restricted Subsidiary (including any entity that becomes a Restricted Subsidiary as a result of such transaction); and (f) the granting of registration and other customary rights in connection with the issuance of Equity Interests by the Borrower not otherwise prohibited by the Loan Documents.

7.09 Burdensome Agreements

. Enter into or permit to exist any Contractual Obligation (other than this Agreement or any other Loan Document) that limits the ability (i) of any Restricted Subsidiary to make Restricted Payments to the Borrower or any Guarantor or to otherwise transfer property to or invest in the Borrower or any Guarantor, (ii) of any Restricted Subsidiary to Guarantee the Indebtedness of the Borrower or (iii) of the Borrower or any Restricted Subsidiary to create, incur, assume or suffer to exist Liens on property of such Person; provided, however, that the foregoing shall not apply to:

(a) restrictions and conditions imposed by Law or by any Loan Document;

(b) restrictions and conditions existing on the Closing Date identified on Schedule 7.09 and any amendments or modifications thereof that do not materially expand the scope of any such restriction or condition taken as a whole;

(c) restrictions and conditions imposed by agreements of any Restricted Subsidiary in existence at the time such Restricted Subsidiary became a Restricted Subsidiary (and not entered into in contemplation thereof) and any amendments or modifications thereof that do not materially expand the scope of any such restriction or condition taken as a whole, provided that such restrictions and conditions apply only to such Restricted Subsidiary;

(d) customary restrictions and conditions contained in agreements relating to the sale of a Subsidiary pending such sale, provided such restrictions and conditions apply only to the Subsidiary (or the Equity Interests thereof) that is to be sold and such sale is permitted hereunder;

(e) restrictions imposed by any amendment or refinancings that are otherwise permitted by the Loan Documents; provided that such amendments or refinancings do not materially expand the scope of any such restriction or condition;

(f) any restriction arising under or in connection with any agreement or instrument governing Equity Interests of any joint venture or Person that is not a Subsidiary;

(g) customary restrictions and conditions contained in any agreement (including leases, subleases, licenses, sublicenses) relating to the Disposition of any property permitted by Section 7.05;

(h) customary provisions restricting the transfer or encumbrance of the specific property subject to a Lien permitted by Section 7.01;

(i) restrictions or conditions set forth in any agreement governing Indebtedness permitted by Section 7.02 (including any Permitted Refinancing Indebtedness); provided that such restrictions and conditions are customary for such Indebtedness and are no more restrictive, taken as a whole, than the comparable restrictions and conditions set forth in this Agreement as determined in the good faith judgment of the board of directors of the Borrower;

(j) customary provisions restricting assignment of any agreement entered into in the ordinary course of business;

(k) restrictions on cash or other deposits (including escrowed funds) or net worth imposed under contracts entered into in the ordinary course of business; and

(l) restrictions or conditions imposed by any agreement relating to secured Indebtedness permitted by this Agreement secured by specific assets if such restrictions or conditions apply only to the specific assets securing such Indebtedness.

7.10 Use of Proceeds

. (a) Use the proceeds of any Credit Extension, whether directly or indirectly, and whether immediately, incidentally or ultimately, to purchase or carry margin stock (within the meaning of Regulation U of the FRB) or to extend credit to others for the purpose of purchasing or carrying margin stock or to refund Indebtedness originally incurred for such purpose.

(b) Directly or indirectly, use the proceeds of any Credit Extension, or lend, contribute or otherwise make available such proceeds to any Subsidiary, joint venture partner or other individual or entity, to fund any activities of or business with any individual or entity, or in any Designated Jurisdiction, that, at the time of such funding, is the subject of Sanctions, or in any other manner that will result in a violation by an individual or entity (including any individual or

entity participating in the transaction, whether as Lender, Administrative Agent, L/C Issuer, Swing Line Lender, Lead Arranger or otherwise) of Sanctions.

(c) Directly or indirectly use the proceeds of any Credit Extension for any purpose which would breach the United States Foreign Corrupt Practices Act of 1977, the UK Bribery Act 2010, and other similar anti-corruption legislation in other jurisdictions.

(d) Use the proceeds of the Credit Extensions other than to finance ongoing working capital needs (including timing differences resulting from the strategic reduction of short-term Investments) and for other general corporate purposes not in contravention of any Law or of any Loan Document.

7.11 Amendments of Organization Documents

. Amend any of its Organization Documents in a manner materially adverse to the interests of the Lenders.

7.12 Amendment, Etc. of Indebtedness

. Amend, modify or change in any manner any term or condition of any Subordinated Indebtedness in any respect which would materially and adversely affect the rights or remedies of the Administrative Agent and Lenders hereunder or violate the subordination terms thereof.

7.13 Financial Covenants

.

(a) *Maximum Unrestricted Liquidity*. Permit Global Liquidity at the end of any Test Period (commencing with the Test Period ending December 31, 2018) to be less than 200% of the Aggregate Commitments at such time.

(b) *Minimum Interest Coverage Ratio*. Permit the Interest Coverage Ratio for any Test Period (commencing with the Test Period ending December 31, 2018) to be less than the corresponding minimum ratio set forth in the column opposite such Test Period in the table below:

Test Period Ended	Minimum Interest Coverage Ratio
December 31, 2018	2.50 : 1.00
March 31, 2019	2.50 : 1.00
June 30, 2019	2.50 : 1.00
September 30, 2019	2.50 : 1.00
December 31, 2019	3.00 : 1.00
March 31, 2020	3.00 : 1.00
June 30, 2020	3.00 : 1.00
September 30, 2020	3.00 : 1.00
December 31, 2020	3.50 : 1.00
March 31, 2021	3.50 : 1.00
June 30, 2021	3.50 : 1.00
September 30, 2021	3.50 : 1.00

ARTICLE VIII
EVENTS OF DEFAULT AND REMEDIES

8.01 Events of Default

. Any of the following shall constitute an Event of Default:

(a) Non-Payment. The Borrower or any other Loan Party fails to (i) pay when and as required to be paid herein, any amount of principal of any Loan or any L/C Obligation or deposit any funds as Cash Collateral in respect of L/C Obligations, or (ii) pay within five Business Days after the same becomes due, any interest on any Loan or on any L/C Obligation, any fee due hereunder, or any other amount payable hereunder or under any other Loan Document; or

(b) Specific Covenants. (i) The Borrower fails to perform or observe any term, covenant or agreement contained in any of Section 6.03(a), 6.05 (with respect to the Borrower's existence), 6.12, 6.14 or Article VII, or (ii) any of the Guarantors fails to perform or observe any term, covenant or agreement contained in Section 1 of the Guaranty; or

(c) Other Defaults. Any Loan Party fails to perform or observe any other covenant or agreement (not specified in Section 8.01(a) or (b) above) contained in any Loan Document on its part to be performed or observed and such failure continues for 30 days after notice thereof from the Administrative Agent; or

(d) Representations and Warranties. Any representation, warranty, certification or statement of fact made or deemed made by or on behalf of the Borrower or any other Loan Party herein, in any other Loan Document, or in any document delivered in connection herewith or therewith that is subject to materiality or Material Adverse Effect qualifications, shall be incorrect or misleading in any respect when made or deemed made or any representation, warranty, certification or statement of fact made or deemed made by or on behalf of any Loan Party in this Agreement, any other Loan Document, or in any document delivered in connection herewith or therewith that is not subject to materiality or Material Adverse Effect qualifications, shall be incorrect or misleading in any material respect when made or deemed made; or

(e) Cross-Default. (i) Any Loan Party or any Restricted Subsidiary thereof (A) fails to make any payment when due (whether by scheduled maturity, required prepayment, acceleration, demand, or otherwise) in respect of any Indebtedness or Guarantee (other than Indebtedness hereunder and Indebtedness under Swap Contracts) having an aggregate principal amount (including undrawn committed or available amounts and including amounts owing to all creditors under any combined or syndicated credit arrangement) of more than the Threshold Amount, or (B) fails to observe or perform any other agreement or condition relating to any such Indebtedness or Guarantee or contained in any instrument or agreement evidencing, securing or relating thereto, or any other event occurs, the effect of which default or other event is to cause, or to permit the holder or holders of such Indebtedness or the beneficiary or beneficiaries of such Guarantee (or a trustee or agent on behalf of such holder or holders or beneficiary or beneficiaries) to cause, with or without the giving of notice but without further passage of time, such Indebtedness to be demanded or to become due or to be repurchased, prepaid, defeased or redeemed (automatically or otherwise), or an offer to repurchase, prepay, defease or redeem such Indebtedness to be made, prior to its stated maturity, or such Guarantee to become payable or cash collateral in respect thereof to be demanded; or (ii) there occurs under any Swap Contract an Early Termination Date (as defined in such Swap Contract) resulting from (A) any event of default under such Swap Contract as to which a Loan Party or any Restricted Subsidiary thereof is the Defaulting Party (as defined in such Swap Contract) or (B) any Termination Event (as so defined) under such Swap Contract (other than, in the case of a Permitted Equity Derivative, to the extent not as a result of any default thereunder by any Loan Party or any Restricted Subsidiary thereof) as to which a Loan Party or any Restricted Subsidiary thereof is an Affected Party (as so defined) and, in either event, the Swap Termination Value owed by such Loan Party or such Restricted Subsidiary as a result thereof is greater than the Threshold Amount; provided that this clause (e) shall not apply to (i) secured Indebtedness that becomes due as a result of the voluntary sale or transfer of the property or assets securing such Indebtedness, (ii) any conversion or exchange of any convertible or exchangeable debt securities (including the Subordinated Notes) and any conversion or exchange trigger that results in such debt securities becoming convertible or exchangeable, as applicable and (iii) any Specified Indebtedness; or

(f) Insolvency Proceedings, Etc. Any Loan Party or any Restricted Subsidiary thereof institutes or consents to the institution of any proceeding under any Debtor Relief Law, or makes an assignment for the benefit of creditors; or applies for or consents to the appointment of any receiver, trustee, custodian, conservator, liquidator, rehabilitator or similar officer for it or for all or any material part of its property; or any receiver, trustee, custodian, conservator, liquidator, rehabilitator or similar officer is appointed without the application or consent of such Person and the appointment continues undischarged or unstayed for 60 calendar days; or any proceeding under any Debtor Relief Law relating to any such Person or to all or any material part of its property is instituted without the consent of such Person and continues undismissed or unstayed for 60 calendar days, or an order for relief is entered in any such proceeding; or

(g) Inability to Pay Debts; Attachment. (i) Any Loan Party or any Restricted Subsidiary other than an Immaterial Subsidiary thereof becomes unable or admits in writing its inability or fails generally to pay its debts as they become due, or (ii) any writ or warrant of attachment or execution or similar process is issued or levied against all or any material part of the property of any such Person and is not released, vacated or fully bonded within 30 days after its issue or levy; or

(h) Judgments. There is entered against any Loan Party or any Restricted Subsidiary thereof one or more final judgments or orders for the payment of money in an aggregate amount (as to all such judgments and orders) exceeding the Threshold Amount (to the extent not covered by independent third-party insurance as to which the insurer is rated at least “A” by A.M. Best Company, has been notified of the potential claim and does not dispute coverage) and there is a period of 60 consecutive days during which a stay of enforcement of such judgment, by reason of a pending appeal or otherwise, is not in effect; or

(i) ERISA. (i) An ERISA Event occurs with respect to a Pension Plan or Multiemployer Plan which has resulted or could reasonably be expected to result in liability of the Borrower to the Pension Plan, Multiemployer Plan or the PBGC in an aggregate amount in excess of the Threshold Amount, or (ii) the Borrower or any ERISA Affiliate fails to pay when due, after the expiration of any applicable grace period, any installment payment with respect to its withdrawal liability under Section 4201 of ERISA under a Multiemployer Plan in an aggregate amount in excess of the Threshold Amount; or

(j) Invalidity of Loan Documents. Any material provision of any Loan Document, at any time after its execution and delivery and for any reason other than as expressly permitted hereunder or thereunder or satisfaction in full of all the Obligations, ceases to be in full force and effect other than in accordance with its terms; or any Loan Party or any other Person contests in writing in any manner the validity or enforceability of any provision of any Loan Document (other than as a result of the satisfaction in full of the Obligations and exclusive of questions of interpretation of any provision thereof); or any Loan Party denies in writing that it has any or further liability or obligation under any provision of any Loan Document, or purports in writing to revoke, terminate or rescind any provision of any Loan Document (other than as a result the satisfaction in full of the Obligations); or

(k) Change of Control. There occurs any Change of Control.

8.02 Remedies upon Event of Default

. If any Event of Default occurs and is continuing, the Administrative Agent shall, at the request of, or may, with the consent of, the Required Lenders, take any or all of the following actions:

(a) declare the commitment of each Lender to make Loans and any obligation of the L/C Issuer to make L/C Credit Extensions to be terminated, whereupon such commitments and obligation shall be terminated;

(b) declare the unpaid principal amount of all outstanding Loans, all interest accrued and unpaid thereon, and all other amounts owing or payable hereunder or under any other Loan Document to be immediately due and payable, without presentment, demand, protest or other notice of any kind, all of which are hereby expressly waived by the Borrower;

(c) require that the Borrower Cash Collateralize the L/C Obligations (in an amount equal to the Minimum Collateral Amount with respect thereto); and

(d) exercise on behalf of itself, the Lenders and the L/C Issuer all rights and remedies available to it, the Lenders and the L/C Issuer under the Loan Documents;

provided, however, that upon the occurrence of an actual or deemed entry of an order for relief with respect to the Borrower under the Bankruptcy Code of the United States, the obligation of each Lender to make Loans and any obligation of the L/C Issuer to make L/C Credit Extensions shall automatically terminate, the unpaid principal amount of all outstanding Loans and all interest and other amounts as aforesaid shall automatically become due and payable, and the obligation of the Borrower to Cash Collateralize the L/C Obligations as aforesaid shall automatically become effective, in each case without further act of the Administrative Agent or any Lender.

8.03 Application of Funds

. After the exercise of remedies provided for in Section 8.02 (or after the Loans have automatically become immediately due and payable and the L/C Obligations have automatically been required to be Cash Collateralized as set forth in the proviso to Section 8.02), any amounts received on account of the Obligations shall, subject to the provisions of Sections 2.14 and 2.15, be applied by the Administrative Agent in the following order:

First, to payment of that portion of the Obligations constituting fees, indemnities, expenses and other amounts (including fees, charges and disbursements of counsel to the Administrative Agent and amounts payable under Article III) payable to the Administrative Agent in its capacity as such;

Second, to payment of that portion of the Obligations constituting fees, indemnities and other amounts (other than principal, interest and Letter of Credit Fees) payable to the Lenders and the L/C Issuer (including fees, charges and disbursements of counsel to the respective Lenders and the L/C Issuer arising under the Loan Documents and amounts payable under Article III, ratably among them in proportion to the respective amounts described in this clause Second payable to them;

Third, to payment of that portion of the Obligations constituting accrued and unpaid Letter of Credit Fees and interest on the Loans, L/C Borrowings and other Obligations arising under the Loan Documents, ratably among the Lenders and the L/C Issuer in proportion to the respective amounts described in this clause Third payable to them;

Fourth, to payment of that portion of the Obligations constituting unpaid principal of the Loans and L/C Borrowings, ratably among the Lenders and the L/C Issuer in proportion to the respective amounts described in this clause Fourth held by them;

Fifth, to the Administrative Agent for the account of the L/C Issuer, to Cash Collateralize that portion of L/C Obligations comprised of the aggregate undrawn amount of Letters of Credit to the extent not otherwise Cash Collateralized by the Borrower pursuant to Sections 2.03 and 2.14; and

Last, the balance, if any, after all of the Obligations have been paid in full, to the Borrower or as otherwise required by Law.

Subject to Sections 2.03(c) and 2.14, amounts used to Cash Collateralize the aggregate undrawn amount of Letters of Credit pursuant to clause Fifth above shall be applied to satisfy drawings under such Letters of Credit as they occur. If any amount remains on deposit as Cash Collateral after all Letters of Credit have either been fully drawn or expired, such remaining amount shall be applied to the other Obligations, if any, in the order set forth above.

ARTICLE IX
ADMINISTRATIVE AGENT

9.01 Appointment and Authority

. Each of the Lenders and the L/C Issuer hereby irrevocably appoints Bank of America to act on its behalf as the Administrative Agent hereunder and under the other Loan Documents and authorizes the Administrative Agent to take such actions on its behalf and to exercise such powers as are delegated to the Administrative Agent by the terms hereof or thereof, together with such actions and powers as are reasonably incidental thereto. The provisions of this Article are solely for the benefit of the Administrative Agent, the Lenders and the L/C Issuer, and the Borrower shall not have rights as a third party beneficiary of any of such provisions. It is understood and agreed that the use of the term "agent" herein or in any other Loan Documents (or any other similar term) with reference to the Administrative Agent is not intended to connote any fiduciary or other implied (or express) obligations arising under agency doctrine of any applicable Law. Instead such term is used as a matter of market custom, and is intended to create or reflect only an administrative relationship between contracting parties.

9.02 Rights as a Lender

. The Person serving as the Administrative Agent hereunder shall have the same rights and powers in its capacity as a Lender as any other Lender and may exercise the same as though it were not the Administrative Agent and the term "Lender" or "Lenders" shall, unless otherwise expressly indicated or unless the context otherwise requires, include the Person serving as the Administrative Agent hereunder in its individual capacity. Such Person and its Affiliates may accept deposits from, lend money to, own securities of, act as the financial advisor or in any other advisory capacity for and generally engage in any kind of business with the Borrower or any Subsidiary or other Affiliate thereof as if such Person were not the Administrative Agent hereunder and without any duty to account therefor to the Lenders.

9.03 Exculpatory Provisions

. The Administrative Agent shall not have any duties or obligations except those expressly set forth herein and in the other Loan Documents, and its duties hereunder shall be administrative in nature. Without limiting the generality of the foregoing, the Administrative Agent:

(a) shall not be subject to any fiduciary or other implied duties, regardless of whether a Default has occurred and is continuing;

(b) shall not have any duty to take any discretionary action or exercise any discretionary powers, except discretionary rights and powers expressly contemplated hereby or by the other Loan Documents that the Administrative Agent is required to exercise as directed in writing by the Required Lenders (or such other number or percentage of the Lenders as shall be expressly provided for herein or in the other Loan Documents), provided that the Administrative Agent shall not be required to take any action that, in its opinion or the opinion of its counsel, may expose the Administrative Agent to liability or that is contrary to any Loan Document or applicable law, including for the avoidance of doubt any action that may be in violation of the automatic stay under any Debtor Relief Law or that may effect a forfeiture, modification or termination of property of a Defaulting Lender in violation of any Debtor Relief Law; and

(c) shall not, except as expressly set forth herein and in the other Loan Documents, have any duty to disclose, and shall not be liable for the failure to disclose, any information relating to the Borrower or any of its Affiliates that is communicated to or obtained by the Person serving as the Administrative Agent or any of its Affiliates in any capacity.

(d) The Administrative Agent shall not be liable for any action taken or not taken by it (i) with the consent or at the request of the Required Lenders (or such other number or percentage of the Lenders as shall be necessary, or as the Administrative Agent shall believe in goo d faith shall be necessary, under the circumstances as provided in Sections 10.01 and 8.02) or (ii) in the absence of its own gross negligence or willful misconduct, as determined by a court of competent jurisdiction by a final and nonappealable judgment. The Administrative Agent shall be deemed not to have knowledge of any Default unless and until notice describing such Default is given to the Administrative Agent by the Borrower, a Lender or the L/C Issuer.

(e) The Administrative Agent shall not be responsible for or have any duty to ascertain or inquire into (i) any statement, warranty or representation made in or in connection with this Agreement or any other Loan Document, (ii) the contents of any certificate, report or other document delivered hereunder or thereunder or in connection herewith or therewith, (iii) the performance or observance of any of the covenants, agreements or other terms or conditions set forth herein or therein or the occurrence of any Default, (iv) the validity, enforceability, effectiveness or genuineness of this Agreement, any other Loan Document or any other agreement, instrument or document or (v) the satisfaction of any condition set forth in Article IV or elsewhere herein, other than to confirm receipt of items expressly required to be delivered to the Administrative Agent.

9.04 Reliance by Administrative Agent

. The Administrative Agent shall be entitled to rely upon, and shall not incur any liability for relying upon, any notice, request, certificate, consent, statement, instrument, document or other writing (including any electronic message, Internet or intranet website posting or other distribution) believed by it to be genuine and to have been signed, sent or otherwise authenticated by the proper Person. The Administrative Agent also may rely upon any statement made to it orally or by telephone and believed by it to have been made by the proper Person, and shall not incur any liability for relying thereon. In determining compliance with any condition hereunder to the making of a Loan, or the issuance, extension, renewal or increase of a Letter of Credit, that by its terms must be fulfilled to the satisfaction of a Lender or the L/C Issuer, the Administrative Agent may presume that such condition is satisfactory to such Lender or the L/C Issuer unless the Administrative Agent shall have received notice to the contrary from such Lender or the L/C Issuer prior to the making of such Loan or the issuance of such Letter of Credit. The Administrative Agent may consult with legal counsel (who may be counsel for the Borrower), independent accountants and other experts selected by it, and shall not be liable for any action taken or not taken by it in accordance with the advice of any such counsel, accountants or experts.

9.05 Delegation of Duties

. The Administrative Agent may perform any and all of its duties and exercise its rights and powers hereunder or under any other Loan Document by or through any one or more sub-agents appointed by the Administrative Agent. The Administrative Agent and any such sub-agent may perform any and all of its duties and exercise its rights and powers by or through their respective Related Parties. The exculpatory provisions of this Article shall apply to any such sub-agent and to the Related Parties of the Administrative Agent and any such sub-agent, and shall apply to their respective activities in connection with the syndication of the credit facilities provided for herein as well as activities as Administrative Agent. The Administrative Agent shall not be responsible for the negligence or misconduct of any sub-agents except to the extent that a court of competent jurisdiction determines in a final and nonappealable judgment that the Administrative Agent acted with gross negligence or willful misconduct in the selection of such sub-agents.

9.06 Resignation of Administrative Agent

. The Administrative Agent may at any time give notice of its resignation to the Lenders, the L/C Issuer and the Borrower. Upon receipt of any such notice of resignation, the Required Lenders shall have the right, in consultation with the Borrower, to appoint a successor, which shall be a bank with an office in the United States, or an Affiliate of any such bank with an office in the United States. If no such successor shall have been so appointed by the Required Lenders and shall have accepted such appointment within 30 days after the retiring Administrative Agent gives notice of its resignation, (or such earlier day as shall be agreed by the Required Lenders) (the "Resignation Effective Date"), then the retiring Administrative Agent may (but shall not be obligated to) on behalf of the Lenders and the L/C Issuer, appoint a successor Administrative Agent meeting the qualifications set forth above, provided that in no event shall an such successor Administrative Agent be a Defaulting Lender. Whether or not a successor has been appointed, such resignation shall become effective in accordance with such notice on the Resignation Effective Date.

(b) If the Person serving as Administrative Agent is a Defaulting Lender pursuant to clause (d) of the definition thereof, the Required Lenders may, to the extent permitted by applicable law, by notice in writing to the Borrower and such Person remove such Person as Administrative Agent and, in consultation with the Borrower, appoint a successor. If no such successor shall have been so appointed by the Required Lenders and shall have accepted such appointment within 30 days (or such earlier day as shall be agreed by the Required Lenders) (the "Removal Effective Date"), then such removal shall nonetheless become effective in accordance with such notice on the Removal Effective Date.

(c) With effect from the Resignation Effective Date or the Removal Effective Date (as applicable) (1) the retiring or removed Administrative Agent shall be discharged from its duties and obligations hereunder and under the other Loan Documents (except that in the case of any collateral security held by the Administrative Agent on behalf of the L/C Issuer under any of the Loan Documents, the retiring Administrative Agent shall continue to hold such collateral security until such time as a successor Administrative Agent is appointed) and (2) except for any indemnity payments or other amounts then owed to the retiring or removed Administrative Agent, all payments, communications and determinations provided to be made by, to or through the Administrative Agent shall instead be made by or to each Lender and the L/C Issuer directly, until such time, if any, as the Required Lenders appoint a successor Administrative Agent as provided for above. Upon the acceptance of a successor's appointment as Administrative Agent hereunder, such successor shall succeed to and become vested with all of the rights, powers, privileges and duties of the retiring (or removed) Administrative Agent (other than as provided in Section 3.01(g) and other than any rights to indemnity payments or other amounts owed to the retiring or removed Administrative Agent as of the Resignation Effective Date or the Removal Effective Date, as applicable), and the retiring or removed Administrative Agent shall be discharged from all of its duties and obligations hereunder or under the other Loan Documents (if not already discharged therefrom as provided above in this Section). The fees payable by the Borrower to a successor Administrative Agent shall be the same as those payable to its predecessor unless otherwise agreed between the Borrower and such successor. After the retiring or removed Administrative Agent's resignation or removal hereunder and under the other Loan Documents, the provisions of this Article and Section 10.04 shall continue in effect for the benefit of such retiring or removed Administrative Agent, its sub-agents and their respective Related Parties in respect of any actions taken or omitted to be taken by any of them (i) while the retiring or removed Administrative Agent was acting as Administrative Agent and (ii) after such resignation or removal for as long as any of them continues to act in any capacity hereunder or under the other Loan Documents, including (a) holding any collateral security on behalf of any L/C Issuer and (b) in respect of any actions taken in connection with transferring the agency to any successor Administrative Agent.

(d) Any resignation or removal by Bank of America as Administrative Agent pursuant to this Section shall also constitute its resignation as L/C Issuer (if applicable) and Swing Line Lender. If Bank of America resigns as an L/C Issuer, it shall retain all the rights, powers, privileges and duties of the L/C Issuer hereunder with respect to all Letters of Credit outstanding as of the effective date of its resignation as L/C Issuer and all L/C Obligations with respect thereto, including the right to require the Lenders to make Base Rate Loans or fund risk participations in Unreimbursed Amounts pursuant to Section 2.03(c). If Bank of America resigns as Swing Line Lender, it shall retain all the rights of the Swing Line Lender provided for hereunder with respect to Swing Line Loans made by it and outstanding as of the effective date of such resignation, including the right to require the Lenders to make Base Rate Loans or fund risk participations in outstanding Swing Line Loans pursuant to Section 2.04(c). Upon the appointment by the Borrower of a successor L/C Issuer or Swing Line Lender hereunder (which successor shall in all cases be a Lender other than a Defaulting Lender), (a) such successor shall succeed to and become vested with all of the rights, powers, privileges and duties of the retiring L/C Issuer or Swing Line Lender, as applicable, (b) the retiring L/C Issuer and Swing Line Lender shall be discharged from all of their respective duties and obligations hereunder or under the other Loan Documents, and (c) the successor L/C Issuer shall issue letters of credit in substitution for the Letters of Credit, if any, outstanding at the time of such succession or make other arrangements satisfactory to Bank of America to effectively assume the obligations of Bank of America with respect to such Letters of Credit.

9.07 Non-Reliance on Administrative Agent and Other Lenders

. Each Lender and the L/C Issuer acknowledges that it has, independently and without reliance upon the Administrative Agent or any other Lender or any of their Related Parties and based on such documents and information as it has deemed appropriate, made its own credit analysis and decision to enter into this Agreement. Each Lender and the L/C Issuer also acknowledges that it will, independently and without reliance upon the Administrative Agent or any other Lender or any of their Related Parties and based on such documents and information as it shall from time to time deem appropriate, continue to make its own decisions in taking or not taking action under or based upon this Agreement, any other Loan Document or any related agreement or any document furnished hereunder or thereunder.

9.08 Administrative Agent May File Proofs of Claim; Credit Bidding

. In case of the pendency of any proceeding under any Debtor Relief Law or any other judicial proceeding relative to any Loan Party, the Administrative Agent (irrespective of whether the principal of any Loan or L/C Obligation shall then be due and payable as herein expressed or by declaration or otherwise and irrespective of whether the Administrative Agent shall have made any demand on the Borrower) shall be entitled and empowered, by intervention in such proceeding or otherwise

(a) to file and prove a claim for the whole amount of the principal and interest owing and unpaid in respect of the Loans, L/C Obligations and all other Obligations that are owing and unpaid and to file such other documents as may be necessary or advisable in order to have the claims of the Lenders, the L/C Issuer and the Administrative Agent (including any claim for the reasonable compensation, expenses, disbursements and advances of the Lenders, the L/C Issuer and the Administrative Agent and their respective agents and counsel and all other amounts due the Lenders,

the L/C Issuer and the Administrative Agent under Sections 2.03(i) and (j), 2.09 and 10.04) allowed in such judicial proceeding; and

(b) to collect and receive any monies or other property payable or deliverable on any such claims and to distribute the same;

and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such judicial proceeding is hereby authorized by each Lender and the L/C Issuer to make such payments to the Administrative Agent and, if the Administrative Agent shall consent to the making of such payments directly to the Lenders and the L/C Issuer, to pay to the Administrative Agent any amount due for the reasonable compensation, expenses, disbursements and advances of the Administrative Agent and its agents and counsel, and any other amounts due the Administrative Agent under Sections 2.09 and 10.04.

Nothing contained herein shall be deemed to authorize the Administrative Agent to authorize or consent to or accept or adopt on behalf of any Lender or the L/C Issuer any plan of reorganization, arrangement, adjustment or composition affecting the Obligations or the rights of any Lender or the L/C Issuer to authorize the Administrative Agent to vote in respect of the claim of any Lender or the L/C Issuer or in any such proceeding.

9.09 Guaranty Matters

. Without limiting the provision of Section 9.08, the Lenders and the L/C Issuer irrevocably authorize the Administrative Agent, at its option and in its discretion, to release any Guarantor from its obligations under the Guaranty if such Person ceases to be a Restricted Subsidiary as a result of a transaction permitted under the Loan Documents.

Upon request by the Administrative Agent at any time, the Required Lenders will confirm in writing the Administrative Agent's authority to release any Guarantor from its obligations under the Guaranty pursuant to this Section 9.09. Each Loan Party agrees that its obligations hereunder shall continue to be effective or be reinstated, as applicable, if at any time payment, or any part thereof, of all or any part of the Obligations is rescinded or must otherwise be restored by the Guaranteed Party upon the bankruptcy or reorganization of the Loan Party or otherwise.

9.10 Withholding Tax

. To the extent required by any applicable Laws (as determined in good faith by the Administrative Agent), the Administrative Agent may withhold from any payment to any Lender under any Loan Document an amount equal to any applicable withholding Tax. If the IRS or any other Governmental Authority asserts a claim that the Administrative Agent did not properly withhold Tax from any amount paid to or for the account of any Lender for any reason (including because the appropriate form was not delivered or was not properly executed, or because such Lender failed to notify the Administrative Agent of a change in circumstances that rendered the exemption from, or reduction of, withholding Tax ineffective), such Lender shall indemnify and hold harmless the Administrative Agent for all amounts paid, directly or indirectly, by the Administrative Agent as Tax or otherwise, including any penalties, additions to tax or interest thereto, together with all expenses incurred, including legal expenses and any out-of-pocket expenses, whether or not such Tax was correctly or legally imposed or asserted by the relevant Governmental Authority. A certificate as to the amount of such payment or liability delivered to any Lender by the Administrative Agent shall be conclusive absent manifest error.

Each Lender hereby authorizes the Administrative Agent to set off and apply any and all amounts at any time owing to such Lender under this Agreement or any other Loan Document against any amount due to the Administrative Agent under this Section 9.10. The agreements in this Section 9.10 shall survive the resignation and/or replacement of the Administrative Agent, any assignment of rights by, or the replacement of, a Lender, the termination of the Commitments and the repayment, satisfaction or discharge of all Obligations.

For the avoidance of doubt, the term "Lender," for purposes of this Section 9.10, shall include any L/C Issuer and any Swing Line Lender.

9.11 No Other Duties, etc.

(a) Anything herein to the contrary notwithstanding, none of the Lead Arrangers listed on the cover page hereof shall have any powers, duties or responsibilities under this Agreement or any of the other Loan Documents, except in its capacity, as applicable, as the Administrative Agent, a Lender or L/C Issuer hereunder.

(b) The Administrative Agent and each other Lead Arranger hereby informs the Lenders that each such Person is not undertaking to provide impartial investment advice, or to give advice in a fiduciary capacity, in connection with the transactions contemplated hereby, and that such Person has a financial interest in the transactions contemplated hereby in that such Person or an Affiliate thereof (i) may receive interest or other payments with respect

to the Loans, the Letters of Credit, the Commitments and this Agreement, (ii) may recognize a gain if it extended the Loans, the Letters of Credit or the Commitments for an amount less than the amount being paid for an interest in the Loans, the Letters of Credit or the Commitments by such Lender or (iii) may receive fees or other payments in connection with the transactions contemplated hereby, the Loan Documents or otherwise, including structuring fees, commitment fees, arrangement fees, facility fees, upfront fees, underwriting fees, ticking fees, agency fees, administrative agent or collateral agent fees, utilization fees, minimum usage fees, letter of credit fees, fronting fees, deal-away or alternate transaction fees, amendment fees, processing fees, term out premiums, banker's acceptance fees, breakage or other early termination fees or fees similar to the foregoing.

9.12 Certain ERISA Matters

.

(a) Each Lender (x) represents and warrants, as of the date such Person became a Lender party hereto, to, and (y) covenants, from the date such Person became a Lender party hereto to the date such Person ceases being a Lender party hereto, for the benefit of, the Administrative Agent and not, for the avoidance of doubt, to or for the benefit of the Borrower or any other Loan Party, that at least one of the following is and will be true:

(i) such Lender is not using "plan assets" (within the meaning of Section 3(42) of ERISA or otherwise) of one or more Benefit Plans with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments or this Agreement,

(ii) the transaction exemption set forth in one or more PTEs, such as PTE 84-14 (a class exemption for certain transactions determined by independent qualified professional asset managers), PTE 95-60 (a class exemption for certain transactions involving insurance company general accounts), PTE 90-1 (a class exemption for certain transactions involving insurance company pooled separate accounts), PTE 91-38 (a class exemption for certain transactions involving bank collective investment funds) or PTE 96-23 (a class exemption for certain transactions determined by in-house asset managers), is applicable with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement,

(iii) (A) such Lender is an investment fund managed by a "Qualified Professional Asset Manager" (within the meaning of Part VI of PTE 84-14), (B) such Qualified Professional Asset Manager made the investment decision on behalf of such Lender to enter into, participate in, administer and perform the Loans, the Letters of Credit, the Commitments and this Agreement, (C) the entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement satisfies the requirements of sub-sections (b) through (g) of Part I of PTE 84-14 and (D) to the best knowledge of such Lender, the requirements of subsection (a) of Part I of PTE 84-14 are satisfied with respect to such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement, or

(iv) such other representation, warranty and covenant as may be agreed in writing between the Administrative Agent, in its sole discretion, and such Lender.

(b) In addition, unless either (1) sub-clause (i) in the immediately preceding clause (a) is true with respect to a Lender or (2) a Lender has provided another representation, warranty and covenant in accordance with sub-clause (iv) in the immediately preceding clause (a), such Lender further (x) represents and warrants, as of the date such Person became a Lender party hereto, to, and (y) covenants, from the date such Person became a Lender party hereto to the date such Person ceases being a Lender party hereto, for the benefit of, the Administrative Agent and not, for the avoidance of doubt, to or for the benefit of the Borrower or any other Loan Party, that the Administrative Agent is not a fiduciary with respect to the assets of such Lender involved in such Lender's entrance into, participation in, administration of and performance of the Loans, the Letters of Credit, the Commitments and this Agreement (including in connection with the reservation or exercise of any rights by the Administrative Agent under this Agreement, any Loan Document or any documents related hereto or thereto).

ARTICLE X
MISCELLANEOUS

10.01 Amendments, Etc

. No amendment or waiver of any provision of this Agreement or any other Loan Document, and no consent to any departure by the Borrower or any other Loan Party therefrom, shall be effective unless in writing signed by the Required Lenders and the Borrower or the applicable Loan Party, as the case may be,

and acknowledged by the Administrative Agent, and each such waiver or consent shall be effective only in the specific instance and for the specific purpose for which given; provided, however, that no such amendment, waiver or consent shall:

(a) waive any condition set forth in Section 4.01 (other than Section 4.01(b)(i) or (c)), or, in the case of the initial Credit Extension, Section 4.02, without the written consent of each Lender;

(b) without limiting the generality of clause (a) above, waive any condition set forth in Section 4.02 as to any Credit Extension without the written consent of the Required Lenders;

(c) extend or increase the Commitment of any Lender (or reinstate any Commitment terminated pursuant to Section 8.02) without the written consent of such Lender;

(d) postpone any date fixed by this Agreement or any other Loan Document for any payment of principal, interest, fees or other amounts due to the Lenders (or any of them) hereunder or under such other Loan Document without the written consent of each Lender entitled to such payment;

(e) reduce the principal of, or the rate of interest specified herein on, any Loan or L/C Borrowing, or (subject to clause (iv) of the second proviso to this Section 10.01) any fees or other amounts payable hereunder or under any other Loan Document without the written consent of each Lender entitled to such amount; provided, however, that only the consent of the Required Lenders shall be necessary to amend the definition of "Default Rate" or to waive any obligation of the Borrower to pay interest or Letter of Credit Fees at the Default Rate;

(f) change any provision of this Section 10.01 or the definition of "Required Lenders" or any other provision hereof specifying the number or percentage of Lenders required to amend, waive or otherwise modify any rights hereunder or make any determination or grant any consent hereunder without the written consent of each Lender;

(g) change any provision of Section 8.03 in a manner that would alter the pro rata sharing of payments or the order of payment required thereby, without the written consent of each Lender directly affected thereby; or

(h) release all or substantially all of the value of the Guaranty, without the written consent of each Lender, except to the extent the release of any Restricted Subsidiary from the Guaranty is permitted pursuant to Section 9.09 (in which case such release may be made by the Administrative Agent acting alone);

and provided, further, that (i) no amendment, waiver or consent shall, unless in writing and signed by the L/C Issuer in addition to the Lenders required above, affect the rights or duties of the L/C Issuer under this Agreement or any Issuer Document relating to any Letter of Credit issued or to be issued by it; (ii) no amendment, waiver or consent shall, unless in writing and signed by the Swing Line Lender in addition to the Lenders required above, affect the rights or duties of the Swing Line Lender under this Agreement; and (iii) no amendment, waiver or consent shall, unless in writing and signed by the Administrative Agent in addition to the Lenders required above, affect the rights or duties of the Administrative Agent under this Agreement or any other Loan Document. Notwithstanding anything to the contrary herein, no Defaulting Lender shall have any right to approve or disapprove any amendment, waiver or consent hereunder (and any amendment, waiver or consent which by its terms requires the consent of all Lenders or each affected Lender may be effected with the consent of the applicable Lenders other than Defaulting Lenders), except that (x) the Commitment of any Defaulting Lender may not be increased or extended without the consent of such Lender and (y) any waiver, amendment or modification requiring the consent of all Lenders or each affected Lender that by its terms affects any Defaulting Lender disproportionately adversely relative to other affected Lenders shall require the consent of such Defaulting Lender.

If any Lender does not consent to a proposed amendment, waiver, consent or release with respect to any Loan Document that requires the consent of each Lender and that has been approved by the Required Lenders, the Borrower may replace such non-consenting Lender in accordance with Section 10.13; provided that such amendment, waiver, consent or release can be effected as a result of the assignment contemplated by such Section (together with all other such assignments required by the Borrower to be made pursuant to this paragraph).

10.02 Notices; Effectiveness; Electronic Communications

. (a) Notices Generally. Except in the case of notices and other communications expressly permitted to be given by telephone (and except as provided in subsection (b) below), all notices and other communications provided for herein shall be in writing and shall be delivered by hand or overnight courier service, mailed by certified or registered mail or sent by facsimile or electronic mail as follows, and

all notices and other communications expressly permitted hereunder to be given by telephone shall be made to the applicable telephone number, as follows:

(i) if to the Borrower, the Administrative Agent, the L/C Issuer or the Swing Line Lender, to the address, facsimile number, electronic mail address or telephone number specified for such Person on Schedule 10.02; and

(ii) if to any other Lender, to the address, facsimile number, electronic mail address or telephone number specified in its Administrative Questionnaire (including, as appropriate, notices delivered solely to the Person designated by a Lender on its Administrative Questionnaire then in effect for the delivery of notices that may contain material non-public information relating to the Borrower).

Notices and other communications sent by hand or overnight courier service, or mailed by certified or registered mail, shall be deemed to have been given when received; notices and other communications sent by facsimile shall be deemed to have been given when sent (except that, if not given during normal business hours for the recipient, shall be deemed to have been given at the opening of business on the next Business Day for the recipient). Notices and other communications delivered through electronic communications to the extent provided in subsection (b) below shall be effective as provided in such subsection (b).

(b) Electronic Communications. Notices and other communications to the Lenders and the L/C Issuer hereunder may be delivered or furnished by electronic communication (including e-mail, FpML messaging, and Internet or intranet websites) pursuant to procedures approved by the Administrative Agent, provided that the foregoing shall not apply to notices to any Lender or the L/C Issuer pursuant to Article II if such Lender or the L/C Issuer, as applicable, has notified the Administrative Agent that it is incapable of receiving notices under such Article by electronic communication. The Administrative Agent, the Swing Line Lender, the L/C Issuer or the Borrower may each, in its discretion, agree to accept notices and other communications to it hereunder by electronic communications pursuant to procedures approved by it, provided that approval of such procedures may be limited to particular notices or communications.

Unless the Administrative Agent otherwise prescribes, (i) notices and other communications sent to an e-mail address shall be deemed received upon the sender's receipt of an acknowledgement from the intended recipient (such as by the "return receipt requested" function, as available, return e-mail or other written acknowledgement), and (ii) notices or communications posted to an Internet or intranet website shall be deemed received upon the deemed receipt by the intended recipient at its e-mail address as described in the foregoing clause (i) of notification that such notice or communication is available and identifying the website address therefor; provided that, for both clauses (i) and (ii), if such notice, email or other communication is not sent during the normal business hours of the recipient, such notice, email or communication shall be deemed to have been sent at the opening of business on the next business day for the recipient.

(c) The Platform. THE PLATFORM IS PROVIDED "AS IS" AND "AS AVAILABLE." THE AGENT PARTIES (AS DEFINED BELOW) DO NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE BORROWER MATERIALS OR THE ADEQUACY OF THE PLATFORM, AND EXPRESSLY DISCLAIM LIABILITY FOR ERRORS IN OR OMISSIONS FROM THE BORROWER MATERIALS. NO WARRANTY OF ANY KIND, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NON-INFRINGEMENT OF THIRD PARTY RIGHTS OR FREEDOM FROM VIRUSES OR OTHER CODE DEFECTS, IS MADE BY ANY AGENT PARTY IN CONNECTION WITH THE BORROWER MATERIALS OR THE PLATFORM. In no event shall the Administrative Agent or any of its Related Parties (collectively, the "Agent Parties") have any liability to the Borrower, any Lender, the L/C Issuer or any other Person for losses, claims, damages, liabilities or expenses of any kind (whether in tort, contract or otherwise) arising out of the Borrower's, any Loan Party's or the Administrative Agent's transmission of Borrower Materials or notices through the Platform, any other electronic messaging service, or through the Internet.

(d) Change of Address, Etc. Each of the Borrower, the Administrative Agent, the L/C Issuer and the Swing Line Lender may change its address, facsimile or telephone number for notices and other communications hereunder by notice to the other parties hereto. Each other Lender may change its address, facsimile or telephone number for notices and other communications hereunder by notice to the Borrower, the Administrative Agent, the L/C Issuer and the Swing Line Lender. In addition, each Lender agrees to notify the Administrative Agent from time to time to ensure that the Administrative Agent has on record (i) an effective address, contact name, telephone number, facsimile number and electronic mail address to which notices and other communications may be sent and (ii) accurate wire instructions for such Lender. Furthermore, each Public Lender agrees to cause at least one individual at or on behalf of such Public Lender to at all times have selected the "Private Side Information" or similar designation on the

content declaration screen of the Platform in order to enable such Public Lender or its delegate, in accordance with such Public Lender's compliance procedures and applicable Law, including United States Federal and state securities Laws, to make reference to Borrower Materials that are not made available through the "Public Side Information" portion of the Platform and that may contain material non-public information with respect to the Borrower or its securities for purposes of United States Federal or state securities laws.

(e) Reliance by Administrative Agent, L/C Issuer and Lenders. The Administrative Agent, the L/C Issuer and the Lenders shall be entitled to rely and act upon any notices (including telephonic notices, Committed Loan Notices, Letter of Credit Applications and Swing Line Loan Notices) purportedly given by or on behalf of the Borrower even if (i) such notices were not made in a manner specified herein, were incomplete or were not preceded or followed by any other form of notice specified herein, or (ii) the terms thereof, as understood by the recipient, varied from any confirmation thereof. The Loan Parties shall indemnify the Administrative Agent, the L/C Issuer, each Lender and the Related Parties of each of them from all losses, costs, expenses and liabilities resulting from the reliance by such Person on each notice purportedly given by or on behalf of the Borrower. All telephonic notices to and other telephonic communications with the Administrative Agent may be recorded by the Administrative Agent, and each of the parties hereto hereby consents to such recording.

10.03 No Waiver; Cumulative Remedies; Enforcement

. No failure by any Lender, the L/C Issuer or the Administrative Agent to exercise, and no delay by any such Person in exercising, any right, remedy, power or privilege hereunder or under any other Loan Document shall operate as a waiver thereof; nor shall any single or partial exercise of any right, remedy, power or privilege hereunder preclude any other or further exercise thereof or the exercise of any other right, remedy, power or privilege. The rights, remedies, powers and privileges herein provided, and provided under each other Loan Document, are cumulative and not exclusive of any rights, remedies, powers and privileges provided by law.

Notwithstanding anything to the contrary contained herein or in any other Loan Document, the authority to enforce rights and remedies hereunder and under the other Loan Documents against the Loan Parties or any of them shall be vested exclusively in, and all actions and proceedings at law in connection with such enforcement shall be instituted and maintained exclusively by, the Administrative Agent in accordance with Section 8.02 for the benefit of all the Lenders and the L/C Issuer; provided, however, that the foregoing shall not prohibit (a) the Administrative Agent from exercising on its own behalf the rights and remedies that inure to its benefit (solely in its capacity as Administrative Agent) hereunder and under the other Loan Documents, (b) the L/C Issuer or the Swing Line Lender from exercising the rights and remedies that inure to its benefit (solely in its capacity as L/C Issuer or Swing Line Lender, as the case may be) hereunder and under the other Loan Documents, (c) any Lender from exercising setoff rights in accordance with Section 10.08 (subject to the terms of Section 2.13), or (d) any Lender from filing proofs of claim or appearing and filing pleadings on its own behalf during the pendency of a proceeding relative to any Loan Party under any Debtor Relief Law; and provided, further, that if at any time there is no Person acting as Administrative Agent hereunder and under the other Loan Documents, then (i) the Required Lenders shall have the rights otherwise ascribed to the Administrative Agent pursuant to Section 8.02 and (ii) in addition to the matters set forth in clauses (b), (c) and (d) of the preceding proviso and subject to Section 2.13, any Lender may, with the consent of the Required Lenders, enforce any rights and remedies available to it and as authorized by the Required Lenders.

10.04 Expenses; Indemnity; Damage Waiver

. (a) Costs and Expenses. The Borrower shall pay (i) all reasonable out-of-pocket expenses incurred by the Administrative Agent and its Affiliates (including the reasonable and documented legal fees, charges, disbursements of and other charges of one primary counsel to the Administrative Agent and the Lenders and of a single local counsel to the Administrative Agent and the Lenders in each appropriate jurisdiction (which may include a single local counsel to the Administrative Agent and the Lenders acting in multiple jurisdictions) or otherwise retained with the Borrower's consent (such consent not to be unreasonably withheld or delayed)), in connection with the syndication of the credit facilities provided for herein, the preparation, negotiation, execution, delivery and administration of this Agreement and the other Loan Documents or any amendments, modifications or waivers of the provisions hereof or thereof (whether or not the transactions contemplated hereby or thereby shall be consummated), (ii) all reasonable out-of-pocket expenses incurred by the L/C Issuer in connection with the issuance, amendment, renewal or extension of any Letter of Credit or any demand for payment thereunder and (iii) all out-of-pocket expenses incurred by the Administrative Agent, any Lender or the L/C Issuer (including the fees, charges and disbursements of any counsel for the Administrative Agent, any Lender or the L/C Issuer), in connection with the enforcement or protection of its rights (A) in connection with this Agreement and the other Loan Documents, including its rights under this Section, or (B) in connection with Loans made or Letters of Credit issued hereunder, including all such out-of-pocket expenses incurred during any workout, restructuring or negotiations in respect of such Loans or Letters of Credit.

(b) Indemnification by the Borrower. The Borrower shall indemnify the Administrative Agent (and any sub-agent thereof), each Lender and the L/C Issuer, and each Related Party of any of the foregoing Persons (each such Person being called an "Indemnitee") against, and hold each Indemnitee harmless from, any and all losses, claims, damages, liabilities and related expenses (including the fees, charges and disbursements of any counsel for any Indemnitee), incurred by any Indemnitee or asserted against any Indemnitee by any Person (including the Borrower or any other Loan Party) other than such Indemnitee and its Related Parties arising out of, in connection with, or as a result of (i) the execution or delivery of this Agreement, any other Loan Document or any agreement or instrument contemplated hereby or thereby, the performance by the parties hereto of their respective obligations hereunder or thereunder or the consummation of the transactions contemplated hereby or thereby, or, in the case of the Administrative Agent (and any sub-agent thereof) and its Related Parties only, the administration of this Agreement and the other Loan Documents (including in respect of any matters addressed in Section 3.01), (ii) any Loan or Letter of Credit or the use or proposed use of the proceeds therefrom (including any refusal by the L/C Issuer to honor a demand for payment under a Letter of Credit if the documents presented in connection with such demand do not strictly comply with the terms of such Letter of Credit), (iii) any actual or alleged presence or Release of Hazardous Materials at, on, under or emanating from any property owned, leased or operated by the Borrower or any of its Subsidiaries, or any Environmental Liability related in any way to the Borrower or any of its Subsidiaries, or (iv) any actual or prospective claim, litigation, investigation or proceeding relating to any of the foregoing, whether based on contract, tort or any other theory, whether brought by a third party or by the Borrower or any other Loan Party or any of the Borrower's or such Loan Party's directors, shareholders or creditors, and regardless of whether any Indemnitee is a party thereto; provided that such indemnity shall not, as to any Indemnitee, be available to the extent that such losses, claims, damages, liabilities or related expenses are determined by a court of competent jurisdiction by final and nonappealable judgment to have resulted from the gross negligence or willful misconduct of such Indemnitee. Without limiting the provisions of Section 3.01(c), this Section 10.04(b) shall not apply with respect to Taxes other than any Taxes that represent losses, claims, damages, etc. arising from any non-Tax claim.

(c) Reimbursement by Lenders. To the extent that the Borrower for any reason fails to pay any amount required under subsection (a) or (b) of this Section to be paid by it to the Administrative Agent (or any sub-agent thereof), the L/C Issuer, the Swing Line Lender or any Related Party of any of the foregoing, each Lender severally agrees to pay to the Administrative Agent (or any such sub-agent), the L/C Issuer, the Swing Line Lender or such Related Party, as the case may be, such Lender's pro rata share (determined as of the time that the applicable unreimbursed expense or indemnity payment is sought based on each Lender's share of the Total Credit Exposure at such time) of such unpaid amount (including any such unpaid amount in respect of a claim asserted by such Lender), such payment to be made severally among them based on such Lenders' Applicable Percentage (determined as of the time that the applicable unreimbursed expense or indemnity payment is sought), provided, further that, the unreimbursed expense or indemnified loss, claim, damage, liability or related expense, as the case may be, was incurred by or asserted against the Administrative Agent (or any such sub-agent), the L/C Issuer or the Swing Line Lender in its capacity as such, or against any Related Party of any of the foregoing acting for the Administrative Agent (or any such sub-agent), the L/C Issuer or the Swing Line Lender in connection with such capacity. The obligations of the Lenders under this subsection (c) are subject to the provisions of Section 2.12(d).

(d) Waiver of Consequential Damages, Etc. To the fullest extent permitted by applicable law, the Borrower shall not assert, and hereby waives, and acknowledges that no other Person shall have, any claim against any Indemnitee, on any theory of liability, for special, indirect, consequential or punitive damages (as opposed to direct or actual damages) arising out of, in connection with, or as a result of, this Agreement, any other Loan Document or any agreement or instrument contemplated hereby, the transactions contemplated hereby or thereby, any Loan or Letter of Credit or the use of the proceeds thereof. No Indemnitee referred to in subsection (b) above shall be liable for any damages arising from the use by others of any information or other materials distributed to such party by such Indemnitee through telecommunications, electronic or other information transmission systems in connection with this Agreement or the other Loan Documents or the transactions contemplated hereby or thereby.

(e) Payments. All amounts due under this Section shall be payable not later than ten Business Days after demand therefor.

(f) Survival. The agreements in this Section and the indemnity provision of Section 10.02(e) shall survive the resignation of the Administrative Agent, the L/C Issuer and the Swing Line Lender, the replacement of any Lender, the termination of the Aggregate Commitments and the repayment, satisfaction or discharge of all the other Obligations.

10.05 Payments Set Aside

. To the extent that any payment by or on behalf of the Borrower is made to the Administrative Agent, the L/C Issuer or any Lender, or the Administrative Agent, the L/C Issuer or any Lender exercises its right of setoff, and such payment or the proceeds of such setoff or any part thereof is subsequently invalidated,

declared to be fraudulent or preferential, set aside or required (including pursuant to any settlement entered into by the Administrative Agent, the L/C Issuer or such Lender in its discretion) to be repaid to a trustee, receiver or any other party, in connection with any proceeding under any Debtor Relief Law or otherwise, then (a) to the extent of such recovery, the obligation or part thereof originally intended to be satisfied shall be revived and continued in full force and effect as if such payment had not been made or such setoff had not occurred, and (b) each Lender and the L/C Issuer severally agrees to pay to the Administrative Agent upon demand its applicable share (without duplication) of any amount so recovered from or repaid by the Administrative Agent, plus interest thereon from the date of such demand to the date such payment is made at a rate per annum equal to the Federal Funds Rate from time to time in effect. The obligations of the Lenders and the L/C Issuer under clause (b) of the preceding sentence shall survive the payment in full of the Obligations and the termination of this Agreement.

10.06 Successors and Assigns

. (a) Successors and Assigns Generally. The provisions of this Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns permitted hereby, except that the Borrower may not assign or otherwise transfer any of its rights or obligations hereunder without the prior written consent of the Administrative Agent, the L/C Issuer, the Swing Line Lender and each Lender and no Lender may assign or otherwise transfer any of its rights or obligations hereunder except (i) to an assignee in accordance with the provisions of Section 10.06(b), (ii) by way of participation in accordance with the provisions of Section 10.06(d), or (iii) by way of pledge or assignment of a security interest subject to the restrictions of Section 10.06(f) (and any other attempted assignment or transfer by any party hereto shall be null and void). Nothing in this Agreement, expressed or implied, shall be construed to confer upon any Person (other than the parties hereto, their respective successors and assigns permitted hereby, Participants to the extent provided in subsection (d) of this Section and, to the extent expressly contemplated hereby, the Related Parties of each of the Administrative Agent, the L/C Issuer and the Lenders) any legal or equitable right, remedy or claim under or by reason of this Agreement.

(b) Assignments by Lenders. Any Lender may at any time assign to one or more assignees all or a portion of its rights and obligations under this Agreement (including all or a portion of its Commitment(s) and the Loans (including for purposes of this Section 10.06(b), participations in L/C Obligations and in Swing Line Loans) at the time owing to it); provided that any such assignment shall be subject to the following conditions:

(i) Minimum Amounts.

(A) in the case of an assignment of the entire remaining amount of the assigning Lender's Commitment and/or the Loans at the time owing to it or contemporaneous assignments to related Approved Funds (determined after giving effect to such assignments) that equal at least the amount specified in clause (b)(i)(B) of this Section in the aggregate or in the case of an assignment to a Lender, an Affiliate of a Lender or an Approved Fund, no minimum amount need be assigned; and

(B) in any case not described in clause (b)(i)(A) of this Section, the aggregate amount of the Commitment (which for this purpose includes Loans outstanding thereunder) or, if the Commitment is not then in effect, the principal outstanding balance of the Loans of the assigning Lender subject to each such assignment, determined as of the date the Assignment and Assumption with respect to such assignment is delivered to the Administrative Agent or, if "Trade Date" is specified in the Assignment and Assumption, as of the Trade Date, shall not be less than $5,000,000 unless each of the Administrative Agent and, so long as no Event of Default has occurred and is continuing, the Borrower otherwise consents (each such consent not to be unreasonably withheld or delayed).

(ii) Proportionate Amounts. Each partial assignment shall be made as an assignment of a proportionate part of all the assigning Lender's rights and obligations under this Agreement with respect to the Loans or the Commitment assigned, except that this clause (ii) shall not apply to the Swing Line Lender's rights and obligations in respect of Swing Line Loans;

(iii) Required Consents. No consent shall be required for any assignment except to the extent required by subsection (b)(i)(B) of this Section and, in addition:

(A) the consent of the Borrower (such consent not to be unreasonably withheld or delayed) shall be required unless (1) an Event of Default has occurred and is continuing at the time of such assignment or (2) such assignment is to a Lender, an Affiliate of a Lender or an Approved Fund; provided that the Borrower shall be deemed to have consented to any such assignment unless

it shall object thereto by written notice to the Administrative Agent within five (5) Business Days after having received notice thereof;

(B) the consent of the Administrative Agent (such consent not to be unreasonably withheld or delayed) shall be required for assignments in respect of any Commitment if such assignment is to a Person that is not a Lender, an Affiliate of such Lender or an Approved Fund with respect to such Lender; and

(C) the consent of the L/C Issuer and the Swing Line Lender shall be required for any assignment.

(iv) Assignment and Assumption. The parties to each assignment shall execute and deliver to the Administrative Agent an Assignment and Assumption, together with a processing and recordation fee in the amount of $3,500; provided, however, that the Administrative Agent may, in its sole discretion, elect to waive such processing and recordation fee in the case of any assignment. The assignee, if it is not a Lender, shall deliver to the Administrative Agent an Administrative Questionnaire.

(v) No Assignment to Certain Persons. No such assignment shall be made (A) to the Borrower or any of the Borrower's Affiliates or Subsidiaries, (B) to any Defaulting Lender or any of its Subsidiaries, or any Person who, upon becoming a Lender hereunder, would constitute any of the foregoing Persons described in this clause (B), or (C) to a natural Person (or a holding company, investment vehicle or trust for, or owned and operated for the primary benefit of a natural Person).

(vi) Certain Additional Payments. In connection with any assignment of rights and obligations of any Defaulting Lender hereunder, no such assignment shall be effective unless and until, in addition to the other conditions thereto set forth herein, the parties to the assignment shall make such additional payments to the Administrative Agent in an aggregate amount sufficient, upon distribution thereof as appropriate (which may be outright payment, purchases by the assignee of participations or subparticipations, or other compensating actions, including funding, with the consent of the Borrower and the Administrative Agent, the applicable pro rata share of Loans previously requested but not funded by the Defaulting Lender, to each of which the applicable assignee and assignor hereby irrevocably consent), to (x) pay and satisfy in full all payment liabilities then owed by such Defaulting Lender to the Administrative Agent, the L/C Issuer or any Lender hereunder (and interest accrued thereon) and (y) acquire (and fund as appropriate) its full pro rata share of all Loans and participations in Letters of Credit and Swing Line Loans in accordance with its Applicable Percentage. Notwithstanding the foregoing, in the event that any assignment of rights and obligations of any Defaulting Lender hereunder shall become effective under applicable Law without compliance with the provisions of this paragraph, then the assignee of such interest shall be deemed to be a Defaulting Lender for all purposes of this Agreement until such compliance occurs.

(vii) Subject to acceptance and recording thereof by the Administrative Agent pursuant to subsection (c) of this Section, from and after the effective date specified in each Assignment and Assumption, the assignee thereunder shall be a party to this Agreement and, to the extent of the interest assigned by such Assignment and Assumption, have the rights and obligations of a Lender under this Agreement, and the assigning Lender thereunder shall, to the extent of the interest assigned by such Assignment and Assumption, be released from its obligations under this Agreement (and, in the case of an Assignment and Assumption covering all of the assigning Lender's rights and obligations under this Agreement, such Lender shall cease to be a party hereto) but shall continue to be entitled to the benefits of Sections 3.01, 3.04, 3.05 and 10.04 with respect to facts and circumstances occurring prior to the effective date of such assignment; provided, that except to the extent otherwise expressly agreed by the affected parties, no assignment by a Defaulting Lender will constitute a waiver or release of any claim of any party hereunder arising from that Lender's having been a Defaulting Lender. Upon request, the Borrower (at its expense) shall execute and deliver a Note to the assignee Lender. Any assignment or transfer by a Lender of rights or obligations under this Agreement that does not comply with this subsection shall be treated for purposes of this Agreement as a sale by such Lender of a participation in such rights and obligations in accordance with subsection (d) of this Section.

(c) Register. The Administrative Agent, acting solely for this purpose as a non-fiduciary agent of the Borrower (and such agency being solely for tax purposes), shall maintain at the Administrative Agent's Office a copy of each Assignment and Assumption delivered to it (or the equivalent thereof in electronic form) and a register for the recordation of the names and addresses of the Lenders, and the Commitments of, and principal amounts (and stated interest) of the Loans and L/C Obligations owing to, each Lender pursuant to the terms hereof from time to time (the "Register"). The entries in the Register shall be conclusive absent manifest error, and the Borrower, the Administrative

Agent and the Lenders shall treat each Person whose name is recorded in the Register pursuant to the terms hereof as a Lender hereunder for all purposes of this Agreement, notwithstanding notice to the contrary. The Register shall be available for inspection by the Borrower and any Lender (with respect to its own interests), at any reasonable time and from time to time upon reasonable prior notice.

(d) Participations. Any Lender may at any time, without the consent of, or notice to, the Borrower or the Administrative Agent, sell participations to any Person (other than a natural Person, or a holding company, investment vehicle or trust for, or owned and operated for the primary benefit of a natural Person, a Defaulting Lender or the Borrower or any of the Borrower's Affiliates or Subsidiaries) (each, a "Participant") in all or a portion of such Lender's rights and/or obligations under this Agreement (including all or a portion of its Commitment and/or the Loans (including such Lender's participations in L/C Obligations and/or Swing Line Loans) owing to it); provided that (i) such Lender's obligations under this Agreement shall remain unchanged, (ii) such Lender shall remain solely responsible to the other parties hereto for the performance of such obligations and (iii) the Borrower, the Administrative Agent, the other Lenders and the L/C Issuer shall continue to deal solely and directly with such Lender in connection with such Lender's rights and obligations under this Agreement. For the avoidance of doubt, each Lender shall be responsible for the indemnity under Section 10.04(c) without regard to the existence of any participation.

Any agreement or instrument pursuant to which a Lender sells such a participation shall provide that such Lender shall retain the sole right to enforce this Agreement and to approve any amendment, modification or waiver of any provision of this Agreement; provided that such agreement or instrument may provide that such Lender will not, without the consent of the Participant, agree to any amendment, waiver or other modification described in the first proviso to Section 10.01 that affects such Participant. The Borrower agrees that each Participant shall be entitled to the benefits of Sections 3.01, 3.04 and 3.05 to the same extent as if it were a Lender and had acquired its interest by assignment pursuant to subsection (b) of this Section (subject to the requirements and limitations therein, including the requirements of Section 3.01(e) (it being understood that the documentation required under Section 3.01(e) shall be delivered solely to the Lender who sells the participation)); provided that such Participant (A) shall be subject to the provisions of Sections 3.06 and 10.13 as if it were an assignee under paragraph (b) of this Section and (B) shall not be entitled to receive any greater payment under Section 3.01 or 3.04, with respect to any participation, than the Lender from whom it acquired the applicable participation would have been entitled to receive, except to the extent such entitlement to receive a greater payment results from a Change in Law that occurs after the Participant acquired the applicable participation. Each Lender that sells a participation agrees, at the Borrower's request and expense, to use reasonable efforts to cooperate with the Borrower to effectuate the provisions of Section 3.06 with respect to any Participant. To the extent permitted by law, each Participant also shall be entitled to the benefits of Section 10.08 as though it were a Lender; provided that such Participant agrees to be subject to Section 2.13 as though it were a Lender. Each Lender that sells a participation shall, acting solely for this purpose as a non-fiduciary agent of the Borrower, maintain a register on which it enters the name and address of each Participant and the principal amounts (and stated interest) of each Participant's interest in the Loans or other obligations under the Loan Documents (the "Participant Register"); provided that no Lender shall have any obligation to disclose all or any portion of the Participant Register (including the identity of any Participant or any information relating to a Participant's interest in any commitments, loans, letters of credit or its other obligations under any Loan Document) to any Person except to the extent that such disclosure is necessary to establish that such commitment, loan, letter of credit or other obligation is in registered form under Section 5f.103-1(c) of the United States Treasury Regulations. The entries in the Participant Register shall be conclusive absent manifest error, and such Lender shall treat each Person whose name is recorded in the Participant Register as the owner of such participation for all purposes of this Agreement notwithstanding any notice to the contrary. For the avoidance of doubt, the Administrative Agent (in its capacity as Administrative Agent) shall have no responsibility for maintaining a Participant Register.

(e) Certain Pledges. Any Lender may at any time pledge or assign a security interest in all or any portion of its rights under this Agreement (including under its Note, if any) to secure obligations of such Lender, including any pledge or assignment to secure obligations to a Federal Reserve Bank; provided that no such pledge or assignment shall release such Lender from any of its obligations hereunder or substitute any such pledgee or assignee for such Lender as a party hereto.

(f) Resignation as L/C Issuer or Swing Line Lender after Assignment. Notwithstanding anything to the contrary contained herein, (i) any L/C Issuer hereunder may resign as an L/C Issuer at any time upon 30 days' notice to the Borrower, the Administrative Agent and the Lenders and (ii) the Swing Line Lender hereunder may resign as a Swing Line Lender at any time upon 30 days' notice to the Borrower; provided that the Swing Line Lender shall have assigned all of its Commitments and Revolving Credit Loans pursuant to Section 10.06(b) at or prior to the time of such resignation. In the event of any resignation as L/C Issuer pursuant to clause (i) above or Swing Line Lender pursuant to clause (ii) above, the Borrower shall be entitled to appoint from among the Lenders a successor L/C Issuer or Swing Line Lender hereunder; provided, however, that no failure by the Borrower to appoint any such successor shall affect

the resignation of such Lender (or its Affiliate) as L/C Issuer or Swing Line Lender, as the case may be. The resigning L/C Issuer shall retain all the rights, powers, privileges and duties of the L/C Issuer hereunder with respect to all Letters of Credit outstanding as of the effective date of its resignation as L/C Issuer and all L/C Obligations with respect thereto (including the right to require the Lenders to make Base Rate Loans or fund risk participations in Unreimbursed Amounts pursuant to Section 2.03(c)). The resigning Swing Line Lender shall retain all the rights of the Swing Line Lender provided for hereunder with respect to Swing Line Loans made by it and outstanding as of the effective date of such resignation, including the right to require the Lenders to make Base Rate Loans or fund risk participations in outstanding Swing Line Loans pursuant to Section 2.04(c). Upon the appointment of a successor L/C Issuer and/or Swing Line Lender, (a) such successor shall succeed to and become vested with all of the rights, powers, privileges and duties of the resigning L/C Issuer (other than in respect of Letters of Credit issued by such resigning L/C Issuer prior to its resignation, as set forth above) or Swing Line Lender, as the case may be, and (b) the successor L/C Issuer shall issue letters of credit in substitution for the Letters of Credit, if any, outstanding at the time of such succession or make other arrangements satisfactory to the resigning L/C Issuer to effectively assume the obligations of such L/C Issuer with respect to such Letters of Credit.

10.07 Treatment of Certain Information; Confidentiality

. Each of the Administrative Agent, the Lenders and the L/C Issuer agrees to maintain the confidentiality of the Information (as defined below), except that Information may be disclosed (a) to its Affiliates, its auditors and its Related Parties (it being understood that the Persons to whom such disclosure is made will be informed of the confidential nature of such Information and instructed to keep such Information confidential), (b) to the extent required or requested by any regulatory authority purporting to have jurisdiction over such Person or its Related Parties (including any self-regulatory authority, such as the National Association of Insurance Commissioners), (c) to the extent required by applicable laws or regulations or by any subpoena or similar legal process, (d) to any other party hereto, (e) in connection with the exercise of any remedies hereunder or under any other Loan Document or any action or proceeding relating to this Agreement or any other Loan Document or the enforcement of rights hereunder or thereunder, (f) subject to an agreement containing provisions substantially the same as those of this Section, to (i) any assignee of or Participant in, or any prospective assignee of or Participant in, any of its rights and obligations under this Agreement or (ii) any actual or prospective party (or its Related Parties) to any swap, derivative or other transaction under which payments are to be made by reference to the Borrower and its obligations, this Agreement or payments hereunder, in reliance on this clause (f)), (g) on a confidential basis to (i) any rating agency in connection with rating the Borrower or its Subsidiaries or the credit facilities provided hereunder or (ii) the CUSIP Service Bureau or any similar agency in connection with the issuance and monitoring of CUSIP numbers of other market identifiers with respect to the credit facilities provided hereunder, (h) with the consent of the Borrower or (i) to the extent such Information (i) becomes publicly available other than as a result of a breach of this Section or (ii) becomes available to the Administrative Agent, any Lender, the L/C Issuer or any of their respective Affiliates on a nonconfidential basis from a source other than the Borrower. In addition, the Administrative Agent and the Lenders may disclose the existence of this Agreement and information about this Agreement to market data collectors, similar service providers to the lending industry and service providers to the Administrative Agent and the Lenders in connection with the administration of this Agreement, the other Loan Documents, and the Commitments. The Loan Parties consent to the publication by the Administrative Agent or any Lender of customary advertising material relating to the transactions contemplated hereby using the name, product photographs, logo or trademark of the Loan Parties.

For purposes of this Section, "Information" means all information received from the Borrower or any Subsidiary relating to the Borrower or any Subsidiary or any of their respective businesses, other than any such information that is available to the Administrative Agent, any Lender or the L/C Issuer on a nonconfidential basis prior to disclosure by the Borrower or any Subsidiary, provided that, in the case of information received from the Borrower or any Subsidiary after the date hereof, such information is clearly identified at the time of delivery as confidential. Any Person required to maintain the confidentiality of Information as provided in this Section shall be considered to have complied with its obligation to do so if such Person has exercised the same degree of care to maintain the confidentiality of such Information as such Person would accord to its own confidential information.

Each of the Administrative Agent, the Lenders and the L/C Issuer acknowledges that (a) the Information may include material non-public information concerning the Borrower or a Subsidiary, as the case may be, (b) it has developed compliance procedures regarding the use of material non-public information and (c) it will handle such material non-public information in accordance with applicable Law, including United States Federal and state securities Laws.

10.08 Right of Setoff

. If an Event of Default shall have occurred and be continuing, each Lender, the L/C Issuer and each of their respective Affiliates is hereby authorized at any time and from time to time, to the fullest extent permitted by applicable law, to set off and apply any and all deposits (general or special, time or demand, provisional or final, in whatever currency) at any time held and other obligations (in whatever currency) at any time owing by such

Lender, the L/C Issuer or any such Affiliate to or for the credit or the account of the Borrower against any and all of the obligations of the Borrower now or hereafter existing under this Agreement or any other Loan Document to such Lender or the L/C Issuer, irrespective of whether or not such Lender or the L/C Issuer shall have made any demand under this Agreement or any other Loan Document and although such obligations of the Borrower may be contingent or unmatured or are owed to a branch or office or Affiliate of such Lender or the L/C Issuer different from the branch, office or Affiliate holding such deposit or obligated on such indebtedness; provided, that in the event that any Defaulting Lender shall exercise any such right of setoff, (x) all amounts so set off shall be paid over immediately to the Administrative Agent for further application in accordance with the provisions of Section 2.15 and, pending such payment, shall be segregated by such Defaulting Lender from its other funds and deemed held in trust for the benefit of the Administrative Agent and the Lenders, and (y) the Defaulting Lender shall provide promptly to the Administrative Agent a statement describing in reasonable detail the Obligations owing to such Defaulting Lender as to which it exercised such right of setoff. The rights of each Lender, the L/C Issuer and their respective Affiliates under this Section are in addition to other rights and remedies (including other rights of setoff) that such Lender, the L/C Issuer or their respective Affiliates may have. Each Lender and the L/C Issuer agrees to notify the Borrower and the Administrative Agent promptly after any such setoff and application, provided that the failure to give such notice shall not affect the validity of such setoff and application.

10.09 Interest Rate Limitation

. Notwithstanding anything to the contrary contained in any Loan Document, the interest paid or agreed to be paid under the Loan Documents shall not exceed the maximum rate of non-usurious interest permitted by applicable Law (the "Maximum Rate"). If the Administrative Agent or any Lender shall receive interest in an amount that exceeds the Maximum Rate, the excess interest shall be applied to the principal of the Loans or, if it exceeds such unpaid principal, refunded to the Borrower. In determining whether the interest contracted for, charged, or received by the Administrative Agent or a Lender exceeds the Maximum Rate, such Person may, to the extent permitted by applicable Law, (a) characterize any payment that is not principal as an expense, fee, or premium rather than interest, (b) exclude voluntary prepayments and the effects thereof, and (c) amortize, prorate, allocate, and spread in equal or unequal parts the total amount of interest throughout the contemplated term of the Obligations hereunder.

10.10 Counterparts; Integration; Effectiveness

. This Agreement may be executed in counterparts (and by different parties hereto in different counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. This Agreement and the other Loan Documents and any separate letter agreements with respect to fees payable to the Administrative Agent or the L/C Issuer, constitute the entire contract among the parties relating to the subject matter hereof and supersede any and all previous agreements and understandings, oral or written, relating to the subject matter hereof. Except as provided in Section 4.01, this Agreement shall become effective when it shall have been executed by the Administrative Agent and when the Administrative Agent shall have received counterparts hereof that, when taken together, bear the signatures of each of the other parties hereto. Delivery of an executed counterpart of a signature page of this Agreement by facsimile or other electronic imaging means (e.g. "pdf" or "tif") shall be effective as delivery of a manually executed counterpart of this Agreement.

10.11 Survival of Representations and Warranties

. All representations and warranties made hereunder and in any other Loan Document or other document delivered pursuant hereto or thereto or in connection herewith or therewith shall survive the execution and delivery hereof and thereof. Such representations and warranties have been or will be relied upon by the Administrative Agent and each Lender, regardless of any investigation made by the Administrative Agent or any Lender or on their behalf and notwithstanding that the Administrative Agent or any Lender may have had notice or knowledge of any Default at the time of any Credit Extension, and shall continue in full force and effect as long as any Loan or any other Obligation hereunder shall remain unpaid or unsatisfied or any Letter of Credit shall remain outstanding.

10.12 Severability

. If any provision of this Agreement or the other Loan Documents is held to be illegal, invalid or unenforceable, (a) the legality, validity and enforceability of the remaining provisions of this Agreement and the other Loan Documents shall not be affected or impaired thereby and (b) the parties shall endeavor in good faith negotiations to replace the illegal, invalid or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the illegal, invalid or unenforceable provisions. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction. Without limiting the foregoing provisions of this Section 10.12, if and to the extent that the enforceability of any provisions in this Agreement relating to Defaulting Lenders shall be limited by Debtor Relief Laws, as determined in good faith by the Administrative Agent, the L/C Issuer or the Swing Line Lender, as applicable, then such provisions shall be deemed to be in effect only to the extent not so limited.

10.13 Replacement of Lenders

. If the Borrower is entitled to replace a Lender pursuant to the provisions of Section 3.06, or if any Lender is a Defaulting Lender or a Non-Consenting Lender, then the Borrower may, at its sole expense and effort, upon notice to such Lender and the Administrative Agent, require such Lender to assign and delegate, without recourse (in accordance with and subject to the restrictions contained in, and consents required by, Section 10.06), all of its interests, rights (other than its existing rights to payments pursuant to Sections 3.01 and 3.04) and obligations under this Agreement and the related Loan Documents to an Eligible Assignee that shall assume such obligations (which assignee may be another Lender, if a Lender accepts such assignment), provided that:

(a) the Borrower shall have paid to the Administrative Agent the assignment fee (if any) specified in Section 10.06(b);

(b) such Lender shall have received payment of an amount equal to the outstanding principal of its Loans and L/C Advances, accrued interest thereon, accrued fees and all other amounts payable to it hereunder and under the other Loan Documents (including any amounts under Section 3.05) from, or on behalf of, the assignee (to the extent of such outstanding principal and accrued interest and fees) or the Borrower (in the case of all other amounts);

(c) in the case of any such assignment resulting from a claim for compensation under Section 3.04 or payments required to be made pursuant to Section 3.01, such assignment will result in a reduction in such compensation or payments thereafter;

(d) such assignment does not conflict with applicable Laws; and

(e) in the case of an assignment resulting from a Lender becoming a Non-Consenting Lender, the applicable assignee shall have consented to the applicable amendment, waiver or consent.

A Lender shall not be required to make any such assignment or delegation if, prior thereto, as a result of a waiver by such Lender or otherwise, the circumstances entitling the Borrower to require such assignment and delegation cease to apply. Each party hereto agrees that an assignment required pursuant to this paragraph may be effected pursuant to an Assignment and Assumption executed by the Borrower, the Administrative Agent and the assignee and that the Lender required to make such assignment need not be a party thereto.

10.14 Governing Law; Jurisdiction; Etc

. THIS AGREEMENT AND THE OTHER LOAN DOCUMENTS AND ANY CLAIMS, CONTROVERSY, DISPUTE OR CAUSE OF ACTION (WHETHER IN CONTRACT OR TORT OR OTHERWISE) BASED UPON, ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT (EXCEPT, AS TO ANY OTHER LOAN DOCUMENT, AS EXPRESSLY SET FORTH THEREIN) AND THE TRANSACTIONS CONTEMPLATED HEREBY AND THEREBY SHALL BE GOVERNED BY, AND CONSTRUED IN ACCORDANCE WITH, THE LAW OF THE STATE OF NEW YORK.

(a) SUBMISSION TO JURISDICTION. THE BORROWER IRREVOCABLY AND UNCONDITIONALLY AGREES THAT IT WILL NOT COMMENCE ANY ACTION, LITIGATION OR PROCEEDING OF ANY KIND OR DESCRIPTION, WHETHER IN LAW OR EQUITY, WHETHER IN CONTRACT OR IN TORT OR OTHERWISE, AGAINST THE ADMINISTRATIVE AGENT, ANY LENDER, THE L/C ISSUER, OR ANY RELATED PARTY OF THE FOREGOING IN ANY WAY RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT OR THE TRANSACTIONS RELATING HERETO OR THERETO, IN ANY FORUM OTHER THAN THE COURTS OF THE STATE OF NEW YORK SITTING IN NEW YORK COUNTY AND OF THE UNITED STATES DISTRICT COURT OF THE SOUTHERN DISTRICT OF NEW YORK, AND ANY APPELLATE COURT FROM ANY THEREOF, AND EACH OF THE PARTIES HERETO IRREVOCABLY AND UNCONDITIONALLY SUBMITS TO THE JURISDICTION OF SUCH COURTS AND AGREES THAT ALL CLAIMS IN RESPECT OF ANY SUCH ACTION, LITIGATION OR PROCEEDING MAY BE HEARD AND DETERMINED IN SUCH NEW YORK STATE COURT OR, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, IN SUCH FEDERAL COURT. EACH OF THE PARTIES HERETO AGREES THAT A FINAL JUDGMENT IN ANY SUCH ACTION, LITIGATION OR PROCEEDING SHALL BE CONCLUSIVE AND MAY BE ENFORCED IN OTHER JURISDICTIONS BY SUIT ON THE JUDGMENT OR IN ANY OTHER MANNER PROVIDED BY LAW. NOTHING IN THIS AGREEMENT OR IN ANY OTHER LOAN DOCUMENT SHALL AFFECT ANY RIGHT THAT THE ADMINISTRATIVE AGENT, ANY LENDER OR THE L/C ISSUER MAY OTHERWISE HAVE TO BRING ANY ACTION OR PROCEEDING RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT AGAINST THE BORROWER OR ITS PROPERTIES IN THE COURTS OF ANY JURISDICTION.

(b) WAIVER OF VENUE. THE BORROWER IRREVOCABLY AND UNCONDITIONALLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY OBJECTION THAT IT MAY NOW OR

HEREAFTER HAVE TO THE LAYING OF VENUE OF ANY ACTION OR PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT IN ANY COURT REFERRED TO IN PARAGRAPH (B) OF THIS SECTION. EACH OF THE PARTIES HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, THE DEFENSE OF AN INCONVENIENT FORUM TO THE MAINTENANCE OF SUCH ACTION OR PROCEEDING IN ANY SUCH COURT.

(c) SERVICE OF PROCESS. EACH PARTY HERETO IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 10.02. NOTHING IN THIS AGREEMENT WILL AFFECT THE RIGHT OF ANY PARTY HERETO TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY APPLICABLE LAW

10.15 WAIVER OF JURY TRIAL

. EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS AGREEMENT OR ANY OTHER LOAN DOCUMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY OR THEREBY (WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY). EACH PARTY HERETO (A) CERTIFIES THAT NO REPRESENTATIVE, AGENT OR ATTORNEY OF ANY OTHER PERSON HAS REPRESENTED, EXPRESSLY OR OTHERWISE, THAT SUCH OTHER PERSON WOULD NOT, IN THE EVENT OF LITIGATION, SEEK TO ENFORCE THE FOREGOING WAIVER AND (B) ACKNOWLEDGES THAT IT AND THE OTHER PARTIES HERETO HAVE BEEN INDUCED TO ENTER INTO THIS AGREEMENT AND THE OTHER LOAN DOCUMENTS BY, AMONG OTHER THINGS, THE MUTUAL WAIVERS AND CERTIFICATIONS IN THIS SECTION.

10.16 No Advisory or Fiduciary Responsibility

. In connection with all aspects of each transaction contemplated hereby (including in connection with any amendment, waiver or other modification hereof or of any other Loan Document), the Borrower acknowledges and agrees, and acknowledges its Affiliates' understanding, that: (i) (A) the arranging and other services regarding this Agreement provided by the Administrative Agent and the Lenders are arm's-length commercial transactions between the Borrower and its Affiliates, on the one hand, and the Administrative Agent and the Lenders, on the other hand, (B) the Borrower has consulted its own legal, accounting, regulatory and tax advisors to the extent it has deemed appropriate, and (C) the Borrower is capable of evaluating, and understands and accepts, the terms, risks and conditions of the transactions contemplated hereby and by the other Loan Documents; (ii) (A) the Administrative Agent and the Lenders each is and has been acting solely as a principal and, except as expressly agreed in writing by the relevant parties, has not been, is not, and will not be acting as an advisor, agent or fiduciary for the Borrower or any of its Affiliates, or any other Person and (B) neither the Administrative Agent nor any Lender has any obligation to the Borrower or any of its Affiliates with respect to the transactions contemplated hereby except those obligations expressly set forth herein and in the other Loan Documents; and (iii) the Administrative Agent, the Lenders, and their respective Affiliates may be engaged in a broad range of transactions that involve interests that differ from those of the Borrower and its Affiliates, and neither the Administrative Agent nor any Lender has any obligation to disclose any of such interests to the Borrower or its Affiliates. To the fullest extent permitted by law, the Borrower hereby waives and releases any claims that it may have against the Administrative Agent and the Lenders with respect to any breach or alleged breach of agency or fiduciary duty in connection with any aspect of any transaction contemplated hereby.

10.17 Electronic Execution of Assignments and Certain Other Documents

. The words "execution," "execute", "signed," "signature," and words of like import in or related to any document to be signed in connection with this Agreement and the transactions contemplated hereby (including without limitation Assignment and Assumptions, amendments or other Committed Loan Notices, Swing Line Loan Notices, waivers and consents) shall be deemed to include electronic signatures, the electronic matching of assignment terms and contract formations on electronic platforms approved by the Administrative Agent, or the keeping of records in electronic form, each of which shall be of the same legal effect, validity or enforceability as a manually executed signature or the use of a paper-based recordkeeping system, as the case may be, to the extent and as provided for in any applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the New York State Electronic Signatures and Records Act, or any other similar state laws based on the Uniform Electronic Transactions Act; provided that notwithstanding anything contained herein to the contrary the Administrative Agent is under no obligation to agree to accept electronic signatures in any form or in any format unless expressly agreed to by the Administrative Agent pursuant to procedures approved by it.

10.18 USA PATRIOT Act

. Each Lender that is subject to the Act (as hereinafter defined) and the Administrative Agent (for itself and not on behalf of any Lender) hereby notifies the Borrower that pursuant to the requirements of the USA PATRIOT Act (Title III of Pub. L. 107-56 (signed into law October 26, 2001)) (the "Act"), it is required to obtain, verify and record information that identifies each Loan Party, which information includes the name and address of each Loan Party and other information that will allow such Lender or the Administrative Agent, as

applicable, to identify each Loan Party in accordance with the Act. The Borrower shall, promptly following a request by the Administrative Agent or any Lender, provide all documentation and other information that the Administrative Agent or such Lender requests in order to comply with its ongoing obligations under applicable "know your customer" and anti-money laundering rules and regulations, including the Act and the Beneficial Ownership Regulation.

10.19 Acknowledgement and Consent to Bail-In of EEA Financial Institutions

. Solely to the extent any Lender or L/C Issuer that is an EEA Financial Institution is a party to this Agreement and notwithstanding anything to the contrary in any Loan Document or in any other agreement, arrangement or understanding among any such parties, each party hereto acknowledges that any liability of any Lender or L/C Issuer that is an EEA Financial Institution arising under any Loan Document, to the extent such liability is unsecured, may be subject to the write-down and conversion powers of an EEA Resolution Authority and agrees and consents to, and acknowledges and agrees to be bound by:

(a) the application of any Write-Down and Conversion Powers by an EEA Resolution Authority to any such liabilities arising hereunder which may be payable to it by any Lender or L/C Issuer that is an EEA Financial Institution; and

(b) the effects of any Bail-In Action on any such liability, including, if applicable:

(i) a reduction in full or in part or cancellation of any such liability;

(ii) a conversion of all, or a portion of, such liability into shares or other instruments of ownership in such EEA Financial Institution, its parent undertaking, or a bridge institution that may be issued to it or otherwise conferred on it, and that such shares or other instruments of ownership will be accepted by it in lieu of any rights with respect to any such liability under this Agreement or any other Loan Document; or

(iii) the variation of the terms of such liability in connection with the exercise of the write-down and conversion powers of any EEA Resolution Authority.

[signature pages follow]

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be duly executed as of the date first above written.

BIOMARIN PHARMACEUTICAL INC.

By: /s/ Jean-Jacques Bienaime
Name: Jean-Jacques Bienaime
Title: Chief Executive Officer

BANK OF AMERICA, N.A., as
Administrative Agent

By: /s/ Kevin L. Ahart
Name: Kevin L. Ahart
Title: Vice President

BANK OF AMERICA, N.A., as a Lender and Swing Line Lender

By: /s/ Sebastian Lurie
Name: Sebastian Lurie
Title: SVP

CITIBANK, N.A., as a Lender and an L/C Issuer

By: /s/ Sigrid Nubla
Name: Sigrid Nubla
Title: Director

WELLS FARGO BANK, N.A., as a Lender

By: /s/ Sara Barton
Name: Sara Barton
Title: Vice President

Exhibit 21.1

Subsidiaries of BioMarin Pharmaceutical Inc. as of December 31, 2018

Name	Direct Parent	Ownership	Jurisdiction of Incorporation
BioMarin Commercial Ltd	BioMarin Pharmaceutical Inc.	100%	Ireland
BioMarin International Holdings Inc	BioMarin Pharmaceutical Inc.	100%	Delaware
BioMarin International Ltd	BioMarin Commercial Ltd.	100%	Ireland

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
BioMarin Pharmaceutical Inc.:

We consent to the incorporation by reference in the registration statements (Nos. 333-218695, 333-206094, 333-197759, 333-201504, 333-188620, 333-168552, 333-136963 and 333-181697) on Form S-8 and in the registration statement (No. 333-212974) on Form S-3 of BioMarin Pharmaceutical Inc., of our reports dated February 27, 2019, with respect to the consolidated balance sheets of BioMarin Pharmaceutical, Inc. and subsidiaries, as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2018, and the related notes (collectively, the "consolidated financial statements"), which report appears in the December 31, 2018 annual report on Form 10-K of BioMarin Pharmaceutical, Inc. Our report refers to a change in accounting for revenue.

/s/ KPMG LLP

San Francisco, California
February 27, 2019

Exhibit 31.1

CERTIFICATION

I, Jean-Jacques Bienaimé, certify that:

1. I have reviewed this Annual Report on Form 10-K of BioMarin Pharmaceutical Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2019

/S/ JEAN-JACQUES BIENAIMÉ
Jean-Jacques Bienaimé
Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Daniel Spiegelman certify that:

1. I have reviewed this Annual Report on Form 10-K of BioMarin Pharmaceutical Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2019

/S/ DANIEL SPIEGELMAN
Daniel Spiegelman
Executive Vice President and Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Annual Report on Form 10-K of BioMarin Pharmaceutical Inc. (the Company) for the year ended December 31, 2018 as filed with the Securities and Exchange Commission on the date hereof (the Report), we, Jean-Jacques Bienaimé, and Daniel Spiegelman, hereby certify, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/S/ JEAN-JACQUES BIENAIMÉ

Jean-Jacques Bienaimé
Chief Executive Officer
February 27, 2019

/S/ DANIEL SPIEGELMAN

Daniel Spiegelman
Executive Vice President and Chief Financial Officer
February 27, 2019

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of BioMarin Pharmaceutical Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.