UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

ANNUAL REPORT UNDER SECTION 13 or 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2019

Commission file number 001-38661

Elanco Animal Health Incorporated

(Exact name of Registrant as specified in its charter)

INDIANA	82-5497352
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

2500 INNOVATION WAY, GREENFIELD, INDIANA 46140
(Address of principal executive offices)

Registrant's telephone number, including area code (877) 352-6261

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, no par value	ELAN	New York Stock Exchange
5.00% Tangible Equity Units	ELAT	New York Stock Exchange

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

None.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Yes ☐ No ☒

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§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 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 a “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 Exchange Act).

Yes ☐ No ☒

Aggregate market value of the common equity held by non-affiliates computed by reference to the price at which the common equity was last sold as of June 30, 2019, the last business day of the Registrant’s most recently completed second fiscal quarter, was approximately $12.4 billion. The registrant has no non-voting common stock.

The number of shares of common stock outstanding as of February 25, 2020 were 398,532,256

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy materials for its 2020 Annual Meeting of shareholders are incorporated by reference into Part III hereof.

Elanco Animal Health Incorporated
Form 10-K
For the Year Ended December 31, 2019
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Forward-Looking Statements

This Annual Report on Form 10-K includes forward-looking statements within the meaning of the federal securities laws. This annual report contains forward-looking statements, including, without limitation, statements concerning our acquisition of the animal health business of Bayer Aktiengesellschaft (Bayer) and our estimated "stand up" costs as a result of our separation from Eli Lilly & Co. (Lilly), our estimated interest expense, our industry and our operations, performance and financial condition, including in particular, statements relating to our business, growth strategies, product development efforts and future expenses.

Forward-looking statements are based on our current expectations and assumptions regarding our business, the economy and other future conditions. Because forward-looking statements relate to the future, by their nature, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict. As a result, our actual results may differ materially from those contemplated by the forward-looking statements. Important factors that could cause actual results to differ materially from those in the forward-looking statements include regional, national, or global political, economic, business, competitive, market, and regulatory conditions, including but not limited to the following:

- heightened competition, including from innovation or generics;
- the impact of disruptive innovations and advances in veterinary medical practices, animal health technologies and alternatives to animal-derived protein;
- changes in regulatory restrictions on the use of antibiotics in food animals;
- our ability to implement our business strategies or achieve targeted cost efficiencies and gross margin improvements;
- consolidation of our customers and distributors;
- an outbreak of infectious disease carried by food animals;
- the success of our research and development (R&D) and licensing efforts;
- our ability to complete acquisitions and successfully integrate the businesses we acquire, including the animal health business of Bayer;
- misuse, off-label or counterfeiting use of our products;
- unanticipated safety, quality or efficacy concerns associated with our products;
- the impact of weather conditions and the availability of natural resources;
- disruption in our supply chain due to manufacturing issues experienced by our contract manufacturers;
- the impact of increased or decreased sales to our channel distributors resulting in higher or lower inventory levels held by them in advance of or trailing actual customer demand, which could lead to variations in quarterly revenue results;
- risks related to our presence in emerging markets;
- changes in United States (U.S.) foreign trade policy, imposition of tariffs or trade disputes;
- the impact of global macroeconomic conditions; and
- the effect on our business resulting from our separation from Lilly, including the various costs associated with transition to a standalone entity, including the ability to stand up our enterprise resource planning (ERP) system and other information technology systems.

See "Risk Factors" in Part I, Item 1A of this Annual Report on Form 10-K for a further description of these and other factors. Although we have attempted to identify important risk factors, there may be other risk factors not presently known to us or that we presently believe are not material that could cause actual results and developments to differ materially from those made in or suggested by the forward-looking statements contained in this annual report. If any of these risks materialize, or if any of the above assumptions underlying forward-looking statements prove incorrect, actual results and developments may differ materially from those made in or suggested by the forward-looking statements contained in this annual report. For the reasons described above, we caution you against relying on any forward-looking statements, which should also be read in conjunction with the other cautionary statements that are included elsewhere in this annual report. Any forward-looking statement made by us in this annual report speaks only as of the date hereof. Factors or events that could cause our actual results to differ

may emerge from time to time, and it is not possible for us to predict all of them. We undertake no obligation to publicly update or to revise any forward-looking statement, whether as a result of new information, future developments or otherwise, except as may be required by law. Comparisons of results for current and any prior periods are not intended to express any future trends or indications of future performance, unless specifically expressed as such, and should be viewed as historical data.

Part I

Item 1. Business

Overview

Founded in 1954 as part of Lilly, Elanco Animal Health Incorporated (Elanco Parent) and its subsidiaries (collectively, Elanco, the Company, we, us, or our) is a premier animal health company that innovates, develops, manufactures and markets products for companion and food animals. Headquartered in Greenfield, Indiana, we are the fourth largest animal health company in the world, with revenue of $3.1 billion for the year ended December 31, 2019. Globally, we are #1 in medicinal feed additives, #2 in poultry, and #3 in other pharmaceuticals, which are mainly companion animal therapeutics, measured by 2018 revenue, according to Vetnosis. We also have one of the broadest portfolios of pet parasiticides in the companion animal sector. We offer a diverse portfolio of more than 125 brands that make us a trusted partner to veterinarians and food animal producers in more than 90 countries.

Elanco Parent was formed in 2018, as a wholly-owned subsidiary of Lilly, to serve as the ultimate parent company of substantially all of the animal health businesses of Lilly.

On September 20, 2018, our common stock began trading on the New York Stock Exchange (NYSE) under the symbol “ELAN.” On September 24, 2018, Elanco Parent completed an initial public offering (IPO), resulting in the issuance of 72.3 million shares of its common stock (including shares issued pursuant to the underwriters' option to purchase additional shares), which represented 19.8% of the outstanding shares, at $24.00 per share resulting in total net proceeds after underwriting discounts and commissions, of $1.7 billion. In connection with the completion of the IPO through a series of equity and other transactions, Lilly transferred to Elanco Parent the animal health businesses that form its business. In exchange, Elanco Parent has paid to Lilly approximately $4.2 billion, which included the net proceeds from the IPO, the net proceeds from the debt offering completed by Elanco Parent in August 2018 and the term loan entered into by Elanco Parent in September 2018 (see Note 9: Debt to our consolidated and combined financial statements). These transactions are collectively referred to herein as the "Separation."

On February 8, 2019, Lilly announced an exchange offer whereby Lilly shareholders could exchange all or a portion of Lilly common stock for shares of Elanco common stock owned by Lilly. The disposition of Elanco shares was completed on March 11, 2019, and resulted in the full separation of Elanco along with the disposal of Lilly's entire ownership and voting interest in Elanco.

We operate our business in a single segment directed at fulfilling our vision of enriching the lives of people through food, making protein more accessible and affordable, and through pet companionship, helping pets live longer, healthier lives. We advance our vision by offering products in four primary categories:

Companion Animal Disease Prevention (CA Disease Prevention): We have one of the broadest parasiticide portfolios in the companion animal sector based on indications, species and formulations, with products that protect pets from worms, fleas and ticks. Combining our parasiticide portfolio with our vaccines presence, we are a leader in the U.S. in the disease prevention category based on share of revenue.

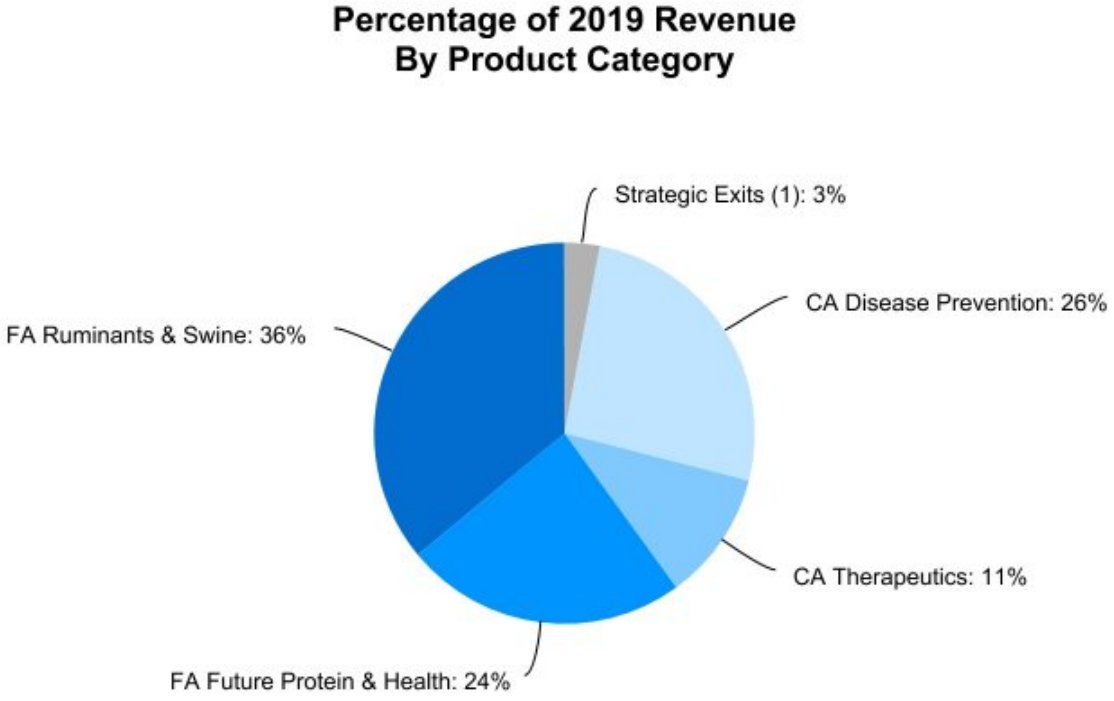
Companion Animal Therapeutics (CA Therapeutics): We have a broad pain and osteoarthritis portfolio across species, modes of action, indications and disease stages. Pet owners are increasingly treating osteoarthritis in their pets, and our *Galliprant* product is one of the fastest growing osteoarthritis treatments in the U.S. We also have treatments for otitis (ear infections), as well as cardiovascular and dermatology indications.

Food Animal Future Protein & Health (FA Future Protein & Health): Our portfolio in this category, which includes vaccines, nutritional enzymes and animal-only antibiotics, serves the growing demand for protein and includes innovative products in poultry and aquaculture production, where demand for animal health products

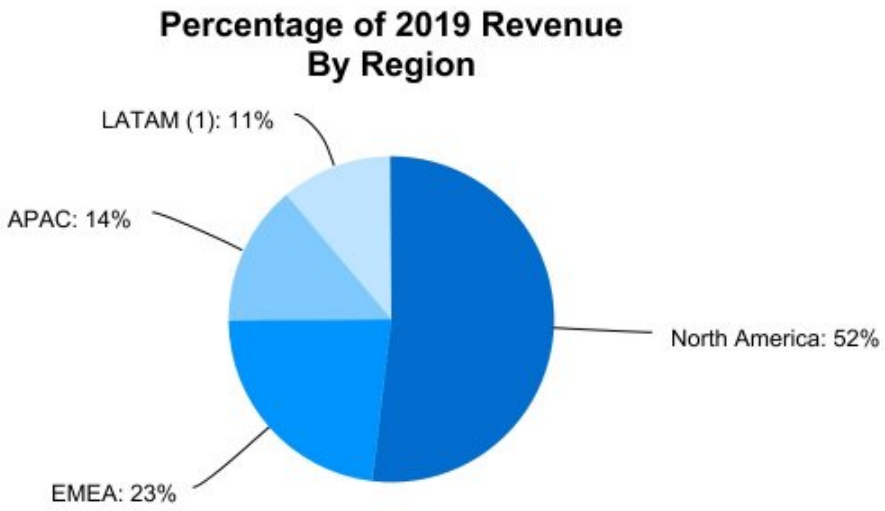
is outpacing overall industry growth. We are focused on developing functional nutritional health products that promote food animal health, including enzymes, probiotics and prebiotics. We are a leader in providing vaccines as alternatives to antibiotics to promote animal health based on share of revenue.

Food Animal Ruminants & Swine (FA Ruminants & Swine): We have developed a range of food animal products used extensively in ruminant (e.g., cattle, sheep and goats) and swine production.

We have a top four presence in all four key industry geographic regions: North America (NA); Europe, the Middle East and Africa (EMEA); Latin America (LATAM); and Asia-Pacific (APAC), as measured by 2018 revenue, according to Vetnosis. The following graphs demonstrate our revenue for the year ended December 31, 2019 by product category and geography:



(1) Strategic Exits includes revenue from third-party manufacturing, distribution and other contractual arrangements, as well as products not core to our business, which we made the decision to exit.



(1) LATAM includes aquaculture in all regions

Through our global sales force of approximately 1,425 sales representatives, our veterinary consultants and our key distributors, we seek to build strong customer relationships and fulfill demand for our food animal products primarily with food animal producers, veterinarians and nutritionists, and for our companion animal products primarily with veterinarians and, in some markets, pet owners. We are also expanding into retail channels in order to meet pet owners where they want to purchase.

Our inclusive approach to sourcing innovation helps us identify, attract, fund and develop new ideas that enhance our pipeline and reduce risk as compared to an in-house only approach. Through this process we have launched or acquired 14 new products since 2015, including the additions of *Entyce*™, *Nocita*™ and *Tanovea*™ in 2019, that delivered $439.2 million of revenue in 2019.

We believe we have an experienced leadership team that fosters an adaptive, purpose-driven culture among approximately 6,080 employees worldwide as of December 31, 2019 and that our employees share a deep conviction for achieving our vision of food and companionship enriching life.

For the years ended December 31, 2019 and 2018, our revenue was $3.1 billion, and for the year ended December 31, 2017, our revenue was $2.9 billion. For the years ended December 31, 2019, 2018 and 2017, our net income (loss) was $67.9 million, $86.5 million and $(310.7) million, respectively.

Products

We have a diverse portfolio of products marketed under more than 125 brands, including products for both food animals and companion animals.

Our food animal products are designed to enable producers to keep animals healthy and deliver more food while using fewer resources. Our antibacterials, anticoccidials, vaccines and parasiticides aim to make food safer by preventing and controlling disease. We offer products and support to enhance the integrity of the food supply, while our productivity enhancers help make food more affordable and abundant by increasing the amount of meat or milk an animal can supply. Furthermore, our expertise and data analytics help our customers improve production efficiency and business performance. Food animal products represented approximately 60% of our revenue for the year ended December 31, 2019.

Our companion animal products help veterinarians better care for pets. We partner with pet owners and veterinarians for the purpose of providing a consistent flow of innovative and effective products and support. Our R&D focuses on products that prevent and treat disease, improve and extend quality of life and improve the type of care received by pets. We also partner closely with veterinarians to provide technical support and case

management for our products. Companion animal products represented approximately 37% of our revenue for the year ended December 31, 2019.

We group our products into four principal categories:

CA Disease Prevention: includes parasiticides and vaccine products for canines and felines.

CA Therapeutics: includes products for the treatment of pain, osteoarthritis, otitis, cardiovascular and dermatology indications in canines and felines.

FA Future Protein & Health: includes vaccines, antibiotics, parasiticides and other products used in poultry and aquaculture production, as well as functional nutritional health products, including enzymes, probiotics and prebiotics.

FA Ruminants & Swine: includes vaccines, antibiotics, implants, parasiticides and other products used in ruminants and swine production, as well as certain other food animal products.

We pursue the development of new chemical and biological molecules through our innovation strategy. Since 2015, we have launched or acquired the following 14 products:

In CA Disease Prevention, *Credelio*™ and *Interceptor*™ *Plus*.

In CA Therapeutics, *Galliprant, Osurnia*™, *Tanovea*, *Entyce* and *Nocita.*

In FA Future Protein & Health, *Inteprity*™, *Imvixa*™, *Clynav*™ and *Correlink*™.

In FA Ruminants & Swine, *Imrestor*™*, Kavault*™ and *Prevacent*™.

In the second quarter of 2018, we suspended commercialization of *Imrestor* and plan to pursue additional indications. In addition, as part of our antitrust strategy in connection with the acquisition of the animal health business of Bayer, we announced in January 2020 our plan to divest *Osurnia* and the U.S. rights to *Capstar*™ and in February 2020 our plan to divest *Vecoxan*™.

In 2016, we announced the creation of our Nutritional Health organization, which focuses on functional nutrition products, including enzymes, probiotics and prebiotics, which impact animal microbiomes and other dietary factors to reduce disease incidence, improve gut health and enhance feed digestibility. We first focused on nutritional health in 2012, with the acquisition of ChemGen and the *Hemicell*™ brand. In 2016, we entered into an agreement with Agro Biosciences, Inc. to commercialize *Correlink* - a novel direct-fed microbial (probiotic) product outside the U.S. In early 2018, we announced a new global, exclusive in-licensing agreement with Ab E Discovery to further develop and bring to the market an in feed antibody product focused on reducing and controlling coccidiosis. In late 2018, we entered into an R&D collaboration with Novozymes to develop nutritional health products in beef and dairy cattle. In 2019, we entered into an R&D collaboration agreement with AgBiome, Inc. to develop nutritional health products for swine.

Rumensin™, our top selling product, contributed approximately 10%, 11%, and 10% of our revenue in 2019, 2018, and 2017, respectively. No other product contributed 10% or more of our revenue. Our top five selling products, *Rumensin*, *Trifexis*™, *Maxiban*™, *Interceptor Plus* and *Denagard*™, collectively contributed approximately 31% of our 2019 revenue. Our top 10 products collectively contributed 43% of our 2019 revenue.

Set forth below is information regarding our principal products.

CA Disease Prevention Products

Product	Description	Primary Species
Bronchi Shield™ *III* and *Bronchi Shield Oral* (vaccines)	Bronchi Shield III - To protect against adenovirus, parainfluenza and Bordetella bronchiseptica (Bb) in dogs. Bronchi Shield Oral - To protect against Bb in dogs.	Dogs
Comfortis™ (spinosad)	To kill fleas and prevent and treat flea infestations (*Ctenocephalides felis*) in cats 14 weeks of age or older and weighing at least 4.1 lbs. and dogs 14 weeks of age or older and weighing at least 5.0 lbs.	Cats, Dogs

Credelio (lotilaner)	To kill adult fleas and to treat flea infestations (*Ctenocephalides felis*) and treat and control tick infestations (*Amblyomma americanum* (lone star tick), *Dermacentor variabilis* (American dog tick), *Ixodes scapularis* (black-legged tick) and *Rhipicephalus sanguineus* (brown dog tick)) for one month in dogs and puppies 8 weeks of age or older and weighing at least 4.4 lbs.	Dogs
Duramune™ (vaccines)	Includes multiple products that collectively protect against distemper, adenovirus, parvovirus, corona, parainfluenza, leptospira canicola, and other diseases in dogs.	Dogs
Rabvac™ (vaccines)	To protect against rabies, includes a 1-year and 3-year shot.	Cats, Dogs
Fel-O-Vax™ (vaccines)	Includes multiple products that collectively protect against leukemia, rhinovirus, calicivirus, panleukopenia, and chlamydia in cats.	Cats
Fel-O-Guard™ (vaccines)	Includes multiple products that collectively protect against leukemia, rhinovirus, calicivirus, panleukopenia, and chlamydia in cats.	Cats
Interceptor Plus (milbemycin oxime/praziquantel)	To prevent heartworm disease caused by *Dirofilaria immitis* and for the treatment and control of adult roundworm (*Toxocara canis* and *Toxascaris leonina*), adult hookworm (*Ancylostoma caninum*), adult whipworm (*Trichuris vulpis*), and adult tapeworm (*Taenia pisiformis*, *Echinococcus multilocularis*, and *Echinococcus granulosus*) infections in dogs and puppies weighing at least 2 lbs. and 6 weeks of age or older. *Interceptor Plus* is a relaunch of a previously approved formula.	Dogs
Milbemax™ (milbemycin oxime + praziquantel)	To treat and control parasitic infections due to adult hookworm, adult roundworm and adult tapeworm and to prevent heartworm disease caused by *Dirofilaria immitis* in cats and dogs.	Cats, Dogs
Trifexis (spinosad + milbemycin oxime)	To prevent heartworm disease (*Dirofilaria immitis*) and to kill fleas. *Trifexis* is indicated for the prevention and treatment of flea infestations (*Ctenocephalides felis*), and the treatment and control of adult hookworm *(Ancylostoma caninum)*, adult roundworm (*Toxocara canis* and *Toxascaris leonina*) and adult whipworm (*Trichuris vulpis*) infections in dogs and puppies 8 weeks of age or older and weighing at least 5 lbs.	Dogs

CA Therapeutics Products

Product	Description	Primary Species
Atopica™ (cyclosporine A)	To control atopic dermatitis in dogs weighing at least 4 lbs.	Dogs
Fortekor Plus™ (benazepril + pimobendan)	To treat congestive heart failure due to atrioventricular valve insufficiency or dilated cardiomyopathy in dogs.	Dogs
Galliprant (grapiprant)	To control pain and inflammation associated with osteoarthritis in dogs.	Dogs
Onsior™ (robenacoxib)	To control postoperative pain and inflammation associated with soft tissue surgery in dogs weighing at least 5.5 lbs. and 4 months of age or older and control postoperative pain and inflammation associated with orthopedic surgery, ovariohysterectomy and castration in cats weighing at least 5.5 lbs. and 6 months of age or older; for up to a maximum of 3 days.	Cats, Dogs
Osurnia[(1)] (terbinafine + florfenicol + betamethasone acetate)	To treat otitis externa in dogs associated with susceptible strains of bacteria (*Staphylococcus pseudintermedius*) and yeast (*Malassezia pachydermatis*).	Dogs
Entyce (capromorelin)	To stimulate appetite in dogs.	Dogs
Nocita (bupivacaine liposome)	Local anesthetic to provide up to 72 hours of post-operative pain relief following cranial cruciate ligament surgery in dogs and onychectomy in cats.	Cats, Dogs

[(1)] In January 2020, we announced our plan to divest Osurnia in connection with the pending acquisition of the animal health business of Bayer.

Product	Description	Primary Species
AviPro™ (vaccines)	Includes multiple products that collectively protect against Newcastle disease, infectious bronchitis, fowl cholera, paramyxovirus Type 3, Bursal Disease, other diseases and foodborne pathogens like Salmonella in poultry.	Poultry
Clynav (plasmid deoxyribonucleic acid vaccine)	To immunize Atlantic salmon to reduce impaired daily weight gain, and reduce mortality, and cardiac, pancreatic and skeletal muscle lesions caused by pancreas disease following infection with salmonid alphavirus subtype 3 (SAV3).	Fish (Salmon)
Coban™ / *Elancoban*™ (monensin)	To aid in the prevention of coccidiosis in broiler and replacement chickens (caused by *Eimeria necatrix, E. tenella, E. acervulina, E. brunetti, E. mivati*, and *E. maxima*), in turkeys (caused by *Eimeria adenoeides, E. meleagrimitis* and *E. gallopavonis*) and in growing Bobwhite quail (caused by *Eimeria dispersa* and *E. lettyae*). Coban/Elancoban is an animal-only antibiotic and an ionophore.	Poultry
Hemicell (endo-1, 4-â-mannanase)	Enzyme supplement for poultry and swine feeds that contain a source of â-mannanase, which hydrolyses the â-mannans present in soybean and corn meal.	Poultry, Swine
Imvixa (lufenuron)	To prevent and control infestation caused by sea lice, *Caligus reogercresseyi,* in farmed salmon.	Fish (Salmon)
Maxiban (narasin + nicarbazin)	To prevent coccidiosis in broiler chickens caused by *Eimeria necatrix, E. tenella, E. acervulina, E. brunetti, E. mivati* and *E. maxima. Maxiban* is an animal-only antibiotic and an ionophore.	Poultry
Monteban™ (narasin)	To prevent coccidiosis in broiler chickens caused by *Eimeria necatrix, E. tenella, E. acervulina, E. brunetti, E. mivati* and *E. maxima. Monteban* is an animal-only antibiotic and an ionophore.	Poultry
Surmax™ / *Maxus*™ / *Inteprity* (avilamycin)	To prevent mortality caused by necrotic enteritis associated with *Clostridium perfringens* in broiler chickens. *Surmax, Maxis* and *Inteprity* are animal-only antibiotics.	Poultry

FA Ruminants & Swine

Product	Description	Primary Species
Denagard (tiamulin)	To treat Swine Dysentery associated with *Serpulina hyodysenteriae* susceptible to tiamulin and for treatment of swine bacterial enteritis caused by *Escherichia coli* and *Salmonella choleraesuis* sensitive to chlortetracycline and treatment of bacterial pneumonia caused by Pasteurella multocida sensitive to chlortetracycline. *Denagard* is a shared-class antibiotic.	Swine
Pulmotil™ (tilmicosin)	For swine: To control swine respiratory disease associated with *Actinobacillus pleuropneumoniae* and *Pasteurella multocida.* For cattle: To control bovine respiratory disease (BRD) associated with *Mannheimia haemolytica, Pasteurella multocida* and *Histophilus somni* in groups of beef and non-lactating dairy cattle, where active BRD has been diagnosed in at least 10% of the animals in the group. *Pulmotil* is a shared-class antibiotic.	Cattle, Swine
Rumensin (monensin)	For cattle fed in confinement for slaughter: To improve feed efficiency and prevent and control coccidiosis due to *Eimeria bovis* and *Eimeria zuernii*. For dairy cows: To increase milk production efficiency (production of marketable solids-corrected milk per unit of feed intake). For growing cattle on pasture or in dry lot (stocker and feeder and dairy and beef replacement heifers): To increase rate of weight gain and to prevent and control coccidiosis due to *Eimeria bovis* and *Eimeria zuernii*. For mature reproducing beef cows: To improve feed efficiency when receiving supplemental feed and to prevent and control coccidiosis due to *Eimeria bovis* and *Eimeria zuernii*. For goats: To prevent coccidiosis due to *Eimeria crandallis, Eimeria christenseni* and *Eimeria ninakohlyakimovae* in goats maintained in confinement. For calves (excluding veal calves): To prevent and control coccidiosis due to *Eimeria bovis* and *Eimeria zuernii.* *Rumensin* is an animal-only antibiotic and an ionophore.	Cattle
Tylan™ *Premix* (tylosin phosphate)	To control porcine proliferative enteropathies associated with *Lawsonia intracellularis* and to control porcine proliferative enteropathies associated with *Lawsonia intracellularis* immediately after medicating with *Tylan Soluble* (tylosin tartrate) in drinking water. *Tylan Premix* is a shared-class antibiotic.	Swine, Cattle, Poultry
Vira Shield™ (vaccines)	Includes multiple products that protect against infection, bovine rhinotracheitis, bovine viral diarrhea, bovine respiratory syncytial virus, bovine respiratory disease, leptospira canicola and other diseases in cattle.	Cattle

Antibiotics

Antimicrobial resistance in humans, or the risk that bacterial pathogens that cause infectious disease in humans evolve or otherwise emerge that are resistant to antibiotics or other antimicrobials, is a significant health concern, and animal agriculture can play a role in mitigating this risk. As a company dedicated to the health and well-being of animals, we seek to help veterinarians and farmers responsibly use antibiotics when treating animals. In our efforts to address antibiotic resistance while protecting animal health, we introduced a global antibiotic stewardship plan focused on increasing responsible antibiotic use; reducing the need for shared-class antibiotics; and replacing

antibiotics with alternatives to help livestock producers treat and prevent animal disease. Antibiotics, used responsibly, along with good animal care practices, help enhance food safety and animal well-being.

There are two classes of antibiotics used in animal health:

Animal-only antibiotics and ionophores: Not all pathogens that cause disease in animals are infectious in humans, and accordingly animal-only antibiotics are not used in human medicine (i.e., not medically important). Ionophores are a special class of animal-only antimicrobials uniquely developed only for use in animals. In Europe and certain other jurisdictions, ionophores are not currently classified as antibiotics. Because of their animal-only designation, mode of action, and spectrum of activity, their use is not considered to create the same risk of resistance in human pathogens.

Shared-class antibiotics: These are used in both humans and animals. Some antibiotics are used to treat infectious disease caused by pathogens that occur in both humans and animals. Of the 18 major antibiotic resistance threats that the Centers for Disease Control and Prevention tracks, two are associated with infectious disease in animals. As part of our global antibiotic stewardship plan and in compliance with the U.S. Food & Drug Administration (FDA) guidance, shared-class antibiotics are labeled only for the treatment of an established need in animals and only with veterinarian oversight.

We have intentionally shifted away from shared-class antibiotics, and are focusing on animal-only antibiotics, as well as antibiotic-free solutions. In 2019, 11% of our revenue was from products classified as shared-class antibiotics (4% from sales in the U.S. and 7% from sales outside the U.S.), which is down from 16% in 2015. Revenue from animal-only antibiotics and ionophores represented 24% of our total revenue in 2019 (21% from ionophores), which is up from 23% in 2015. Through our policies and efforts in this area, we seek to protect the benefits of antibiotics in human medicine, while responsibly protecting the health of food animals and the safety of our food supply.

Sales and Marketing

Our sales organization includes sales representatives, veterinary consultants and other value added specialists. In markets where we do not have a direct commercial presence, we generally contract with distributors that provide logistics and sales and marketing support for our products.

Our sales representatives visit our customers, including consultants, veterinarians, food animal producers, and resellers, to inform, promote and sell our products and to support customers. Our veterinary consultants are available to provide scientific consulting focused on disease management and herd management, training and education on diverse topics, including responsible product use, and generally have advanced degrees in veterinary medicine, veterinary nutrition or other agriculture-related fields. These direct relationships with customers allow us to understand their needs. Additionally, our sales representatives and veterinary consultants focus on collaborating with our customers to educate and support them on topics such as local disease awareness and to help them adopt new and more sophisticated animal health solutions, including through the use of our products. As a result of these relationships, our sales and consulting visits provide us with access to customer decision makers. In addition, our sales and marketing organization provides enhanced value by providing support to food animal producers to help maximize their yields and reduce costs. Our analytics help customers analyze large amounts of health and production data. As of December 31, 2019, we had approximately 1,425 sales representatives.

Customers

We primarily sell our food animal products to third-party distributors and directly to a diverse set of food animal producers, including beef and dairy farmers as well as pork, poultry and aquaculture operations. We primarily sell our companion animal products to third-party distributors, as well as directly to veterinarians that typically then sell our products to pet owners. We are also expanding into retail channels in order to meet pet owners where they want to purchase. Our largest customer, an affiliate of AmerisourceBergen Corp., is a third-party veterinary distributor and represented approximately 13% of our revenue for the year ended December 31, 2019. Our next two largest customers represented approximately 7% and 6% of our revenue for the year ended December 31, 2019. No other customer represented more than 5% of our revenue for the same period.

Research and Development

Our R&D organization is comprised of internal research, global development, global regulatory and external innovation collaborations and venture investing. As of December 31, 2019, we employed approximately 765 employees in our global R&D and Regulatory Affairs organizations. Our R&D headquarters is located in Greenfield, Indiana. We have R&D facilities in Basel, Switzerland; and Yarrandoo, Australia and R&D facilities co-located with manufacturing sites in Fort Dodge, Iowa; and Cuxhaven, Germany. Additional R&D operations are located in Sao Paulo, Brazil; Shanghai, China; and Bangalore, India. We incurred R&D expenses of $270.1 million in 2019, $246.6 million in 2018 and $251.7 million in 2017.

New product innovation is a core part of our business strategy. Our R&D investment is focused on projects that target novel product introductions, as well as new indications, presentations, combinations and species expansion. Our approach is a build, buy, or ally strategy to develop compelling targets and concepts that originate from our scientists and innovators, academia, agribusiness, or human pharmaceutical and biotechnology at all stages of R&D. The ability to source our concepts from different areas allows us to create a pipeline that can be competitive in the categories in which we have chosen to compete, while reducing our risk by not owning and funding all aspects of our R&D projects.

We seek to concentrate our resources in areas where we believe the science and our capabilities best match the opportunities in the animal health market. Specifically, our R&D focuses on six areas across companion animals and food animals. For companion animals, we have R&D activities in therapeutics, vaccines and parasiticides, while in food animals we are pursuing pharmaceuticals, vaccines and nutritional health.

Our R&D efforts consist of more than 100 active programs balanced across species and technology platforms. For both food animals and companion animals, we apply both large and small molecule approaches. In vaccines, our efforts encompass a full range of modified live, inactivated and nucleic acid strategies. In nutritional health, we focus on products based on enzymes, probiotics, prebiotics and other approaches that modulate biological activity in the animal digestive tract. Additionally, we employ various delivery strategies for products including in-feed, injectable, oral and topical formulations developed in conjunction with our manufacturing team to assure production that maximizes the capabilities within our internal and external manufacturing network.

We engage in licensing and business development to acquire assets for our pipeline and new R&D platforms and to establish strategic R&D collaborations. We make and maintain capital investments in venture capital vehicles that focus on agribusiness and animal health, and we engage in risk sharing collaborations to expand our external capital sources to augment internal investments. To support collaborations with innovation sources focused on human health we have developed capabilities to conduct translational comparative medical research trials in animals with naturally occurring conditions in animals that mimic a human disease or disorder. This type of collaboration de-risks unproven or less well-validated human hypotheses while potentially defining a clinically validated new approach in veterinary medicine.

Our R&D and commercial leadership allocate R&D investment annually with the goal of aligning near and long-term strategic opportunities and objectives. Portfolio investment decisions are made based on the probability of technical success and regulatory approval, timing of approval/launch and earlier milestones, feasibility and cost of development and manufacturing, intellectual property protection and market attractiveness/commercial forecast. R&D projects are supported by pharmaceutical project management approaches and we aim for all of our supporting R&D functional capabilities and capacities to be managed and matched to the evolving demands of the pipeline. We believe this overall R&D management system has enabled us to consistently gain product approvals while maintaining clear visibility to pipeline breadth and depth to support sustained launches into the future.

Manufacturing and Supply Chain

Prior to the separation, our products were manufactured at both sites operated by us and sites operated by third-party contract manufacturing organizations (CMOs).

We own and operate 12 internal manufacturing sites, four of which focus on vaccines, six of which focus on other animal health products and two of which are regional sites that focus on packaging:

Site	Location	Site	Location
Clinton	Indiana, U.S.	Prince Edward Island	Canada
Speke	Liverpool, U.K.	Winslow	Maine, U.S.
Kansas City	Kansas, U.S.	Fort Dodge	Iowa, U.S.
Huningue	France	Cuxhaven	Germany
Wusi	China	Chungli	Taiwan
Terre Haute	Indiana, U.S.	Barueri	Brazil

We will continue to manufacture one product, human growth hormone, for Lilly at one of these sites until the end of 2020.

Our global manufacturing and supply chain is also supported by a network of CMOs. As of December 31, 2019, this network was comprised of approximately 90 CMOs. Our external manufacturing network centrally governs our global CMO relationships and provides oversight to these CMOs through four hubs.

We select CMOs based on several factors: (i) their ability to reliably supply products or materials that meet our quality standards at an optimized cost; (ii) their access to specialty products and technologies; (iii) capacity; and (iv) financial analyses. Our External Manufacturing Network seeks to ensure that all of the CMOs we use adhere to our standards of manufacturing quality.

We purchase certain raw materials necessary for the commercial production of our products from a variety of third-party suppliers. We utilize logistics service providers as a part of our global supply chain, primarily for shipping and logistics support.

We intend to continue our efficiency improvement programs in our manufacturing and supply chain organization. We have strong globally managed and coordinated quality control and quality assurance programs in place at all internal manufacturing sites and external manufacturing hubs, and we regularly inspect and audit our internal sites and CMO locations.

Competition

We face intense competition in the sectors and regions on which we focus. Principal methods of competition vary depending on the particular region, species, product category, or individual product. Some of these methods include new product development, quality, price, service and promotion.

Our primary competitors include animal health medicines and vaccines companies such as Zoetis Inc.; Boehringer Ingelheim Vetmedica, Inc., the animal health division of Boehringer Ingelheim GmbH; Merck Animal Health, the animal health division of Merck & Co., Inc.; and the animal health business of Bayer. In August 2019, we entered into an agreement to acquire the animal health business of Bayer (see Note 6: Acquisitions to our consolidated and combined financial statements). We also face competition globally from manufacturers of generic drugs, as well as from producers of nutritional health products, such as DSM Nutritional Products AG and Danisco Animal Nutrition, the animal health division of E.I. du Pont de Nemours and Company, a subsidiary of DowDuPont, Inc. There are also several new start-up companies working in the animal health area. In addition, we compete with numerous other producers of animal health products throughout the world.

Intellectual Property

Our technology, brands and other intellectual property are important elements of our business. We rely on patent, trademark, copyright and trade secret laws, as well as regulatory exclusivity periods and non-disclosure agreements to protect our intellectual property rights. Our policy is to vigorously protect, enforce and defend our rights to our intellectual property, as appropriate.

Our product portfolio and certain product candidates enjoy the protection of approximately 3,000 patents and applications, filed in over 50 countries, with concentration in our major market countries as well as other countries with strong patent systems, such as Australia, Brazil, Canada, Europe, Japan and the U.S. Many of the patents and patent applications in our portfolio are the result of our own work, while other patents and patent applications in our portfolio were at least partially developed, and licensed to us, by third parties. A subset of our current products or product candidates are covered by patents and patent applications in our portfolio.

Patents for individual products expire at different times based on the date of the patent filing (or sometimes the date of patent grant) and the legal term of patents in the countries where such patents are obtained. For example, *Galliprant's* active ingredient, grapiprant, is encompassed by both compound and physical form patents in the U.S., Europe, Canada and other key markets, with terms that expire between October 2021 and March 2026. Various formulation and method of use patents encompass the spinosad pesticide products, *Comfortis* and *Trifexis*. The *Comfortis* formulation patent extends through August 2020 in the U.S., Canada and Australia, and, upon grant of applicable supplementing protection certificate (SPC), through August 2025 in Europe. The *Trifexis* formulation and method of use patents extend through September 2021 in the U.S., Canada and Australia, and, upon grant of applicable SPC, through September 2026 in Europe. We typically maintain all of our patents and assert our patent rights against third parties as appropriate.

Additionally, many of our vaccine products, including the *Duramune* family of vaccines, are based on proprietary or patented master seeds and formulations. We actively seek to protect our proprietary information, including our trade secrets and proprietary know-how, through a variety of means including by seeking to require our employees, consultants, advisors and partners to enter into confidentiality agreements and other arrangements upon the commencement of their employment or engagement.

In order to facilitate the Separation and allow Lilly's and our operations to continue with minimal interruption, Lilly licensed to us the right to use certain intellectual property rights in the animal health field. In addition, Lilly granted us a transitional license to use certain of Lilly's trademarks for a period of time following the IPO.

We seek to file and maintain trademarks around the world based on commercial activities in most regions where we have, or desire to have, a business presence for a particular product. We currently maintain more than 9,000 trademark applications and registrations in major regions, primarily identifying products dedicated to the care of livestock and companion animals.

Regulatory

The sale of animal health products is governed by the laws and regulations specific to each country in which we sell our products. To maintain compliance with these regulatory requirements, we have established processes, systems and dedicated resources with end-to-end involvement from product concept to launch and maintenance in the market. Our regulatory function actively seeks to engage in dialogue with various global agencies regarding their policies that relate to animal health products. In the majority of our markets, the relevant health authority is separate from those governing human medicinal products.

United States

U.S. Food and Drug Administration. The regulatory body that is responsible for the regulation of animal health pharmaceuticals in the U.S. is the Center for Veterinary Medicine (CVM), a division of the FDA. All manufacturers of animal health pharmaceuticals must demonstrate their products to be safe, effective and produced by a consistent method of manufacture as defined under the Federal Food, Drug and Cosmetic Act (FFDCA). The FDA's basis for approving a new animal drug application is documented in a Freedom of Information Summary. Post-approval monitoring of products is required by law, with reports being provided to the CVM's Office of Surveillance and Compliance. Reports of product quality defects, adverse events or unexpected results are maintained and submitted in accordance with the law. Additionally, as part of the drug experience report, we are required to submit all new information pertaining to the safety or effectiveness of a product, regardless of the source.

U.S. Department of Agriculture. The regulatory body in the U.S. for veterinary biologicals is the U.S. Department of Agriculture (USDA). The Center for Veterinary Biologics within the Animal and Plant Health Inspection Service in the USDA is responsible for the regulation of animal health biologicals, which includes but is not limited to vaccines, bacterins, allergens, antibodies, antitoxins, toxoids, immunostimulants, certain cytokines, antigenic or immunizing components of live microorganisms, and diagnostic components of natural or synthetic origin, or that are derived

from synthesizing or altering various substances or components of substances such as microorganisms, genes or genetic sequences, carbohydrates, proteins, antigens, allergens or antibodies. All manufacturers of animal health biologicals must show their products to be pure, safe, effective and produced by a consistent method of manufacture as defined under the Virus Serum Toxin Act. Post-approval monitoring of products is required. Reports of product quality defects, adverse events or unexpected results are maintained and submitted in accordance with the agency requirements.

Environmental Protection Agency. The main regulatory body in the U.S. for veterinary pesticides is the Environmental Protection Agency (EPA). The EPA's Office of Pesticide Programs is responsible for the regulation of most pesticide products applied to animals in accordance with a memorandum of understanding between the FDA and EPA for products that are subject to regulation under both the FFDCA and the Federal Insecticide, Fungicide and Rodenticide Act. All manufacturers of animal health pesticides must show their products will not cause unreasonable adverse effects to man or the environment as stated in the act. Within the U.S., individual state pesticide authorities must, before distribution in that state, also approve pesticide products that are approved by the EPA. Post-approval monitoring of products is required, with reports provided to the EPA and some state regulatory agencies.

Food Safety Inspection Service. The FDA is authorized to determine the safety of substances (including "generally recognized as safe" substances, food additives and color additives), as well as prescribe their safe conditions of use. However, although the FDA has the responsibility for determining the safety of substances, the Food Safety and Inspection Service, the public health agency in the USDA, still retains, under the tenets of the Federal Meat Inspection Act and the Poultry Products Inspection Act and their implementing regulations, the authority to determine that new substances and new uses of previously approved substances are suitable for use in meat and poultry products.

The Foreign Corrupt Practices Act (FCPA) prohibits U.S. corporations and their representatives from offering, promising, authorizing or making payments to any foreign government official, government staff member, political party or political candidate in an attempt to obtain or retain business abroad. The scope of the FCPA includes interactions with certain healthcare professionals in many countries. Other countries have enacted similar anti-corruption laws and/or regulations. In some countries in which we operate, the pharmaceutical and life sciences industries are exposed to a high risk of corruption associated with sales to healthcare professionals and institutions.

Outside of the United States

European Union (EU). We are governed by the following EU regulatory bodies:

The European Medicines Agency (EMA) is a centralized agency of the EU responsible for the scientific evaluation of Veterinary Medicinal Products (VMP) developed by pharmaceutical companies for use in the EU. The agency has a veterinary review section distinct from the medical review section for human products. The Committee for Veterinary Medicinal Products (CVMP) is responsible for scientific review of the submissions for VMP and Immunological Veterinary Medicinal Products. If the CVMP concludes that all requirements for quality, safety and efficacy are met, it issues a positive opinion that is forwarded to the European Commission, who takes the final decision following the European comitology procedure. The centralized marketing authorization (commission decision) of the European Commission is valid in all of the EU. All countries that are not part of the EU but belong to the European Economic Area (EEA), i.e., Norway, Iceland and Liechtenstein, have been part of the scientific assessment done by the CVMP. These countries issue a national marketing approval in accordance with the Commission decision. A series of regulations, directives, guidelines, EU Pharmacopeia Monographs and other legislation provide the requirements for approval in the EU. In general, these requirements are similar to those in the U.S., requiring demonstrated evidence of purity, safety, efficacy and consistency of manufacturing processes.

If approval is sought for products that either cannot or do not need to follow the centralized procedure, approval can also be achieved by national approval in an EEA country agency. This national authorization can be mutually recognized by other EEA countries/EU member states (Mutual Recognition Procedure). In addition, national and mutual recognition can be done in a combined procedure (Decentralized Procedure).

The European Food Safety Authority (EFSA) is the agency of the EU that provides scientific advice and communicates with respect to existing and emerging risks associated with the food chain. Based on EFSA's mandate, the agency evaluates applications for feed additives, including enzymes and several nutritionals for animals.

The European Chemical Agency (ECHA) is the agency of the EU for the safe use of chemicals. Based on the ECHA's mandate, the agency conducts the evaluation of biocides for the EU.

In regard to Brexit, the UK formally left the EU on January 31, 2020. A transition period is in effect from February 1, 2020 until December 31, 2020, during which the UK and the EU will negotiate a trade agreement. Post-separation, the UK has indicated it will look to continue working closely with the EMA, and that existing agreements between the EMA and other countries such as Switzerland, the U.S. and Canada provide a precedent on which the UK could build.

Brazil. The Ministry of Agriculture, Livestock Production and Supply (MAPA) is the regulatory body in Brazil that is responsible for the regulation and control of pharmaceuticals, biologicals and medicinal feed additives for animal use. MAPA's regulatory activities are conducted through the Secretary of Agricultural Defense and its Livestock Products Inspection Department. In addition, regulatory activities are conducted at a local level through the Federal Agriculture Superintendence. These activities include the inspection and licensing of both manufacturing and commercial establishments for veterinary products, as well as the submission, review and approval of pharmaceuticals, biologicals and medicinal feed additives. MAPA is one of the most active regulatory agencies in Latin America, having permanent seats at several international animal health forums, such as Codex Alimentarius, World Organization for Animal Health and Committee of Veterinary Medicines for the Americas. MAPA was also recently invited to be a Latin American representative at International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products (VICH) meetings. Several normative instructions issued by MAPA have set regulatory trends in Latin America.

Japan. The Ministry of Agriculture, Forestry and Fishery (MAFF) is the regulatory body in Japan that is responsible for the regulation and control of pharmaceuticals (including biologicals and pesticide/disinfectant) and feed additive/feed for animal use. MAFF's regulatory activities are conducted through the Livestock & Aquaculture Product Safety Control Division under Consumer Safety Bureau. The animal drug reviews and approvals, reexamination reviews, GxP compliance checks, GxP site inspections and product assay checks (including vaccine national assays) are done by National Veterinary Assay Laboratory (NVAL). MAFF coordinates with other agencies such as Ministry of Health, Labor and Welfare (MHLW) and Food Safety Commission (FSC) to perform various license compliance checks (e.g. marketing authorization holder, manufacturer and oversea site accreditation) and ensure good promotional activities. Routine inspections, antimicrobial feed additive national assays and manufacturing inspections are done by the Food & Agriculture Material Inspection Center. For food animal products, animal drug review is done by NVAL but the human food safety review is done by FSC (ADI establishment and antimicrobial risk assessment) and MHLW (MRL establishment). These three agencies (NVAL, FSC and MHLW) work together to approve food animal products. In addition to those central government agencies, various licenses are delegated to the local municipal government, such as animal drug wholesaler and retailer licenses and feed additive distributor licenses.

China. The Ministry of Agriculture (MOA) is the regulatory body that is responsible for the regulation and control of pharmaceuticals, biologicals, disinfectants, medicinal feed additives, pesticide and feed/feed additives for animal use. There are three organizations under the MOA that regulate animal health:

The Institute of Veterinary Drug Control is responsible for the evaluation of new applications, renewals, variations, manufacturers, quality methods and tissue residue methods for pharmaceuticals, biologicals, disinfectants and medicinal feed additives.

The feed/feed additive office is responsible for the registration and renewal of feed and feed additives.

The pesticide bureau is responsible for the registration and renewal of pesticide products.

Australia. The Australian Pesticides and Veterinary Medicines Authority (APVMA) is an Australian government statutory authority established in 1993 to centralize the registration of all agricultural and veterinary products into the Australian marketplace. Previously, each state and territory government had its own system of registration. The APVMA assesses applications from companies and individuals seeking registration so they can supply their product to the marketplace. Applications undergo rigorous assessment using the expertise of the APVMA's scientific staff and drawing on the technical knowledge of other relevant scientific organizations, Commonwealth government departments and state agriculture departments. If the product works as intended and the scientific data confirms that when used as directed on the product label it will have no harmful or unintended effects on people, animals, the environment or international trade, the APVMA will register the product. As well as registering new agricultural and veterinary products, the APVMA reviews older products that have been on the market for a substantial period of

time to ensure they still do the job users expect and are safe to use. The APVMA also reviews registered products when particular concerns are raised about their safety and effectiveness. The review of a product may result in confirmation of its registration or it may see registration continue with some changes to the way the product can be used. In some cases, the review may result in the registration of a product being cancelled and the product taken off the market.

Rest of world. Country-specific regulatory laws typically have provisions that include requirements for certain labeling, safety, efficacy and manufacturers' quality control procedures (to assure the consistency of the products), as well as company records and reports. Other countries' regulatory agencies typically either refer to the FDA, USDA, EU and other international animal health entities, including the World Organization for Animal Health, Codex Alimentarius or VICH (see below), in establishing standards and regulations for veterinary pharmaceuticals and vaccines, or review the quality, safety and effectiveness of the products themselves according to their own national requirements.

Global policy and guidance

Joint FAO/WHO Expert Committee on Food Additives. The Joint FAO/WHO Expert Committee on Food Additives is an international expert scientific committee that is administered jointly by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). They provide a risk assessment/safety evaluation of residues of veterinary drugs in animal products, exposure and residue definition and maximum residue limit proposals for veterinary drugs. Similarly, the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) is an international expert scientific group administered jointly by the FAO and WHO. JMPR reviews residues and analytical aspects of the pesticides, estimate the maximum residue levels, review toxicological data and estimate acceptable daily intakes for humans of the pesticides under consideration. Elanco works with these committees to establish acceptable safe levels of residual product in food-producing animals after treatment with veterinary drugs or pesticides. This in turn enables the calculation of appropriate withdrawal times for our products prior to an animal entering the food chain.

Advertising and promotion review. Promotion of ethical animal health products is controlled by regulations in many countries. These rules generally restrict advertising and promotion to those claims and uses that have been reviewed and endorsed by the applicable agency. We conduct a review of promotion material for compliance with the local and regional requirements in the markets where we sell animal health products.

Import and Export of Products. The importation and exportation of animal health products is controlled by regulations in many countries. In some jurisdictions this may include obtaining separate permits or licenses by product or by company or filing notices with applicable regulatory agencies prior to import or export of product. We ensure compliance with local and global regulations in the markets where we import/export our animal health products.

International Cooperation on Harmonization of Technical Requirements for Registration of Veterinary Medicinal Products. VICH is a trilateral (EU-Japan-USA) program launched in 1996 aimed at harmonizing technical requirements for veterinary product registration. Several other countries have obtained observer status, for example, Canada, New Zealand, Australia and South Africa, or are linked to VICH on basis of the VICH Outreach Forum, a VICH initiative with the main objective of providing a basis for wider international harmonization of technical requirements. In addition, the World Organization for Animal Health is an associate member of VICH.

The objectives of the VICH are as follows:

- Establish and implement harmonized technical requirements for the registration of veterinary medicinal products in the VICH regions, which meet high quality, safety and efficacy standards and minimize the use of test animals and costs of product development.
- Provide a basis for wider international harmonization of registration requirements through the VICH Outreach Forum.
- Monitor and maintain existing VICH guidelines, taking particular note of the ICH work program and, where necessary, update these VICH guidelines.
- Ensure efficient processes for maintaining and monitoring consistent interpretation of data requirements following the implementation of VICH guidelines.

By means of a constructive dialogue between regulatory authorities and industry, provide technical guidance enabling response to significant emerging global issues and science that impact regulatory requirements within the VICH regions.

Employees

As of December 31, 2019, we employed approximately 5,760 full time employees. In addition, we employed approximately 320 fixed-duration employees, which are individuals hired for a pre-defined length of time (one to four years). Together, they total approximately 6,080 worldwide. Of the 6,080 employees globally, approximately 2,560 are U.S.-based and approximately 3,520 are employed in other jurisdictions. Some of these employees are members of unions, works councils, trade associations or are otherwise subject to collective bargaining agreements, including approximately 150 union employees in the U.S. located at our Fort Dodge, Iowa manufacturing/R&D facility. Approximately 40% of our global population is in customer-facing roles, including but not limited to, traditional sales roles, technical consultants, account managers and commercial and general managers.

Environmental, Health and Safety

We are subject to various federal, state, local and foreign environmental, health and safety (EHS) laws and regulations. These laws and regulations govern matters such as the emission and discharge of hazardous materials into the ground, air or water; the generation, use, storage, handling, treatment, packaging, transportation, exposure to, and disposal of hazardous and biological materials, including recordkeeping, reporting and registration requirements; and the health and safety of our employees. Due to our operations, these laws and regulations also require us to obtain, and comply with, permits, registrations or other authorizations issued by governmental authorities. These authorities can modify or revoke our permits, registrations or other authorizations and can enforce compliance through fines and injunctions.

Certain environmental laws impose joint and several liability, without regard to fault, for cleanup costs on persons who have disposed of or released hazardous substances into the environment, including at third-party sites or offsite disposal locations, or that currently own or operate (or formerly owned or operated) sites where such a release occurred. We could be subject to liability for the investigation and remediation of legacy environmental contamination caused by historical industrial activity at sites that we own or on which we operate. In addition to clean-up actions brought by federal, state, local and foreign governmental entities, private parties could raise personal injury or other claims against us due to the presence of, or exposure to, hazardous materials on, from or otherwise relating to such a property.

We have made, and intend to continue to make, necessary expenditures for compliance with applicable EHS laws and regulations. We are also monitoring and investigating environmental contamination from past industrial activity at certain sites. As a result, we incurred capital and operational expenditures in 2019 for environmental compliance purposes and for the clean-up of certain past industrial activities. Environmental-related capital expenditures and other environmental-related expenditures were $0.0 million and $0.2 million in 2019, respectively.

In connection with past divestitures, we have undertaken certain indemnification obligations that may require us in the future, to conduct or finance environmental cleanups at sites that we no longer own or operate. In connection with certain of our acquisitions, we have also entered into indemnification agreements pursuant which we are or may be indemnified for various environmental cleanups; however, such indemnities are limited in both time and scope and may be further limited in the presence of new information, or may not be available at all.

Legal Proceedings

We are from time to time subject to claims and litigation arising in the ordinary course of business. These claims and litigation may include, among other things, allegations of violation of U.S. and foreign competition law, labor laws, consumer protection laws and environmental laws and regulations, as well as claims or litigation relating to product liability, intellectual property, securities, breach of contract and tort. We operate in multiple jurisdictions and, as a result, a claim in one jurisdiction may lead to claims or regulatory penalties in other jurisdictions. We intend to vigorously defend against any pending or future claims and litigation, as appropriate.

At this time, in the opinion of our management, the likelihood is remote that the impact of any such proceedings, either individually or in the aggregate, would have a material adverse effect on our consolidated results of operations, financial condition or cash flows. However, one or more unfavorable outcomes in any claim or litigation

against us could have a material adverse effect for the period in which they are resolved. In addition, regardless of their merits or their ultimate outcomes, such matters are costly, divert management's attention and may materially adversely affect our reputation, even if resolved in our favor.

Available Information

Our website address is www.elanco.com. On our website, we make available, free of charge, our annual, quarterly and current reports, including amendments to such reports, as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC.

Information relating to corporate governance at Elanco, including our Corporate Governance Guidelines, Code of Conduct, Financial Code of Ethics, Articles of Incorporation, Bylaws, Committee Charters; information concerning our executive officers and members of our board of directors; and ways to communicate are available on our website. We will provide any of the foregoing information without charge upon written request to Elanco's Corporate Secretary, Elanco, 2500 Innovation Way, Greenfield, Indiana 46140. Information relating to shareholder services is also available on our website.

Information contained on our website is not part of, or incorporated by reference, in this Annual Report on Form 10-K.

Item 1A. Risk Factors

Our business, financial condition and results of operations are subject to various risks, including but not limited to the risks described below. If any of such risks actually materializes, our business, financial condition and results of operations could be materially adversely affected.

Risks Related to Elanco

The animal health industry is highly competitive.

The animal health industry is highly competitive. Our competitors include standalone animal health businesses, the animal health businesses of large pharmaceutical companies, specialty animal health businesses and companies that mainly produce generic products. We believe many of our competitors are conducting R&D activities in areas served by our products and in areas in which we are developing products. Several new start-up companies also compete in the animal health industry. We also face competition from manufacturers of drugs globally, as well as producers of nutritional health products. These competitors may have access to greater financial, marketing, technical and other resources. As a result, they may be able to devote more resources to developing, manufacturing, marketing and selling their products, initiating or withstanding substantial price competition or more readily taking advantage of acquisitions or other opportunities. Further, consolidation in the animal health industry could result in existing competitors realizing additional efficiencies or improving portfolio bundling opportunities, thereby potentially increasing their market share and pricing power, which could lead to a decrease in our revenue and profitability and an increase in competition. For example, many of our competitors have relationships with key distributors and, because of their size, the ability to offer attractive pricing incentives, which may negatively impact or hinder our relationships with these distributors. In addition to competition from established market participants, new entrants to the animal health medicines and vaccines industry could substantially reduce our market share, render our products obsolete or disrupt our business model.

To the extent that any of our competitors are more successful with respect to any key competitive factor, or we are forced to reduce, or are unable to raise, the price of any of our products in order to remain competitive, our business, financial condition and results of operations could be materially adversely affected. Competitive pressure could arise from, among other things, more favorable safety and efficacy product profiles, limited demand growth or a significant number of additional competitive products being introduced into a particular market, price reductions by competitors, the ability of competitors to capitalize on their economies of scale, the ability of competitors to produce or otherwise procure animal health products at lower costs than us and the ability of competitors to access more or newer technology than us.

Disruptive innovation and advances in veterinary medical practices, animal health technologies and alternatives to animal-derived protein, could negatively affect the market for our products.

The markets for our products are regularly impacted by the introduction and/or broad market acceptance of newly-developed or alternative products that address the diseases and conditions for which we sell products, including “green” or “holistic” health products, specially bred disease-resistant animals or replacements for meat, milk, eggs or fish from alternative natural or synthetic sources. For example, the market for our companion animal therapeutics has been particularly affected by innovation in new molecules and delivery formulations in recent years. Technological breakthroughs by others may render obsolete our products and reduce or eliminate the market for our products. Introduction or acceptance of competing animal health products and innovation or disruptive protein alternatives could materially adversely affect our business, financial condition and results of operations.

Regulatory restrictions and bans on the use of antibiotics and productivity products in food animals, as well as changing market demand, may continue to negatively affect demand for certain of our food animal products.

Over the past few years, our operational results have been, and will continue to be, affected by regulations and changing market demand. In certain markets, including the U.S., sales of certain of our food animal products have been negatively affected by an increase in consumer sentiment for proteins and dairy products produced without the use of antibiotics or other products intended to increase animal production.

There are two classes of antibiotics used in animal health: shared-class, or medically important, antibiotics, which are used to treat infectious disease caused by pathogens that occur in both humans and animals; and animal-only antibiotics, which are used to treat infectious disease caused by pathogens that occur in animals only. See “Business of Elanco - Products - Antibiotics.” Concerns that the use of antibiotics in food animal production may lead to increased antibiotic resistance of human pathogens have resulted in increased regulation and changing market demand. In December 2013, the FDA announced final guidance establishing procedures for the voluntary phase-out in the U.S. over a three-year period of the use of shared-class antibiotics in animal feed or water for growth promotion in food animal production. The guidance allows for continued use of shared-class antibiotics in food-producing animals under the supervision of a veterinarian for treatment, control and, under certain circumstances, for prevention of disease. The FDA indicated that it took this action to help preserve the efficacy of shared-class antibiotics to treat infections in humans. As part of those efforts, stricter guidelines governing the administration of shared-class antibiotics have recently come into effect. As of January 1, 2017, under the FDA’s guidance and the related rule known as the Veterinary Feed Directive, the use of shared-class antibiotics in the water or feed of food-producing animals requires written authorization by a licensed veterinarian. In addition, other countries in which we sell or plan to sell our products, such as France and Vietnam, have passed restrictions or bans on antibiotic use. Other countries have placed restrictions or bans on the use of specific antibiotics in certain food-producing animals, regardless of the route of administration (in feed or injectable).

From 2015 to 2019, our revenue from shared-class antibiotics declined at a CAGR of 10%, excluding the impact of foreign exchange rates. This was driven primarily by changing regulations in many markets, including the Veterinary Feed Directive, as well as changing market demand and our tiered approach to antibiotic stewardship, which included removing growth promotion from labels and requiring veterinary oversight in the U.S. and other markets. Globally, during 2019, our revenue from shared-class antibiotics declined 13%, excluding the impact of foreign exchange rates, and represented 11% (4% from sales in the U.S. and 7% from sales outside the U.S.) of total revenue, down from 16% in 2015. From 2015 to 2019, our revenue from animal-only antibiotics grew at a CAGR of 4%, excluding the impact of foreign exchange rates, driven by sales outside the U.S., which offset a slight decline in the U.S. Globally, during 2019, our revenue from animal-only antibiotics declined 1%, excluding the impact of foreign exchange rates, and represented 24% of total revenue, up from 23% in 2015. In 2019, 87% of our revenue from animal-only antibiotics resulted from the sale of ionophores. Ionophores are a special class of animal-only antimicrobials, and because of their animal-only designation, mode of action and spectrum of activity, their use has not to date been impacted by regulations or changing market demand in many markets outside of the U.S.

The impact of changes in regulations and market preferences regarding the use of antibiotics in food animals could have a material adverse effect on our business, financial condition and results of operations. If there is an increased public perception that consumption of food derived from animals that utilize our products poses a risk to human health, there may be a further decline in the production of those food products and, in turn, demand for our products. In addition, antibiotic resistance concerns will likely result in additional restrictions or bans, expanded regulations or public pressure to further reduce the use of antibiotics in food animals, increased demand for antibiotic-free protein, or changes in the market acceptance or regulatory treatment of ionophores, any of which could materially adversely affect our business, financial condition and results of operations.

In addition, our revenue has been impacted by regulatory changes in China and other markets restricting the use of productivity products, such as those containing ractopamine, in food animals. This has resulted in many U.S. food producers who access such markets eliminating their use of ractopamine. Our FA Ruminants & Swine products *Optaflexx*™ and *Paylean*™ contain ractopamine. If more producers decide to access such markets or additional markets restrict the use of ractopamine or other productivity products, our business, financial condition and results of operations could be materially adversely affected.

Generic products may be viewed as more cost-effective than our products.

We face competition from products produced by other companies, including generic alternatives to our products. We depend on patents and regulatory data exclusivity periods to provide us with exclusive marketing rights for some of our products. Patents for individual products expire at different times based on the date of the patent filing (or sometimes the date of patent grant) and the legal term of patents in the jurisdictions where such patents are obtained. The extent of protection afforded by our patents varies from jurisdiction to jurisdiction and is limited by the scope of the claimed subject matter of our patents, the term of the patent and the availability and enforcement of legal remedies in the applicable jurisdiction. In 2019, approximately 67% of our revenue was from products that did not have patent protection, including revenue from some of our top products such as *Rumensin*, *Maxiban*, *Denagard* and *Tylan Premix*. Other products are protected by patents that expire over the next several years. As the

patents for a brand name product expire, competitors may begin to introduce generic or other alternatives, and as a result, we may face competition from lower-priced alternatives to many of our products. For example, we have experienced significant competitive headwinds from generic ractopamine in the U.S. In the third quarter of 2013, a large established animal health company received U.S. approval for generic ractopamine. U.S. revenue from *Optaflexx*, our ractopamine beef product, has declined at a compound annual growth rate of 21% from 2015 to 2019 as a result of generic competition and international regulatory restrictions. In the third quarter of 2019, an established animal health company received U.S. approval for generic monensin in cattle and goats for certain indications. U.S. revenue from *Rumensin*, our monensin product, may continue to decline as a result of the generic competition. We may face similar competition in the future for existing products that do not benefit from exclusivity or for existing products with material patents expiring in the future. See “Business of Elanco - Intellectual Property.”

Generic competitors are becoming more aggressive in terms of launching products before patent rights expire, and, because of attractive pricing, sales of generic products are an increasing percentage of overall animal health sales in certain regions. Although the impact of generic competition in the animal health industry to date has not typically mirrored that seen in human health, product pricing and the impact of generic competition in the future may more closely mirror human health as a result of changes in industry dynamics, such as channel expansion, consolidation, an increase in the availability and use of pet insurance and the potential for generic competition by established animal health businesses. If animal health customers increase their use of new or existing generic products, our business, financial condition and results of operations could be materially adversely affected.

We may not successfully implement our business strategies or achieve targeted cost efficiencies and gross margin improvements.

We are pursuing strategic initiatives that management considers critical to our long-term success, including, but not limited to: improving manufacturing processes, reducing our manufacturing footprint, achieving lean initiatives, consolidating our CMO network, strategically insourcing projects, pursuing cost savings opportunities with respect to raw materials through a new procurement process and improving the productivity of our sales force. We may pursue additional strategic initiatives in the future to improve gross margins and achieve our targeted cost efficiencies. We also have acquired or partnered with a number of smaller animal health businesses, and we intend to continue to do so in the future. There are significant risks involved with the execution of these initiatives, including significant business, economic and competitive uncertainties, many of which are outside of our control. Accordingly, we may not succeed in implementing these strategic initiatives. Realizing the anticipated benefits from these initiatives, if any benefits are achieved at all, may take several years. We may be unable to achieve our targeted cost efficiencies and gross margin improvements. Additionally, we may have insufficient access to capital to fund investments in strategic initiatives, or our business strategy may change from time to time, which could delay our ability to implement initiatives that we believe are important to our business.

Consolidation of our customers and distributors could negatively affect the pricing of our products.

Third-party distributors, veterinarians and food animal producers are our primary customers. In recent years, there has been a trend towards the concentration of veterinarians in large clinics and hospitals. In addition, food animal producers, particularly swine and poultry producers, and our distributors have seen recent consolidation in their industries. Furthermore, we have seen the expansion of larger cross-border corporate customers and an increase in the consolidation of buying groups (cooperatives of veterinary practices that leverage volume to pursue discounts from manufacturers). The pace of consolidation and structure of markets varies greatly across geographies. If these trends towards consolidation continue, our customers could attempt to improve their profitability by leveraging their buying power to obtain favorable pricing. The resulting decrease in our prices could have a material adverse effect on our business, financial condition and results of operations.

A general outbreak of infectious disease or viruses or an outbreak of infectious disease carried by food animals could negatively affect the demand for, and sale and production of, our food animal products.

Our global operations expose us to risks associated with public health crises, such as pandemics and epidemics, which could harm our business and have an adverse effect on our results of operations. For example, in December 2019, an outbreak of a new strain of coronavirus in Wuhan, China, has resulted in travel disruption globally and has affected certain companies' operations in China and other countries, including companies with which we do business. At this point, the extent to which the coronavirus may impact our results is uncertain.

Sales of our food animal products could be materially adversely affected by a general outbreak of infectious disease or an outbreak of disease carried by food animals, which could lead to the widespread death or precautionary destruction of food animals as well as the reduced consumption and demand for animal protein. In addition, outbreaks of disease carried by food animals may reduce regional or global sales of particular animal-derived food products or result in reduced exports of such products, either due to heightened export restrictions or import prohibitions, which may reduce demand for our food animal products due to reduced herd or flock sizes.

In recent years, outbreaks of various diseases, including African Swine Fever, avian influenza, foot-and-mouth disease, bovine spongiform encephalopathy (otherwise known as BSE or “mad cow” disease) and porcine epidemic diarrhea virus (otherwise known as PEDV) have negatively impacted sales of our animal health products. The discovery of additional cases of any of these, or new, diseases may result in additional restrictions on animal protein, reduced herd or flock sizes, or reduced demand for animal protein, any of which may have a material adverse effect on our business, financial condition and results of operations. In addition, the outbreak of any highly contagious disease near our main production sites could require us to immediately halt production of our products at such sites or force us to incur substantial expenses in procuring raw materials or products elsewhere.

Our R&D, acquisition and licensing efforts may fail to generate new products or expand the use of our existing products.

Our future success depends on both our existing product portfolio and our pipeline of new products, including new products that we may develop through joint ventures and products that we are able to obtain through license or acquisition, including the acquisition of the Bayer animal health business (see Note 6: Acquisitions to our consolidated and combined financial statements). We commit substantial effort, funds and other resources to R&D, both through our own dedicated resources and through collaborations with third parties.

We may be unable to determine with accuracy when or whether any of our products now under development will be approved or launched, or we may be unable to develop, license or otherwise acquire product candidates or products. In addition, we cannot predict whether any products, once launched, will be commercially successful or will achieve sales and revenue that are consistent with our expectations. The animal health industry is subject to regional and local trends and regulations and, as a result, products that are successful in some markets may not achieve similar success when introduced into other markets. Furthermore, the timing and cost of our R&D may increase, and our R&D may become less predictable as, among other things, regulations applicable to our industry may make it more time-consuming and/or costly to research, develop and register products. If we are unable to generate new products or expand the use of our existing products, our business, financial condition and results of operations will be materially adversely affected. For example, between 2015 and 2017, prior to our February 2018 launch of *Credelio* in the U.S., we experienced an innovation lag in the companion animal parasiticide space. In the absence of a competitive combined oral flea and tick product, our U.S. companion animal parasiticide portfolio revenue declined 15% in 2017, excluding the impact on revenue resulting from a reduction in inventory levels within our distribution channel.

In addition, some of our growth occurred through Lilly’s acquisitions, including Novartis Animal Health, Lohmann Animal Health, Janssen Animal Health and the BI Vetmedica U.S. vaccines portfolio. However, following the Separation, we no longer benefit from Lilly’s scale, capital base and financial strength.

We had losses in recent periods.

We have incurred net losses in recent periods. We could continue to incur asset impairment, restructuring and other special charges and could report losses in the future. We also expect to continue to incur substantial expenditures to develop, manufacture and market our products and implement our business strategies, transaction costs and integration expenses associated with acquisitions, additional amortization of intangible assets, and interest expense. We may encounter unforeseen expenses, difficulties, complications, delays, adverse events and other unknown factors that may materially adversely affect our business.

The misuse or off-label use of our products may harm our reputation or result in financial or other damages.

Our products have been approved for use under specific circumstances for the treatment of certain diseases and conditions in specific species. There may be increased risk of product liability claims if veterinarians, food animal producers, pet owners or others attempt to use our products off-label, including the use of our products in species

(including humans) for which they have not been approved. Furthermore, the use of our products for indications other than those for which our products have been approved may not be effective, which could harm our reputation and lead to an increased risk of litigation. If we are deemed by a governmental or regulatory agency to have engaged in the promotion of any of our products for off-label use, such agency could request that we modify our training or promotional materials and practices, and we could be subject to significant fines and penalties, and the imposition of these sanctions could also affect our reputation and position within the industry. Any of these events could materially adversely affect our business, financial condition and results of operations.

Animal health products are subject to unanticipated safety, quality or efficacy concerns, which may harm our reputation.

Unanticipated safety, quality or efficacy concerns arise from time to time with respect to animal health products, whether or not scientifically or clinically supported, leading to product recalls, withdrawals or suspended or declining sales, as well as product liability and other claims.

Regulatory actions based on these types of safety, quality or efficacy concerns could impact all, or a significant portion, of a product's sales and could, depending on the circumstances, materially adversely affect our results of operations.

In addition, since we depend on positive perceptions of the safety, quality and efficacy of our products, and animal health products generally, by food producers, veterinarians and pet owners, any concern as to the safety, quality or efficacy of our products, whether actual or perceived, may harm our reputation. These concerns and the related harm to our reputation could materially adversely affect our business, financial condition and results of operations, regardless of whether such reports are accurate.

Our business may be negatively affected by weather conditions and the availability of natural resources.

The animal health industry and demand for many of our products in a particular region are affected by weather conditions, varying weather patterns and weather-related pressures from pests, such as ticks. As a result, we may experience regional and seasonal fluctuations in our results of operations.

Food animal producers depend on the availability of natural resources, including large supplies of fresh water. Their animals' health and their ability to operate could be adversely affected if they experience a shortage of fresh water due to human population growth or floods, droughts or other weather conditions. In the event of adverse weather conditions or a shortage of fresh water, veterinarians or food animal producers may purchase less of our products.

Further, heat waves may cause stress in animals and lead to increased vulnerability to disease, reduced fertility rates and reduced milk production. Droughts may threaten pasture and feed supplies by reducing the quality and amount of forage available to grazing livestock, while climate change may increase the prevalence of parasites and diseases that affect food animals. Adverse weather conditions may also have a material impact on the aquaculture business. Changes in water temperatures could affect the timing of reproduction and growth of various fish species, as well as trigger the outbreak of certain water borne diseases.

In addition, veterinary hospitals and practitioners depend on visits from, and access to, the animals under their care. Veterinarians' patient volume and ability to operate could be adversely affected if they experience prolonged snow, ice or other severe weather conditions, particularly in regions not accustomed to sustained inclement weather.

We may not be able to realize the expected benefits of our investments in emerging markets and are subject to certain risks due to our presence in emerging markets, including political or economic instability and failure to adequately comply with legal and regulatory requirements.

We have taken steps to increase our presence in select emerging markets, including by expanding our sales organization and product offerings in these markets. The acquisition of the Bayer animal health business is expected to further increase our presence in emerging markets (see Note 6: Acquisitions to our consolidated and combined financial statements). Failure to continue to maintain and expand our business in emerging markets could materially adversely affect our business, financial condition and results of operations.

In addition, certain emerging markets have legal systems that are less developed. Other jurisdictions in which we conduct business may have legal and regulatory regimes that differ materially from U.S. laws and regulations, are continuously evolving or do not include sufficient judicial or administrative guidance to interpret such laws and regulations. Compliance with diverse legal requirements is costly and time-consuming and requires significant resources. Violations or possible violations of applicable laws or regulations by our employees may result in investigation costs, potential penalties and other related costs, which in turn could negatively affect our reputation and our results of operations.

Some countries within emerging markets may be especially vulnerable to periods of local, regional or global economic, political or social instability or crisis. For example, our sales in certain emerging markets have suffered from extended periods of disruption due to natural disasters. Furthermore, we have also experienced lower than expected sales in certain emerging markets due to local, regional and global restrictions on banking and commercial activities in those countries. In addition, certain emerging markets have currencies that fluctuate substantially, which may impact our financial performance. For these reasons, among others, doing business within emerging markets carries significant risks.

Modification of foreign trade policy may harm our food animal product customers.

Changes in laws, agreements and policies governing foreign trade in the territories and countries where our customers do business could negatively impact such customers' businesses and adversely affect our results of operations. A number of our customers, particularly U.S.-based food animal producers, benefit from free trade agreements, such as the North American Free Trade Agreement (NAFTA). In November 2018, the U.S. negotiated a new trade deal with Canada and Mexico known as the United States-Mexico-Canada-Agreement (USMCA), aimed at re-negotiating and updating the terms of NAFTA. The USMCA was revised by the parties on December 10, 2019. The USMCA still requires ratification by Canada before it can take effect. If the USMCA is not ratified and the U.S. were to withdraw from or materially modify NAFTA or other international trade agreements to which it is a party or if the U.S. were to engage in trade disputes or the imposition of tariffs, our customers could be harmed, and as a result, our business, financial condition and results of operations could be materially adversely affected.

Our business is subject to risk based on global economic conditions.

Macroeconomic business and financial disruptions could have a material adverse effect on our business, financial condition and results of operations. Certain of our customers and suppliers could be affected directly by an economic downturn and could face constraints on the availability of credit or decreased cash flow that could give rise to payment delays, increased credit risk, bankruptcies and other financial hardships that could decrease the demand for our products or hinder our ability to collect amounts due from our customers. If one or more of our large customers, including distributors, discontinues or modifies their relationship with us as a result of economic conditions or otherwise, our business, financial condition and results of operations may be materially adversely affected. In addition, economic concerns may cause some pet owners to forgo or defer visits to veterinary practices or could reduce their willingness to treat pet health conditions or to continue to own a pet. Furthermore, our exposure to credit and collectability risk is higher in certain international markets and our ability to mitigate such risks may be limited. Our procedures intended to monitor and limit our exposure to credit and collectability risk may not effectively limit such risk and avoid losses.

Our results of operations are dependent upon the success of our top products.

If any of our top products experience issues, such as disruptive innovations or the introduction of more effective competitive products, negative publicity, changes to veterinarian or customer preferences, loss of patent protection, material product liability litigation, new or unexpected side effects, manufacturing disruptions and/or regulatory proceedings, our revenue could be negatively impacted, perhaps significantly. Our top five products, *Rumensin*, *Trifexis*, *Maxiban*, *Denagard* and *Interceptor Plus*, contributed approximately 31% of our revenue in 2019. Any issues with these top products, particularly *Rumensin*, which contributed approximately 10% of our revenue in 2019 and is now subject to generic competition in the U.S., could have a material adverse effect on our business, financial condition and results of operations.

Our business is subject to risk based on customer exposure to rising costs and reduced customer income.

Feed, fuel, transportation and other key costs for food animal producers may increase or animal protein prices or sales may decrease. Either of these trends could cause deterioration in the financial condition of our food animal product customers, potentially inhibiting their ability to purchase our products or pay us for products delivered. Our food animal product customers may offset rising costs by reducing spending on our food animal products, including by switching to lower-cost alternatives to our products. In addition, concerns about the financial resources of pet owners could cause veterinarians to alter their treatment recommendations in favor of lower-cost alternatives to our products, which could result in a decrease in sales of our companion animal products, especially in developed countries where there is a higher rate of pet ownership. Rising costs or reduced income for our customers could have a material adverse effect on our business, financial condition and results of operations.

For our companion animal products, increased use of alternative distribution channels, or changes within existing distribution channels, could negatively impact our market share, margins and distribution of our products.

In most markets, pet owners typically purchase their animal health products directly from veterinarians. However, pet owners increasingly have the option to purchase animal health products from sources other than veterinarians, such as online retailers, “big-box” retail stores or other over-the-counter distribution channels. This trend has been demonstrated by the significant shift away from the veterinarian distribution channel in the sale of flea and tick products in recent years. Pet owners also could decrease their reliance on, and visits to, veterinarians as they rely more on internet-based animal health information. Because we market our companion animal prescription products primarily through the veterinarian distribution channel, any decrease in visits to veterinarians by pet owners could reduce our market share for such products and materially adversely affect our business, financial condition and results of operations. In addition, pet owners may substitute human health products for animal health products if human health products are deemed to be lower-cost alternatives.

Legislation has also been proposed in the U.S., and may be proposed in the U.S. or abroad in the future, that could impact the distribution channels for our companion animal products. For example, such legislation may require veterinarians to provide pet owners with written prescriptions and disclosure that the pet owner may fill prescriptions through a third party, which may further reduce the number of pet owners who purchase their animal health products directly from veterinarians. Such requirements may lead to increased use of generic alternatives to our products or the increased substitution of our companion animal products with other animal health products or human health products if such other products are deemed to be lower-cost alternatives. Many states already have regulations requiring veterinarians to provide prescriptions to pet owners upon request and the American Veterinary Medical Association has long-standing policies in place to encourage this practice.

Over time, these and other competitive conditions may increase our use of online retailers, “big-box” retail stores or other over-the-counter distribution channels to sell our companion animal products. We may not be adequately prepared or able to distribute our companion animal products if an increased portion of our sales occur through these channels. Also, we may realize lower margins on sales through these distribution channels than we do on sales through veterinarians. Any of these events could materially adversely affect our business, financial condition and results of operations.

In addition, if one or more of our companion animal distributors discontinues or modifies their relationship with us, our business, financial condition and results of operations may be materially adversely affected. For example, in 2017, a change in our U.S. inventory management practices resulted in a revenue lag as existing inventory was sold down, which management estimates decreased our revenue by approximately $35 million.

Supply chain continuity could be disrupted by a major catastrophic event or third party quality issue causing a loss of inventory and/or facility that could negatively impact the amount of product sold.

In our business, we have multiple warehouses in the supply chain that have a material amount of inventory. This could create excessive risk if a catastrophic event were to occur at one of these locations. As such, business continuity plans are critical to our manufacturing sites. Additionally, our contracts require that all CMOs and suppliers have business continuity plans. If business continuity plans are not in place, it could result in disruptions in our supply chain. While we work with our CMOs and suppliers to ensure continuity, no assurance can be given that these efforts will be successful. In addition, due to regulatory requirements relating to the qualification of CMOs and suppliers, we may not be able to establish additional or replacement CMOs or suppliers on a timely basis or without

excessive cost. The termination, reduction or interruption in our supply chain could adversely impact our ability to produce and sell certain of our products.

Increased or decreased inventory levels at our channel distributors can lead to fluctuations in our revenues and variations in payment terms extended to our distributors can impact our cash flows.

In addition to selling our products directly to veterinarians, we sell to distributors who, in turn, sell our products to third parties. Inventory levels at our distributors may increase or decrease as a result of various factors, including end customer demand, new customer contracts, heightened and generic competition, required minimum inventory levels, our ability to renew distribution contracts with expected terms, our ability to implement commercial strategies, regulatory restrictions, unexpected customer behavior, and procedures and environmental factors beyond our control, including weather conditions or an outbreak of infectious disease carried by food animals such as African Swine Fever. These increases and decreases can lead to variations in our quarterly and annual revenues. In addition, like all companies that manufacture and sell products, we have policies that govern the payment terms that we extend to our customers. Due to consolidation amongst our distributors, as well as changes in the buying habits of end customers or the need for certain inventory levels at our distributors to avoid supply disruptions, from time to time, our distributors have requested exceptions to the payment term policies that we extend to them. Extensions of customer payment terms can impact our cash flows, liquidity and results of operations.

Loss of our executive officers or other key personnel could disrupt our operations.

We depend on the efforts of our executive officers and other key personnel. Our executive officers and other key personnel are not currently, and are not expected to be, subject to non-compete provisions. In addition, we have not entered into employment agreements with our executive officers or other key personnel. Any unplanned turnover or our failure to develop an adequate succession plan for one or more of our executive officers or other key personnel positions could deplete our institutional knowledge base and erode our competitive advantage. The loss or limited availability of the services of one or more of our executive officers or other key personnel, or our inability to recruit and retain qualified executive officers or other key personnel in the future, could, at least temporarily, have a material adverse effect on our business, financial condition and results of operations.

We may be required to write down goodwill or identifiable intangible assets.

Under U.S. GAAP, if we determine goodwill or identifiable intangible assets are impaired, we will be required to write down these assets and record a non-cash impairment charge. As of December 31, 2019, we had recorded on our balance sheet goodwill of $3.0 billion and identifiable intangible assets of $2.5 billion. Identifiable intangible assets consist primarily of marketed products acquired or licensed from third parties, licensed platform technologies that have alternative future uses in R&D, manufacturing technologies, and customer relationships from business combinations. We also have indefinite-lived intangible assets, which consist of acquired in-process R&D projects from business combinations that are subject to impairment and non-cash impairment charges.

Determining whether an impairment exists and the amount of the potential impairment involves quantitative data and qualitative criteria that are based on estimates and assumptions requiring significant management judgment. Future events or new information may change management's valuation of an intangible asset in a short amount of time. The timing and amount of impairment charges recorded in our consolidated and combined statements of operations and write-downs recorded in our consolidated balance sheets could vary if our management's conclusions change. Any impairment of goodwill or identifiable intangible assets could have a material adverse effect on our business, financial condition and results of operations.

As a standalone public company, we may expend additional time and resources to comply with rules and regulations that did not previously apply to us, and failure to comply with such rules may lead investors to lose confidence in our financial data.

As a standalone public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, the Dodd-Frank Wall Street Reform and Consumer Protection Act and regulations of the NYSE. Previously, we had established all of the procedures and practices required as a subsidiary of Lilly, but we must continue to implement others as a separate, standalone public company. Continuing to establish and expand such procedures and practices could increase our legal, accounting and financial compliance costs, will make some activities more difficult, time-consuming and costly and could be burdensome on our personnel, systems and resources. We have devoted and are continuing to devote resources to address these public company

requirements. As a result, we have and will continue to incur legal, accounting and other expenses that we did not previously incur while a subsidiary of Lilly to comply with these rules and regulations. Furthermore, continuing the need to establish the corporate infrastructure necessary for a standalone public company may divert some of our management's attention from operating our business and implementing our strategy. However, the measures we take may not be sufficient to satisfy our obligations as a public company. In addition, we cannot predict or estimate the amount of additional costs we may incur in order to comply with these requirements.

Our R&D relies on evaluations of animals, which may become subject to bans, additional restrictive regulations or increased attention from activism movements.

As an animal health medicines and vaccines business, we are required to evaluate the effect of our existing and new products in animals in order to register such products. Animal testing in certain industries has been the subject of controversy and adverse publicity. Some organizations and individuals have attempted to ban animal testing or encourage the adoption of new regulations applicable to animal testing. To the extent that the activities of such organizations and individuals are successful, our R&D, and by extension our business, financial condition and results of operations, could be materially adversely affected. In addition, negative publicity about us or our industry could harm our reputation. For example, food animal producers may experience decreased demand for their products or reputational harm as a result of evolving consumer views of animal rights, nutrition, health-related or other concerns. Any reputational harm to the food animal industry may also extend to companies in related industries, including our company. Adverse consumer views related to the use of one or more of our products in food animals also may result in a decrease in the use of such products and could have a material adverse effect on our operating results and financial condition.

Manufacturing problems and capacity imbalances may cause product launch delays, inventory shortages, recalls or unanticipated costs.

In order to sell our products, we must be able to produce and ship sufficient quantities to our customers. We own and operate 12 internal manufacturing sites located in nine countries. We also employ a network of approximately 90 third-party CMOs. Many of our products involve complex manufacturing processes and are sole-sourced from certain manufacturing sites.

Minor deviations in our manufacturing or logistical processes, such as temperature excursions or improper package sealing, could result, and have in the past resulted in, delays, inventory shortages, unanticipated costs, product recalls, product liability and/or regulatory action. In addition, a number of factors could cause production interruptions, including:

- the failure of us or any of our vendors or suppliers, including logistical service providers, to comply with applicable regulations and quality assurance guidelines;
- mislabeling;
- construction delays;
- equipment malfunctions;
- shortages of materials;
- labor problems;
- natural disasters;
- power outages;
- criminal and terrorist activities;
- changes in manufacturing production sites and limits to manufacturing capacity due to regulatory requirements, changes in types of products produced, shipping distributions or physical limitations; and
- the outbreak of any highly contagious diseases near our production sites.

These interruptions could result in launch delays, inventory shortages, recalls, unanticipated costs or issues with our agreements under which we supply third parties, which may materially adversely affect our business, financial condition and results of operations.

Our manufacturing network may be unable to meet the demand for our products or we may have excess capacity if demand for our products changes. The unpredictability of a product's regulatory or commercial success or failure, the lead time necessary to construct highly technical and complex manufacturing sites and shifting customer demand (including as a result of market conditions or entry of branded or generic competition) increase the potential for capacity imbalances. In addition, construction of sites is expensive, and our ability to recover costs will depend on the market acceptance and success of the products produced at the new sites, which is uncertain.

We rely on third parties to provide us with materials and services and are subject to increased labor and material costs and potential disruptions in supply.

The materials used to manufacture our products may be subject to availability constraints and price volatility caused by changes in demand, weather conditions, supply conditions, government regulations, economic climate and other factors. In addition, labor costs may be subject to volatility caused by the supply of labor, governmental regulations, economic climate and other factors. Increases in the demand for, availability or the price of, materials used to manufacture our products and increases in labor costs could increase the costs to manufacture our products, result in product delivery delays or shortages, and impact our ability to launch new products on a timely basis or at all. We may not be able to pass all or a material portion of any higher material or labor costs on to our customers, which could materially adversely affect our business, financial condition and results of operations.

We may be unable to meet demand for certain of our products if any of our third-party suppliers cease or interrupt operations, fail to renew contracts with us or otherwise fail to meet their obligations to us.

We may incur substantial costs and receive adverse outcomes in litigation and other legal matters.

Our business, financial condition and results of operations could be materially adversely affected by unfavorable results in pending or future litigation matters. If the acquisition of the Bayer animal health business is consummated, our business, financial condition and results of operations could also be materially adversely affected by pending or future litigation matters affecting the Bayer animal health business. These matters may include, among other things, allegations of violation of U.S. and foreign competition law, labor laws, consumer protection laws and environmental laws and regulations, as well as claims or litigation relating to product liability, intellectual property, securities, breach of contract and tort. In addition, changes in the interpretations of laws and regulations to which we are subject, or in legal standards in one or more of the jurisdictions in which we operate, could increase our exposure to liability. For example, in the U.S., attempts have been made to allow damages for emotional distress and pain and suffering in connection with the loss of, or injury to, a companion animal. If such attempts were successful, our exposure with respect to product liability claims could increase materially.

Litigation matters, regardless of their merits or their ultimate outcomes, are costly, divert management's attention and may materially adversely affect our reputation and demand for our products. We cannot predict with certainty the eventual outcome of pending or future litigation matters. An adverse outcome of litigation or legal matters could result in us being responsible for significant damages. Any of these negative effects resulting from litigation matters could materially adversely affect our business, financial condition and results of operations.

Our business is subject to substantial regulation.

As a global company, we are subject to various state, federal and international laws and regulations, including regulations relating to the development, quality assurance, manufacturing, importation, distribution, marketing and sale of our products. Changes in applicable federal, state, local and foreign laws and regulations could have a material adverse effect on our business, financial condition and results of operations. In addition, our manufacturing facilities, including the manufacturing facilities operated by our CMOs, are subject to periodic inspections by regulatory agencies. An inspection may report conditions or practices that indicate possible violations of regulatory requirements. Our failure, or the failure of third parties we rely on, including CMOs, to comply with these regulatory requirements, allegations of such non-compliance or the discovery of previously unknown problems with a product or manufacturer could result in, among other things, inspection observation notices, warning letters or similar regulatory correspondence, fines, a partial or total shutdown of production in one or more of our facilities while an alleged violation is remediated, withdrawals or suspensions of current products from the market, and civil or criminal prosecution, as well as decreased sales as a result of negative publicity and product liability claims. Any one of these consequences could materially adversely affect our business, financial condition and results of operations.

In addition, we will not be able to market new products unless and until we have obtained all required regulatory approvals in each jurisdiction where we propose to market those products. Even after a product reaches market, we may be subject to re-review and may lose our approvals. Our failure to obtain approvals, delays in the approval process, or our failure to maintain approvals in any jurisdiction, may prevent us from selling products in that jurisdiction until approval or re-approval is obtained, if ever.

The illegal distribution and sale by third parties of counterfeit or illegally compounded versions of our products or of stolen, diverted or relabeled products could have a negative impact on our reputation and business.

Third parties may illegally distribute and sell counterfeit or illegally compounded versions of our products that do not meet the exacting standards of our development, manufacturing and distribution processes. Counterfeit or illegally compounded medicines pose a significant risk to animal health and safety because of the conditions under which they are manufactured and the lack of regulation of their contents. Counterfeit or illegally compounded products are frequently unsafe or ineffective and can be potentially life-threatening to animals. Our reputation and business could suffer harm as a result of counterfeit or illegally compounded products which are alleged to be equivalent and/or which are sold under our brand name. In addition, products stolen or unlawfully diverted from inventory, warehouses, plants or while in transit, which are not properly stored or which have an expired shelf life and which have been repackaged or relabeled and which are sold through unauthorized channels, could adversely impact animal health and safety, our reputation and our business. Public loss of confidence in the integrity of vaccines and/or pharmaceutical products as a result of counterfeiting, illegal compounding or theft could have a material adverse effect on our business, financial condition and results of operations.

We are subject to complex environmental, health and safety laws and regulations.

We are subject to various federal, state, local and foreign environmental, health and safety laws and regulations. These laws and regulations govern matters such as the emission and discharge of hazardous materials into the ground, air or water; the generation, use, storage, handling, treatment, packaging, transportation, exposure to and disposal of hazardous and biological materials, including recordkeeping, reporting and registration requirements; and the health and safety of our employees. Due to our operations, these laws and regulations also require us to obtain, and comply with, permits, registrations or other authorizations issued by governmental authorities. These authorities can modify or revoke our permits, registrations or other authorizations and can enforce compliance through fines and injunctions.

Given the nature of our business, we have incurred, are currently incurring and may in the future incur liabilities for the investigation and remediation of contaminated land under the U.S. Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, or under other federal, state, local and foreign environmental cleanup laws, with respect to our current or former sites, adjacent or nearby third-party sites, or offsite disposal locations. We could be subject to liability for the investigation and remediation of legacy environmental contamination caused by historical industrial activity as sites that we own or on which we operate. The costs associated with future cleanup activities that we may be required to conduct or finance could be material. Additionally, we may become liable to third parties for damages, including personal injury, property damage and natural resource damages, resulting from the disposal or release of hazardous materials into the environment. Such liability could materially adversely affect our business, financial condition and results of operations.

Furthermore, regulatory agencies are showing increasing concern over the impact of animal health products and food animal operations on the environment. This increased regulatory scrutiny has in the past and may in the future necessitate that additional time and resources be spent to address these concerns in both new and existing products.

Our failure to comply with the environmental, health and safety laws and regulations to which we are subject, including any permits issued thereunder, may result in environmental remediation costs, loss of permits, fines, penalties or other adverse governmental or private actions, including regulatory or judicial orders enjoining or curtailing operations or requiring corrective measures, installation of pollution control equipment or remedial measures. We could also be held liable for any and all consequences arising out of human exposure to hazardous materials, environmental damage or significant environmental, health and safety issues that might arise at a manufacturing or R&D facility. Environmental laws and regulations are complex, change frequently, have tended to become more stringent and stringently enforced over time and may be subject to new interpretation. It is possible that our costs of complying with current and future environmental, health and safety laws, and our liabilities arising

from past or future releases of, or exposure to, hazardous materials could materially adversely affect our business, financial condition and results of operations.

The actual or purported intellectual property rights of third parties may negatively affect our business.

A third party may sue us, or our distributors or licensors, including Lilly, or otherwise make a claim, alleging infringement or other violation of such third-party's patents, trademarks, trade dress, copyrights, trade secrets, domain names or other intellectual property rights. If our distributors, licensors or we do not prevail in this type of litigation, we may be required to:

- pay monetary damages;
- obtain a license in order to continue manufacturing or marketing the affected products, which may not be available on commercially reasonable terms, or at all; or
- stop activities, including any commercial activities, relating to the affected products, which could include a recall of the affected products and/or a cessation of sales in the future.

The costs of defending an intellectual property claim could be substantial and could materially adversely affect our business, financial condition and results of operations, even if we successfully defend such claim. Moreover, even if we believe that we do not infringe a validly existing third-party patent, we may choose to license such patent, which would result in associated costs and obligations. We may also incur costs in connection with an obligation to indemnify a distributor, licensor or other third party.

The intellectual property positions of animal health medicines and vaccines businesses frequently involve complex legal and factual questions, and an issued patent does not guarantee us the right to practice the patented technology or develop, manufacture or commercialize the patented product. For example, while we generally enter into proprietary information agreements with our employees and third parties, which assign intellectual property rights to us, these agreements may not be honored or may not effectively assign intellectual property rights to us under the local laws of some countries or jurisdictions. We cannot be certain that a competitor or other third party does not have or will not obtain rights to intellectual property that may prevent us from manufacturing, developing or marketing certain of our products, regardless of whether we believe such intellectual property rights are valid and enforceable or we believe we would otherwise be able to develop a more commercially successful product, which may materially adversely affect our business, financial condition and results of operations.

If our intellectual property rights are challenged or circumvented, competitors may be able to take advantage of our R&D efforts or harm the value of our brands.

Our long-term success depends on our ability to market innovative, competitive products. We rely and expect to continue to rely on a combination of intellectual property, including patent, trademark, trade dress, copyright, trade secret and domain name protection, as well as confidentiality and license agreements with our employees and others, to protect our intellectual property and proprietary rights. If we fail to obtain and maintain adequate intellectual property protection, we may not be able to prevent third parties from using our proprietary technologies or from marketing products that are very similar or identical to ours.

Our currently pending or future patent applications may not result in issued patents, or be approved on a timely basis, if at all. Similarly, any term extensions that we seek may not be approved on a timely basis, if at all. In addition, our issued patents, or any patents that may issue in the future, may not contain claims sufficiently broad to protect us against third parties with similar technologies or products or provide us with any competitive advantage, including exclusivity in a particular product area.

The validity and scope of our patent claims also may vary between countries, as individual countries have their own patent laws. For example, some countries only permit the issuance of patents covering a novel chemical compound itself, and its first use, and thus further methods of use for the same compound may not be patentable. The validity, enforceability, scope and effective term of patents can be highly uncertain and often involve complex legal and factual questions and proceedings that vary based on the local law of the relevant jurisdiction. Our ability to enforce our patents also depends on the laws of individual countries and each country's practice with respect to enforcement of intellectual property rights. Patent protection must be obtained on a jurisdiction-by-jurisdiction basis, and we only pursue patent protection in countries where we think it makes commercial sense for the given product. In addition, if we are unable to maintain our existing license agreements or other agreements pursuant to which

third parties grant us rights to intellectual property, including because such agreements terminate, our financial condition and results of operations could be materially adversely affected.

Patent law reform in the U.S. and other countries may also weaken our ability to enforce our patent rights, or make such enforcement financially unattractive. For instance, in September 2011, the U.S. enacted the America Invents Act, which permits enhanced third-party actions for challenging patents and implements a first-to-invent system. These reforms could result in increased costs to protect our intellectual property or limit our ability to obtain and maintain patent protection for our products in these jurisdictions. Additionally, certain foreign governments have indicated that compulsory licenses to patents may be granted in the case of national emergencies, which could diminish or eliminate sales and profits from those regions and materially adversely affect our financial condition and results of operations.

Our trademarks and brands may provide us with a competitive advantage in the market as they may be known or trusted by consumers. In order to maintain the value of such brands, we must be able to enforce and defend our trademarks. We have pursued and will pursue the registration of trademarks and service marks in the U.S. and internationally; however, enforcing rights against those who knowingly or unknowingly dilute or infringe our brands can be difficult. Effective trademark, service mark, trade dress or related protections may not be available in every country in which our products and services are available. Enforcement is especially difficult in first-to-file countries where “trademark squatters” can prevent us from obtaining adequate protections for our brands. There can be no assurance that the steps we have taken and will take to protect our proprietary rights in our brands and trademarks will be adequate or that third parties will not infringe, dilute or misappropriate our brands, trademarks, trade dress or other similar proprietary rights.

Many of our products are based on or incorporate proprietary information. We actively seek to protect our proprietary information, including our trade secrets and proprietary know-how, by generally requiring our employees, consultants, other advisors and other third parties to execute proprietary information and confidentiality agreements upon the commencement of their employment, engagement or other relationship. Despite these efforts and precautions, we may be unable to prevent a third party from copying or otherwise obtaining and using our trade secrets or our other intellectual property without authorization and legal remedies may not adequately compensate us for the damages caused by such unauthorized use. Further, others may independently and lawfully develop substantially similar or identical products that circumvent our intellectual property by means of alternative designs or processes or otherwise.

We could be subject to changes in our tax rates, the adoption of new U.S. or foreign tax legislation or exposure to additional tax liabilities.

We are subject to income taxes in the U.S. and numerous foreign jurisdictions. Changes in the relevant tax laws, regulations, administrative practices, principles and interpretations could adversely affect our future effective tax rates. The U.S. recently enacted tax reform legislation significantly revising U.S. tax law, and a number of other countries are actively considering or enacting tax changes. Other organizations, such as the Organization for Economic Cooperation and Development and the European Commission, are also actively considering tax related matters, which could influence international tax policy in countries in which we operate. While outcomes of these initiatives continue to develop and remain uncertain, modifications to key elements of the U.S. or international tax framework could have a material adverse effect on our consolidated results of operations and cash flows.

In December 2017, the President of the United States signed into law the Tax Cuts and Jobs Act (the ‘‘2017 Tax Act’’). The 2017 Tax Act included significant changes to the U.S. corporate income tax system, such as the reduction in the corporate income tax rate, transition to a modified territorial tax system, changes to business related exclusions, deductions and credits, and modifications to international tax provisions. The U.S. Treasury Department and the IRS began to issue major proposed regulations related to the 2017 Tax Act during 2018 and are expected to continue issuing proposed and final regulations. Proposed regulations are generally subject to comment before being finalized; however, once finalized, these regulations may require Elanco to make adjustments, in particular, as a result of certain complex international provisions contained in the 2017 Tax Act. Such adjustments might materially impact Elanco’s provision for income taxes and effective tax rate in the period in which the adjustments are made and could also impact Elanco’s net income, earnings per share, consolidated cash flows and liquidity.

In addition, our effective tax rate is subject to potential risks that various taxing authorities may challenge the pricing of our cross border arrangements and subject us to additional tax, adversely impacting our effective tax rate and tax liability. We are also subject to the examination of our tax returns and other tax matters by the Internal

Revenue Service (IRS) and other tax authorities and governmental bodies. We regularly assess the likelihood of an adverse outcome resulting from these examinations to determine the adequacy of our provision for taxes. There can be no assurance as to the outcome of these examinations. If our effective tax rates were to increase, particularly in the U.S. or other material foreign jurisdictions, or if the ultimate determination of our taxes owed is for an amount in excess of amounts previously accrued, our business, financial condition and results of operations could be materially adversely affected.

Significant portions of our operations are conducted in foreign jurisdictions, including jurisdictions presenting a high risk of bribery and corruption, and are subject to the economic, political, legal and business environments of the countries in which we do business.

Our international operations could be limited or disrupted by any of the following:

- volatility in the international financial markets;
- compliance with governmental controls;
- difficulties enforcing contractual and intellectual property rights;
- parallel trade in our products (importation of our products from EU countries where our products are sold at lower prices into EU countries where the products are sold at higher prices);
- compliance with a wide variety of laws and regulations, such as the U.S. Foreign Corrupt Practices Act (the FCPA) and similar non-U.S. laws and regulations;
- compliance with foreign labor laws;
- burdens to comply with multiple and potentially conflicting foreign laws and regulations, including those relating to environmental, health and safety requirements;
- changes in laws, regulations, government controls or enforcement practices with respect to our business and the businesses of our customers, including the imposition of limits on our profitability;
- political and social instability, including crime, civil disturbance, terrorist activities and armed conflicts;
- trade restrictions and restrictions on direct investments by foreign entities, including restrictions administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury and the EU, in relation to our products or the products of farmers and other customers;
- government limitations on foreign ownership;
- government takeover or nationalization of business;
- changes in tax laws and tariffs;
- imposition of anti-dumping and countervailing duties or other trade-related sanctions;
- costs and difficulties and compliance risks in staffing, managing and monitoring international operations, including in the use of overseas third-party goods and service providers;
- corruption risk inherent in business arrangements and regulatory contacts with foreign government entities;
- longer payment cycles and increased exposure to counterparty risk; and
- additional limitations on transferring personal information between countries or other restrictions on the processing of personal information.

In addition, international transactions may involve increased financial and legal risks due to differing legal systems and customs. Compliance with these requirements may prohibit the import or export of certain products and technologies or may require us to obtain a license before importing or exporting certain products or technologies. A failure to comply with any of these laws, regulations or requirements could result in civil or criminal legal proceedings, monetary or non-monetary penalties, or both, disruptions to our business, limitations on our ability to import and export products, and damage to our reputation. In addition, variations in the pricing of our products between jurisdictions may result in the unauthorized importation or unauthorized re-importation of our products between jurisdictions and may also result in the imposition of anti-dumping and countervailing duties or other trade-related sanctions. While the impact of these factors is difficult to predict, any of them could materially adversely affect our business, financial condition and results of operations.

Further, changes in any of these laws, regulations or requirements, or the political environment in a particular country, may affect our ability to engage in business transactions in certain markets, including investment, procurement and repatriation of earnings.

Significant portions of our operations are conducted in Europe and could be impacted by the withdrawal of the United Kingdom (UK) from the EU, commonly referred to as "Brexit."

In June 2016, voters in the UK approved an advisory referendum to withdraw from the EU, commonly referred to as Brexit. On March 29, 2017, the UK Prime Minister formally notified the European Council of the UK's intention to withdraw from the EU under Article 50 of the Treaty of Lisbon. Brexit formally occurred on January 31, 2020. A transition period is in effect from February 1, 2020 until December 31, 2020, during which the UK and the EU will negotiate a trade agreement. During this period, EU rules and regulations will remain in effect for the UK. The referendum and notice created political, regulatory and economic uncertainty, particularly in the UK and the EU, and this uncertainty may persist for years if the UK and the EU are unable to reach an agreement by the end of the transition period.

Our business is subject to substantial regulation. If a trade agreement is not reached by the end of the transition period, we may not be able to market certain products that entered the EU market following marketing authorization by UK authorities in all the nations that are parties to free trade agreements with the EU unless and until we have obtained all required regulatory approvals in each jurisdiction where we proposed to market those products.

In addition, the uncertainty related to Brexit has caused foreign exchange rate fluctuations in the past, including the strengthening of the U.S. dollar relative to the Euro and British pound immediately following the announcement of Brexit. Further developments with respect to Brexit could further impact foreign exchange rates, which could materially adversely affect our business, financial condition and results of operations.

The end of the transition period with no agreement in place could significantly disrupt the free movement of goods, services, and people between the UK and the EU, and result in increased legal and regulatory complexities, as well as potential higher costs of conducting business in Europe and declining gross domestic product in many European markets. The UK's exit from the EU could also result in similar referendums or votes in other European countries in which we do business.

The uncertainty surrounding the terms of the UK's withdrawal and its consequences could adversely impact consumer and investor confidence, and could affect sales or regulation of our products. Any of these effects, among others, could materially adversely affect our business, financial condition and results of operations.

Foreign exchange rate fluctuations and potential currency controls affect our results of operations, as reported in our financial statements.

We conduct operations in many areas of the world, involving transactions denominated in a variety of currencies. In 2019, we generated approximately 44% of our revenue in currencies other than the U.S. dollar, principally the Euro, British pound, Canadian dollar, Australian dollar, Brazilian real, Japanese yen, and Chinese yuan. We are subject to currency exchange rate risk to the extent that our costs are denominated in currencies other than those in which we earn revenue. 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.

We also face risks arising from currency devaluations and the imposition of cash repatriation restrictions and exchange controls. Currency devaluations result in a diminished value of funds denominated in the currency of the country instituting the devaluation. Cash repatriation restrictions and exchange controls may limit our ability to convert foreign currencies into U.S. dollars or to remit dividends and other payments by our foreign subsidiaries or businesses located in or conducted within a country imposing restrictions or controls. While we currently have no need and do not intend to repatriate or convert cash held in countries that have significant restrictions or controls in place, should we need to do so to fund our operations, we may be unable to repatriate or convert such cash, or may be unable to do so without incurring substantial costs.

We also bear foreign exchange risk associated with the future cash settlement of an existing net investment hedge. In October 2018, we entered into a fixed interest rate, 5-year, 750 million Swiss franc net investment hedge (NIH) against Swiss franc assets. The NIH is expected to generate approximately $25 million in cash and contra

interest expense per year; however, there is potential for significant 2023 settlement exposure on the 750 million Swiss franc notional if the U.S. dollar devalues versus the Swiss franc.

We depend on sophisticated information technology and infrastructure.

We rely on various information systems to manage our operations, and we increasingly depend on third parties to operate and support our information technology systems, including by way of virtual and cloud-based operations. These third parties include large established vendors as well as small, privately owned companies. Failure by any provider to adequately service our operations, or a change in control or insolvency of one or more providers, may materially adversely affect our business, financial condition and results of operations. Prior to the Separation, we relied on Lilly to negotiate and manage many of our relationships and contracts with these third parties.

In connection with the Separation, we are continuing to enhance a number of our business processes, including our financial reporting and supply chain processes and with respect to where and from whom we obtain information technology systems. In order to support the new business processes under the terms of our transitional services agreement with Lilly, we have made and will continue to make significant configuration, process and data changes within many of the information technology systems we use. If our information technology systems and processes are not sufficient to support our business and financial reporting functions, or if we fail to properly implement our new business processes, our financial reporting may be delayed or inaccurate and, as a result, our business, financial condition and results of operations may be materially adversely affected. Even if we are able to successfully configure and change our systems, all technology systems, even with implementation of security measures, are vulnerable to disability, failures or unauthorized access. If our information technology systems were to fail or be breached, this could materially adversely affect our reputation and our ability to perform critical business functions, and sensitive and confidential data could be compromised.

Breaches of our information technology systems or improper disclosure of confidential company or personal data could have a material adverse effect on our reputation and operations, or we may fail to comply with privacy laws, regulations and our contractual obligations.

We rely on information technology systems to process, transmit and store electronic information in our day-to-day operations, including customer, employee and company data. The secure processing, maintenance and transmission of this information is critical to our operations and the legal environment surrounding information security, storage, use, processing, disclosure and privacy is demanding with the frequent imposition of new and changing requirements. We also store certain information with third parties. Our information systems and those of our third-party vendors are subjected to computer viruses or other malicious codes, unauthorized access attempts, and cyber or phishing-attacks and also are vulnerable to an increasing threat of continually evolving cybersecurity risks and external hazards, as well as improper or inadvertent staff behavior, all of which could expose confidential company and personal data systems and information to security breaches. Any such breach could compromise our networks, and the information stored therein could be accessed, publicly disclosed, lost or stolen. Such attacks could result in our intellectual property and other confidential information being lost or stolen, disruption of our operations, and other negative consequences, such as increased costs for security measures or remediation costs, and diversion of management attention. Any actual or perceived access, disclosure or other loss of information or any significant breakdown, intrusion, interruption, cyber-attack or corruption of customer, employee or company data or our failure to comply with federal, state, local and foreign privacy laws or contractual obligations with customers, vendors, payment processors and other third parties, could result in legal claims or proceedings, liability under laws or contracts that protect the privacy of personal information, regulatory penalties, disruption of our operations, and damage to our reputation, all of which could materially adversely affect our business, revenue and competitive position. While we will continue to implement additional protective measures to reduce the risk of and detect cyber-incidents, cyber-attacks are becoming more sophisticated and frequent, and the techniques used in such attacks change rapidly. Our protective measures may not protect us against attacks and such attacks could have a significant impact on our business and reputation. In addition, prior to the Separation, we relied on Lilly for certain privacy and compliance functions and personnel and may experience difficulties maintaining and implementing all policies and practices following completion of the Separation.

Increased regulation or decreased governmental financial support relating to the raising, processing or consumption of food animals could reduce demand for our food animal products.

Companies in the food animal sector are subject to extensive and increasingly stringent regulations. See “Business of Elanco - Regulatory.” If food animal producers are adversely affected by new regulations or changes to

existing regulations, they may reduce herd or flock sizes or become less profitable and, as a result, they may reduce their use of our products, which may materially adversely affect our business, financial condition and results of operations. Also, many food animal producers benefit from governmental subsidies, and if such subsidies were to be reduced or eliminated, these companies may become less profitable and, as a result, may reduce their use of our food animal products. More stringent regulation of the food animal sector, including regarding the use of food animal products, could have a material adverse effect on our business, financial condition and results of operations.

Our business could be materially adversely affected by labor disputes, strikes or work stoppages.

Some of our employees are members of unions, works councils, trade associations or are otherwise subject to collective bargaining agreements in certain jurisdictions, including the U.S. As a result, we are subject to the risk of labor disputes, strikes, work stoppages and other labor-relations matters. We may be unable to negotiate new collective bargaining agreements on similar or more favorable terms and may experience work stoppages, higher ongoing labor costs or other labor problems in the future at our sites. We may also experience difficulty or delays in implementing changes to our workforce in certain markets. These risks may be increased by the Separation because we no longer benefit from Lilly's prior relationships and negotiations relating to such agreements.

Further, labor-related issues, including at our suppliers or CMOs, could cause a disruption of our operations, which could have a material adverse effect on our business, financial condition and results of operations, potentially resulting in cancelled orders by customers, unanticipated inventory accumulation or shortages and reduced revenue and net income.

The anticipated benefits of the Separation from Lilly may not be achieved.

We may not be able to achieve the full strategic and financial benefits expected to result from the Separation from Lilly. Further, such benefits, if ultimately achieved, may be delayed. These benefits include the following:

- improving strategic and operational flexibility and streamlining decision-making by providing the flexibility to implement our strategic plan and to respond more effectively to different customer needs and the changing economic and industry environment;
- allowing us to adopt the investment policy and dividend policy best suited to our financial profile and business needs, and allowing us to raise capital as an independent business;
- creating an independent equity structure that makes possible future acquisitions utilizing our common stock as well as compensation arrangements; and
- facilitating incentive compensation arrangements for employees more directly tied to the performance of our business, and enhancing employee hiring and retention by, among other things, improving the alignment of management and employee incentives with performance and growth objectives of our business.

We may not achieve the anticipated benefits of the Separation from Lilly for a variety of reasons, which could materially adversely affect our business, financial condition and results of operations.

We have underfunded pension plan liabilities. We will require current and future operating cash flow to fund these shortfalls reducing the cash available for other uses.

We have certain defined benefit pension plans, predominantly outside of the U.S., that our employees participate in that are either dedicated to our employees or where the plan assets and liabilities that relate to our employees were legally required to transfer to us at the time of the Separation. The funded status and net periodic pension cost for these plans is materially affected by the discount rate used to measure pension obligations, the longevity and actuarial profile of our workforce, the level of plan assets available to fund those obligations and the actual and expected long-term rate of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets can result in corresponding increases and decreases in the valuation of plan assets or in a change in the expected rate of return on plan assets. As of December 31, 2019, for pension plans with projected benefit obligations in excess of plan assets, the projected benefit obligation was $218.2 million with plan assets of $140.3 million. Any changes in the discount rate could result in a significant increase or decrease in the valuation of pension obligations, affecting the reported funded status of our pension plans as well as the net periodic pension cost in the following years. Similarly, changes in the expected return on plan assets can result in significant changes in the net periodic pension cost in the following years. The need to make additional cash contributions will

divert resources from our operations and may have a material adverse effect on our business, financial condition and results of operations.

We may not be able to successfully integrate acquired businesses when we pursue acquisitions, divestitures, joint ventures or other significant transactions, such as the acquisition of Aratana Therapeutics, Inc. and Prevtec Microbia Inc.

We finalized the acquisition of Aratana Therapeutics, Inc. on July 18, 2019 and the acquisition of Prevtec Microbia Inc. on July 31, 2019. Following the closing of the transactions, we are now required to devote significant management attention and resources to integrating the portfolio and operations of the target companies. Potential difficulties that we may encounter in the integration process, including as a result of distraction of our management, include the following:

- the inability to combine the businesses of the acquired companies with ours in a manner that permits us to achieve the cost savings or other synergies anticipated as a result of the transaction or to achieve such cost savings or other anticipated synergies in a timely manner, which could result in us not realizing some anticipated benefits of the transactions in the time frame anticipated, or at all;
- the inability to realize the anticipated value from various assets of the target companies;
- loss of key employees;
- potential unknown liabilities and unforeseen increased expenses, delays or unfavorable conditions in connection with the closing of the transactions and the subsequent integration; and
- performance shortfalls at our company or the target companies as a result of the diversion of management's attention from ongoing business activities as a result of completing the transaction and integrating the companies' operations.

Future acquisitions could also result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities or amortization expenses related to intangible assets, and increased operating expenses, which could adversely affect our results of operations and financial condition. Furthermore, if we issue equity or debt securities to raise additional funds beyond the equity and debt issuances that have occurred in January and February 2020, our existing shareholders may experience significant dilution, and the new equity or debt securities may have rights, preferences and privileges senior to those of our existing shareholders. Furthermore, if we sell a substantial number of shares of common stock in the public markets, the availability of those shares for sale could adversely affect the market price of our common stock. Such sales, or the perception in the market that holders of a large number of shares intend to sell shares, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities.

Our historical combined financial data prior to the Separation is not necessarily representative of the results we would have achieved as a standalone company and may not be a reliable indicator of our future results.

For periods prior to the Separation, our historical combined financial data included in this report does not reflect the financial condition, results of operations or cash flows we would have achieved as a standalone company during the periods presented or those we will achieve in the future. This is primarily the result of the following factors:

- our historical combined financial data does not reflect the Separation;
- our historical combined financial data for periods prior to the Separation reflects expense allocations for certain support functions that were provided on a centralized basis within Lilly, such as expenses for executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations that may be higher or lower than the comparable expenses we would have actually incurred, or will incur in the future, as a standalone company;
- our cost of debt and our capital structure has been different from that reflected in our historical combined financial statements for periods prior to the Separation;
- significant increases have occurred in our cost structure as a result of the IPO, including costs related to public company reporting, investor relations and compliance with the Sarbanes-Oxley Act; and

- the IPO had a material effect on our customers and other business relationships, including supplier relationships, and resulted in the loss of preferred pricing available by virtue of our reduced relationship with Lilly.

Our financial condition and future results of operations, after giving effect to the Separation, have been materially different from the amounts for periods prior to the Separation reflected in our historical combined financial statements included in this report. As a result of the Separation, it may be difficult for investors to compare our 2019 and future results to historical results prior to the Separation or to evaluate our relative performance or trends in our business.

Risks Related to the Pending Acquisition of the Bayer Animal Health Business (the Acquisition)

The proposed acquisition of the Bayer animal health business may not be completed on the anticipated terms and there are uncertainties and risks related to consummating the Acquisition.

In August 2019, we entered into a share purchase agreement (Purchase Agreement) to purchase the animal health business of Bayer for approximately $5.3 billion in cash and approximately $2.3 billion of our common stock, subject to certain customary adjustments. Our obligation to consummate the Acquisition is subject to satisfaction or waiver, to the extent permitted under applicable law, of a number of conditions. Among other conditions, the Acquisition is subject to antitrust approvals in certain jurisdictions. We cannot provide any assurance that all required antitrust clearances will be obtained and what conditions will be imposed. There can be no assurance as to the cost, scope or impact of the actions that may be required, including divestiture actions, to obtain antitrust approval. If we are required to or otherwise decide to take such actions in order to close the Acquisition, it could be detrimental to the combined organization following the consummation of the Acquisition, including with respect to the synergies which we expect from the Acquisition. For example, in January 2020, we signed agreements to divest *Osurnia*, a treatment for otitis externa in dogs, and the U.S. rights to *Capstar*, an oral tablet that kills fleas in dogs and cats, for an aggregate of $230 million in all cash deals, with the intent to advance our efforts to secure the necessary regulatory clearances for the Acquisition. Furthermore, these actions, or the failure to effect any divestitures at an acceptable price or at all, could have the effect of delaying or preventing completion of the Acquisition or imposing additional costs on or limiting the revenues or cash of the combined organization following the consummation of the Acquisition.

Even if the parties receive antitrust approvals, the applicable domestic or international regulatory authorities could take action under the antitrust laws to prevent or rescind the Acquisition, require the divestiture of assets or seek other remedies. Additionally, state attorneys general could seek to block or challenge the Acquisition as they deem necessary or desirable in the public interest at any time, including after completion of the Acquisition. In addition, in some circumstances, a third party could initiate a private action under antitrust laws challenging or seeking to enjoin the Acquisition, before or after it is completed. We may not prevail and may incur significant costs in defending or settling any action under the antitrust laws.

We may be unable to integrate the Bayer animal health business successfully and realize the anticipated benefits of the Acquisition.

If the Acquisition is completed, the successful integration of the Bayer animal health business and operations into those of our own and our ability to realize the expected synergies and benefits of the Transactions are subject to a number of risks and uncertainties, many of which are outside of our control. We will also be required to devote significant management attention and resources to integrating business practices, cultures and operations of each business. The risks and uncertainties relating to integrating the two businesses and realizing the anticipated cost synergies include, among other things:

- the challenge of integrating complex organizations, systems, operating procedures, compliance programs, technology, networks and other assets of the Bayer animal health business;
- the difficulties harmonizing differences in the business cultures of our company and the Bayer animal health business;
- the inability to combine successfully our respective businesses in a manner that permits us to achieve the cost savings, synergies and other anticipated benefits from the Acquisition;
- the inability to minimize the diversion of management attention from ongoing business concerns during the process of integrating the Bayer animal health business into our businesses;

- the inability to resolve potential conflicts that may arise relating to customer, supplier and other important relationships of our business and the Bayer animal health business;
- difficulties in retaining key management and other key employees;
- the challenge of managing the expanded operations of a significantly larger and more complex company and coordinating geographically separate organizations; and
- difficulties in fully exploring intellectual property licensed from Bayer in connection with the acquisition, given Bayer's rights as licensor of such intellectual property.

We will incur substantial expenses to consummate the proposed Acquisition but may not realize the anticipated cost synergies and other benefits to the extent expected, on the timeline expected, or at all. In addition, even if we are able to integrate the Bayer animal health business successfully, the anticipated benefits of the Acquisition may not be realized fully, or at all, or may take longer to realize than expected. Moreover, competition in the animal health industry, including competition that has negatively impacted results in the companion animal parasiticide market, may also cause us not to fully realize the anticipated benefits of the Acquisition. Given the size and significance of the Acquisition, we may encounter difficulties in the integration of the operations of the Bayer animal health business and may fail to realize the full benefits and synergies of the Acquisition, which could adversely impact our business, results of operation and financial condition.

The Bayer animal health business may have liabilities that are not known to us.

The Bayer animal health business may have liabilities that we failed, or were unable, to discover in the course of performing our due diligence investigations of the Bayer animal health business. We cannot assure that the indemnification available to us under the Purchase Agreement in respect of the Acquisition in connection with such agreement will be sufficient in amount, scope or duration to fully offset the possible liabilities associated with the Bayer animal health business or property that we will assume upon consummation of the Acquisition. We may learn additional information about the Bayer animal health business that materially adversely affects us, such as unknown or contingent liabilities and liabilities related to compliance with applicable laws. Any such liabilities, individually or in the aggregate, could have a material adverse effect on our business, financial condition and results of operations.

Acquisition accounting adjustments could adversely affect our financial results.

We will account for the completion of the Acquisition using the acquisition method of accounting. We will allocate the total estimated purchase price to net tangible assets, amortizable intangible assets and indefinite-lived intangible assets, and based on their fair values as of the date of completion of the Acquisition record the excess, if any, of the purchase price over those fair values as goodwill. Differences between preliminary estimates and the final acquisition accounting may occur, and these differences could have a material impact on the consolidated and combined financial statements and the combined company’s future results of operations and financial position.

Failure to complete the Acquisition could impact our stock price and our future business and financial results.

If the Acquisition is not completed, our ongoing business and financial results may be adversely affected and we will be subject to a number of risks, including the following:

- depending on the reasons for the failure to complete the Acquisition, we could be liable to Bayer for monetary or other damages in connection with the termination or breach of the Purchase Agreement;
- we have dedicated significant time and resources, financial and otherwise, in planning for the Acquisition and the associated integration, of which we would lose the benefit if the Acquisition is not completed;
- we are responsible for certain transaction costs relating to the Acquisition, whether or not the Acquisition is completed;
- while the Purchase Agreement is in force, we are subject to certain restrictions on the conduct of our business, including taking any action that is reasonably likely to prevent, materially delay or materially impair the consummation of the Acquisition, which restrictions may adversely affect our ability to execute certain of our business strategies; and

- matters relating to the Acquisition (including integration planning) may require substantial commitments of time and resources by our management, whether or not the Acquisition is completed, which could otherwise have been devoted to other opportunities that may have been beneficial to us.

In addition, if the Acquisition is not completed, we may experience negative reactions from the financial markets and from our customers and employees. We also may be subject to litigation related to any failure to complete the Acquisition or to enforcement proceedings commenced against us to perform our obligations under the Purchase Agreement. If the Acquisition is not completed, these risks may materialize and may adversely affect our business, financial results and financial condition, as well as the price of our common stock.

While the Acquisition is pending, we and the Bayer animal health business will be subject to business uncertainties that could adversely affect our respective businesses.

Our success following the announcement of the Acquisition will depend in part upon the ability of us and the Bayer animal health business to maintain our respective business relationships. Uncertainty about the effect of the Acquisition on customers, suppliers, employees and other constituencies may have a material adverse effect on us and the Bayer animal health business. Customers, suppliers and others who deal with us or the Bayer animal health business may delay or defer business decisions, decide to terminate, modify or renegotiate their relationships or take other actions as a result of the Acquisition that could negatively affect the revenues, earnings and cash flows of our company or the Bayer animal health business. If we are unable to maintain these business and operational relationships, our financial position, results of operations or cash flows could be materially affected.

Our debt following the completion of the Acquisition will be significant and could adversely affect our business and our ability to meet our obligations.

In connection with the Acquisition, we priced a $4.3 billion term facility and a $750.0 million revolving credit facility (the New Credit Facilities) in February 2020, which will become effective at the closing of the Acquisition.

This significant amount of debt and other cash needs could have important consequences to us, including:

- requiring a substantial portion of our cash flow from operations to make payments on this debt, thereby limiting the cash we have available to fund future growth opportunities, such as R&D, capital expenditures and acquisitions;
- restrictive covenants in our debt arrangements, which could limit our operations and borrowing;
- the risk of a future credit ratings downgrade of our debt, increasing future debt costs and limiting the future availability of debt financing;
- increasing our vulnerability to general adverse economic and industry conditions and limiting our flexibility in planning for, or reacting to, changes in our business and industry, due to the need to use our cash to service our outstanding debt;
- placing us at a competitive disadvantage relative to our competitors that are not as highly leveraged with debt and that may therefore be more able to invest in their business or use their available cash to pursue other opportunities, including acquisitions; and
- limiting our ability to borrow additional funds as needed or take advantage of business opportunities as they arise.

In addition, our actual cash requirements in the future may be greater than expected. Our cash flow from operations may not be sufficient to repay all of our outstanding debt as it becomes due, and we may not be able to borrow money, sell assets or otherwise raise funds on acceptable terms, or at all, to refinance our debt.

The issuance of our common stock to Bayer under the Purchase Agreement will be dilutive to our shareholders and could depress the market price of our common stock.

Following the closing of the Acquisition, Bayer will own shares of our common stock valued at approximately $2.3 billion based on trading prices before the closing of the Acquisition, subject to a minimum and maximum number of shares as provided in the Purchase Agreement. The shares are subject to limited lock-up obligations and following the expiration of such lock-up obligations (the latest of which expire 12 months after the closing of the Acquisition), Bayer is free to sell the shares of our common stock received at the closing of the Acquisition. In addition, under the Purchase Agreement, we agreed to provide Bayer with customary shelf registration rights.

The market price of shares of our common stock may drop significantly as a result of the resale of the consideration shares, or when the lock-up restrictions on resale by Bayer lapse. In addition, this concentration of share ownership may adversely affect the trading price of our common stock because investors may perceive disadvantages in owning shares in a company with significant shareholders.

Risks Related to our Indebtedness

We have substantial indebtedness and expect to incur substantial additional indebtedness.

We have a significant amount of indebtedness, which could materially adversely affect our business, financial condition and results of operations. As of December 31, 2019, in addition to $2.4 billion of senior unsecured notes, we had $371.4 million of borrowings under a term loan, which was retired in January 2020 using the proceeds from our most recent equity offering. We have an additional $750.0 million of borrowing capacity ($1.0 billion if certain conditions are met) under our existing revolving facility. See Note 9: Debt to our consolidated and combined financial statements for further discussion.

We expect to incur substantial additional indebtedness in connection with the Acquisition under the New Credit Facilities. If we do so, the risks related to our high level of debt could intensify. Specifically, our high level of debt could have important consequences, including:

- making it more difficult for us to satisfy our obligations with respect to our debt and any failure to comply with the obligations of any of our debt instruments, including restrictive covenants and borrowing conditions, could result in an event of default under the agreements governing other indebtedness;
- requiring us to dedicate a substantial portion of our cash flow from operations to the payment of interest and the repayment of our indebtedness, thereby reducing funds available to us for other purposes;
- limiting our ability to obtain additional financing to fund future working capital, capital expenditures, business development or other general corporate requirements, including dividends;
- increasing our vulnerability to general adverse economic and industry conditions;
- making us more highly leveraged than some of our competitors, which may place us at a competitive disadvantage;
- restricting us from making strategic acquisitions, engaging in development activities or exploiting business opportunities;
- causing us to make non-strategic divestitures;
- exposing us to the risk of increased interest rates as certain of our borrowings are and may in the future be at variable rates of interest;
- limiting our flexibility in planning for and reacting to changes in the animal health industry;
- impacting our effective tax rate; and
- increasing our cost of borrowing.

In addition, the credit agreement expected to govern the New Credit Facilities is expected to contain restrictive covenants that will limit our ability to engage in activities that may be in our long-term best interest. Our failure to comply with those covenants could result in an event of default which, if not cured or waived, could result in the acceleration of substantially all of our indebtedness.

Despite our substantial indebtedness, we may still be able to incur significantly more debt, which could intensify the risks associated with our indebtedness.

We and our subsidiaries may be able to incur substantial indebtedness in the future, even following the incurrence of indebtedness in connection with the Acquisition. Although we expect that the terms of the credit agreement governing the New Credit Facilities will contain restrictions on our and our subsidiaries' ability to incur additional indebtedness, these restrictions are expected to be subject to a number of important qualifications and exceptions, and the indebtedness incurred in compliance with these restrictions could be substantial. These restrictions are also not expected to prevent us from incurring obligations that do not constitute indebtedness. In addition to our borrowings under the New Credit Facilities, the covenants under the credit agreement governing the New Credit Facilities are expected to, and the covenants under any other of our existing or future debt instruments could, allow us to incur a significant amount of additional indebtedness and, subject to certain limitations, such additional indebtedness could be secured. The more leveraged we become, the more we, and in turn our security holders, will be exposed to certain risks described above under "—We have substantial indebtedness and expect to incur substantial additional indebtedness."

We may not be able to generate sufficient cash to service all of our indebtedness and may be forced to take other actions to satisfy our obligations under our indebtedness, which may not be successful.

Our ability to make scheduled payments on or refinance our debt obligations depends on our financial condition and operating performance, which are subject to prevailing economic and competitive conditions and to certain financial, business, legislative, regulatory and other factors beyond our control. We may be unable to maintain a level of cash flows from operating activities sufficient to permit us to pay the principal and interest on our indebtedness.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we could face substantial liquidity problems and could be forced to reduce or delay investments and capital expenditures, or to dispose of material assets or operations, alter our dividend policy, seek additional debt or equity capital or restructure or refinance our indebtedness. We may not be able to effect any such alternative measures on commercially reasonable terms or at all and, even if successful, those alternative actions may not allow us to meet our scheduled debt service obligations. The instruments that will govern our indebtedness may restrict our ability to dispose of assets and may restrict the use of proceeds from those dispositions and may also restrict our ability to raise debt or equity capital to be used to repay other indebtedness when it becomes due. We may not be able to consummate those dispositions or to obtain proceeds in an amount sufficient to meet any debt service obligations when due.

In addition, we conduct our operations through our subsidiaries. Accordingly, repayment of our indebtedness will depend on the generation of cash flow by our subsidiaries, including certain international subsidiaries, and their ability to make such cash available to us, by dividend, debt repayment or otherwise. Our subsidiaries may not have any obligation to pay amounts due on our indebtedness or to make funds available for that purpose. Our subsidiaries may not be able to, or may not be permitted to, make adequate distributions to enable us to make payments in respect of our indebtedness. Each subsidiary is a distinct legal entity and, under certain circumstances, legal, tax and contractual restrictions may limit our ability to obtain cash from our subsidiaries. In the event that we do not receive distributions from our subsidiaries, we may be unable to make required principal and interest payments on our indebtedness.

Our inability to generate sufficient cash flows to satisfy our debt obligations, or to refinance our indebtedness on commercially reasonable terms or at all, may materially adversely affect our business, financial condition and results of operations and our ability to satisfy our obligations under our indebtedness or pay dividends on our common stock.

Our debt agreements following the completion of the Acquisition are expected to contain restrictions that will limit our flexibility in operating our business.

Our existing term facility and revolving credit facility contain, and the New Credit Facilities are expected to contain, and any other existing or future indebtedness of ours would likely contain, a number of covenants that impose significant operating and financial restrictions on us, including restrictions on our and our subsidiaries' ability to, among other things:

- incur additional debt, guarantee indebtedness or issue certain preferred shares;
- pay dividends on or make distributions in respect of, or repurchase or redeem, our capital stock or make other restricted payments;
- prepay, redeem or repurchase certain debt;
- make loans or certain investments;
- sell certain assets;
- create liens on certain assets;
- consolidate, merge, sell or otherwise dispose of all or substantially all of our assets;
- enter into certain transactions with our affiliates;
- substantially alter the businesses we conduct;
- enter into agreements restricting our subsidiaries' ability to pay dividends; and
- designate our subsidiaries as unrestricted subsidiaries.

In addition, the New Credit Facilities are expected to require us to comply with a net total leverage ratio and a minimum fixed charge coverage ratio under certain circumstances.

As a result of these covenants, we will be limited in the manner in which we conduct our business, and we may be unable to engage in favorable business activities or finance future operations or capital needs.

A failure to comply with the covenants under the existing term facility, the existing revolving credit facility, the indenture that governs the senior unsecured notes, the New Credit Facilities, or any of our other existing or future indebtedness could result in an event of default, which, if not cured or waived, could have a material adverse effect on our business, financial condition and results of operations. In the event of an event of default under the New Credit Facilities, it is expected that the lenders:

- will not be required to lend any additional amounts to us;
- could elect to declare all borrowings outstanding, together with accrued and unpaid interest and fees, to be due and payable and terminate all commitments to extend further credit;
- could require us to apply all of our available cash to repay these borrowings; or
- could effectively prevent us from making debt service payments on the notes (due to a cash sweep feature).

Such actions by the lenders could cause cross defaults under our other indebtedness, including our senior unsecured notes. If we were unable to repay those amounts, the lenders under the New Credit Facilities and any of our other existing or future secured indebtedness could proceed against the collateral granted to them to secure the New Credit Facilities or such other indebtedness. We are expecting to pledge a significant portion of our assets as collateral under the New Credit Facilities.

The terms and conditions of the New Credit Facilities have not been finalized.

The credit agreement relating to the New Credit Facilities has not been finalized. Our entry into the New Credit Facilities is subject to market conditions, and we cannot assure you that the New Credit Facilities will be completed, in the manner, on the terms or on the timetable described herein, or at all. Future changes in market conditions may result in less favorable terms for the New Credit Facilities and any changes to the terms of the New Credit Facilities

may increase our interest expense and adversely affect our business. The terms of the New Credit Facilities could also change in a way that increases our indebtedness or makes it easier to incur debt in the future.

Changes in our credit rating could increase our interest expense and restrict our access to, and negatively impact the terms of, current or future financings or trade credit.

Credit rating agencies continually revise their ratings for the companies that they follow, including us. Credit rating agencies also evaluate our industry as a whole and may change their credit ratings for us based on their overall view of our industry. We cannot be sure that credit rating agencies will maintain their ratings on us and certain of our debt. As a result of the Acquisition, our credit ratings may be downgraded. Because the ratings of certain of our senior unsecured notes have been downgraded, we will be required to pay additional interest under the senior unsecured notes. Any further downgrades could result in requiring us to pay additional interest under the senior unsecured notes. Moreover, any decision to downgrade our ratings could restrict our access to, and negatively impact the terms of, current or future financings and trade credit extended by our suppliers of raw materials or other vendors.

Changes in interest rates may adversely affect our earnings and/or cash flows.

Our revolving credit facility bears interest at variable interest rates that use the London Inter-Bank Offered Rate (LIBOR) as a benchmark rate. On July 27, 2017, the United Kingdom's Financial Conduct Authority (FCA), which regulates LIBOR, announced that it intends to stop persuading or compelling banks to submit LIBOR quotations after 2021 (the FCA Announcement). The FCA announcement indicates that the continuation of LIBOR on the current basis cannot and will not be assured after 2021, and LIBOR may cease to exist or otherwise be unsuitable for use as a benchmark. Recent proposals for LIBOR reforms may result in the establishment of new methods of calculating LIBOR or the establishment of one or more alternative benchmark rates. Although our revolving credit facility provides for successor base rates, the successor base rates may be related to LIBOR, and the consequences of any potential cessation, modification or other reform of LIBOR cannot be predicted at this time. If LIBOR ceases to exist, we may need to amend our existing or enter into a new revolving credit facility, and we cannot predict what alternative interest rate(s) will be negotiated with our counterparties. As a result, our interest expense may increase, our ability to refinance some or all of our existing indebtedness may be affected and our available cash flow may be adversely affected.

Risks Related to our Relationship with Lilly

As a result of the Separation, we no longer have access to Lilly's brand, reputation, capital base and other resources.

We believe our association with Lilly has contributed to our building relationships with our customers due to Lilly's globally recognized brand and perceived high-quality products. The Separation could adversely affect our ability to attract and retain customers, which could result in reduced sales of our products.

The loss of Lilly's scale, capital base and financial strength may also prompt suppliers to reprice, modify or terminate their relationships with us. In addition, Lilly's reduction of its ownership of our company could potentially cause some of our existing agreements and licenses to be terminated. We cannot predict with certainty the effect that the Separation will have on our business, our clients, vendors or other persons, or whether our brand will be accepted in the marketplace.

Further, because we have only operated as a standalone company for a limited period of time, we may have difficulty doing so. We may need to acquire assets and resources in addition to those provided by Lilly, and in connection with the Separation, may also face difficulty in separating our assets from Lilly's assets and integrating newly acquired assets into our business. Our business, financial condition and results of operations could be materially adversely affected if we have difficulty operating as a standalone company, fail to acquire assets that prove to be important to our operations or incur unexpected costs in separating our assets from Lilly's assets or integrating newly-acquired assets.

Lilly may compete with us.

Lilly is not restricted from competing with us in the animal health business. Although Lilly informed us it had no intention to compete with us in the animal health business, if Lilly in the future decides to engage in the type of

business we conduct, it may have a competitive advantage over us, which may cause our business, financial condition and results of operations to be materially adversely affected.

To preserve the tax-free treatment to Lilly and its shareholders of the Separation and certain related transactions, we may not be able to engage in certain transactions.

To preserve the tax-free treatment to Lilly and its shareholders of the Separation and certain related transactions, under a tax matters agreement with Lilly, we are restricted from taking any action that prevents such transactions from being tax-free for U.S. federal income tax purposes. These restrictions limit our ability to pursue certain strategic transactions or engage in other transactions, including using our common stock to make acquisitions and in connection with equity capital market transactions that might increase the value of our business. Because of these restrictions, following the issuance of our common stock and tangible equity units in public offerings completed in January 2020, and the issuance of the consideration shares to Bayer in connection with the Acquisition, we will have limited or no ability to issue shares of our common stock in the near term.

Lilly's rights as licensor under the intellectual property and technology license agreement could limit our ability to develop and commercialize certain products.

Prior to the Separation, we had the ability to leverage certain of Lilly's intellectual property. As part of the Separation, we entered into an intellectual property and technology license agreement. Pursuant to the intellectual property and technology license agreement, Lilly licenses to us certain of its intellectual property (excluding trademarks) related to the animal health business and also grants a license for us to use Lilly's proprietary compound library for a period of two years plus up to three additional one-year periods, each such period to be granted under Lilly's sole discretion. If we fail to comply with our obligations under this agreement and Lilly exercises its right to terminate it, our ability to continue to research, develop and commercialize products incorporating that intellectual property will be limited. In addition, this agreement includes limitations that affect our ability to develop and commercialize certain products, including in circumstances where Lilly has an interest in the licensed intellectual property in connection with its human health development programs. These limitations and termination rights may make it more difficult, time consuming or expensive for us to develop and commercialize certain new products, or may result in our products being later to market than those of our competitors. For a summary description of the terms of the intellectual property and technology license agreement, see Note 20: Related Party Agreements and Transactions to our consolidated and combined financial statements.

We have incurred and will continue to incur significant charges in connection with the Separation and incremental costs as a standalone public company.

We are currently replicating or replacing certain functions, systems and infrastructure to which we no longer have the same access after the Separation. We have also made and will continue to make investments or hire additional employees to operate without the same access to Lilly's existing operational and administrative infrastructure. These initiatives may be costly to implement. Due to the scope and complexity of the underlying projects relative to these efforts, the amount of total costs could be materially higher than our estimates, and the timing of the incurrence of these costs is subject to change.

Prior to the Separation, Lilly performed or supported many important corporate functions for us. Our consolidated and combined financial statements prior to the Separation reflect charges for these services on an allocated basis. Following the Separation, many of these services are governed by our transitional services agreement with Lilly. Under the transitional services agreement we are able to use these Lilly services for a fixed term established on a service-by-service basis. Partial reduction in the provision of any service or termination of a service prior to the expiration of the applicable fixed term requires Lilly's consent. In addition, either party is able to terminate the agreement due to a material breach of the other party, upon prior written notice, subject to limited cure periods or if the other party undergoes a change of control.

We pay Lilly mutually agreed-upon fees for these services, which are based on Lilly's costs (including third-party costs) of providing the services through March 31, 2021 and subject to a mark-up of 7% thereafter, with additional inflation-based escalation beginning January 1, 2022. However, since our transitional services agreement was negotiated in the context of a parent-subsidiary relationship, the terms of the agreement, including the fees charged for the services, may be higher or lower than those that would be agreed to by parties bargaining at arm's length for similar services and may be higher or lower than the costs reflected in the allocations in our historical consolidated and combined financial statements. In addition, while these services are being provided to us by Lilly, our

operational flexibility to modify or implement changes with respect to such services or the amounts we pay for them will be limited.

We may not be able to replace these services or enter into appropriate third-party agreements on terms and conditions, including cost, comparable to those that we receive from Lilly under the transitional services agreement. Additionally, after the transitional services agreement terminates, we may be unable to sustain the services at the same levels or obtain the same benefits as when we were receiving such services and benefits from Lilly. When we begin to operate these functions separately, if we do not have our own adequate systems and business functions in place, or are unable to obtain them from other providers, we may not be able to operate our business effectively or at comparable costs, and our profitability may decline. In addition, we have historically received informal support from Lilly, which may not be addressed in the transitional services agreement. The level of this informal support may diminish or be eliminated in the future.

Risks Related to Elanco Common Stock

Future sales or the possibility of future sales of a substantial amount of our common stock may depress the price of shares of our common stock.

Future sales or the availability for sale of substantial amounts of our common stock in the public market could adversely affect the prevailing market price of our common stock and could impair our ability to raise capital through future sales of equity securities.

As of December 31, 2019, there were 373 million shares of our common stock outstanding, approximately 3.5 million shares of our common stock issuable upon exercise or vesting of outstanding equity awards and an additional 8 million shares of common stock available for issuance under the 2018 Elanco Stock Plan and Elanco Animal Health Incorporated Directors' Deferral Plan; issuances of these shares are registered on our Registration Statement on Form S-8. Accordingly, shares of our common stock registered under such registration statement will be available for sale in the open market upon exercise or vesting by the holders of such awards, subject to vesting restrictions and Rule 144 limitations applicable to our affiliates.

On January 27, 2020, we issued approximately 25 million shares of our common stock in a registered public offering. Additionally, we issued on such date 11 million tangible equity units in a registered public offering. Unless settled earlier, each purchase contract that is a component of a tangible equity unit will settle automatically on the mandatory settlement date into up to 1.5625 shares of our common stock, subject to certain anti-dilution adjustments. All of the shares of common stock and tangible equity units sold in the public offering, as well as the shares of common stock issuable upon settlement of the units, are and will be freely tradable without restriction or further registration under the Securities Act by persons other than our "affiliates" and sales of the shares of common stock, the units or the underlying common stock may depress the price of shares of our common stock.

Pursuant to the Purchase Agreement, we have agreed to issue the consideration shares to Bayer and to use our reasonable best efforts to file a shelf registration statement to register such shares within 60 days after the closing date of the Acquisition. The Purchase Agreement provides that, subject to certain lock-up restrictions with respect to the transfer of the consideration shares, Bayer may request that we complete underwritten offerings with respect the consideration shares, subject to limitations on minimum offering size. The completion of the Acquisition is subject to the satisfaction of certain customary closing conditions, including the receipt of antitrust approvals and the absence of any law or order enjoining or otherwise prohibiting the Acquisition in specified jurisdictions. Bayer will receive the consideration shares at the completion of the Acquisition.

Any shares of common stock sold by Bayer under the shelf registration statement in compliance with or following the expiration of the lock-up provisions under the Purchase Agreement will be freely tradable. In the event Bayer exercises its registration rights and sells a large number of shares of our common stock, such sales could reduce the trading price of our common stock. These sales or the prospects of these sales or any other sales also could impede our ability to raise future capital.

In addition, subject to compliance with our tax matters agreement with Lilly, we may also issue additional shares of common stock or convertible debt securities to finance future acquisitions or for other corporate purposes. We cannot predict the size of future issuances of our common stock or other securities or the effect, if any, that future issuances and sales of our common stock or other securities will have on the market price of our common stock . Sales of substantial amounts of common stock (including shares of common stock issued in connection with the

Acquisition or any future acquisition), or the perception that such sales could occur, may adversely affect prevailing market prices for our common stock.

The price of our common stock may fluctuate substantially.

Investors should consider an investment in our common stock to be risky, and should invest in our common stock only if the investor can withstand a significant loss and wide fluctuations in the market value of the investment. Some factors that may cause the market price of our common stock to fluctuate, in addition to the other risks mentioned in this section of the annual report on Form 10-K, are:

- our announcements or our competitors' announcements regarding new products, enhancements, significant contracts, acquisitions or strategic investments;
- changes in earnings estimates or recommendations by securities analysts, if any, who cover our common stock;
- failures to meet external expectations or management guidance;
- fluctuations in our quarterly financial results or the quarterly financial results of companies perceived to be similar to us;
- changes in our capital structure or dividend policy future issuances of securities, sales of large blocks of common stock by our shareholders or our incurrence of additional debt;
- reputational issues;
- changes in general economic and market conditions in or any of the regions in which we conduct our business;
- changes in industry conditions or perceptions; and
- changes in applicable laws, rules or regulations and other dynamics.

In addition, if the market for stocks in our industry or related industries, or the stock market in general, experiences a loss of investor confidence, the trading price of our common stock could decline for reasons unrelated to our business, financial condition and results of operations. If any of the foregoing occurs, it could cause our stock price to fall and may expose us to lawsuits that, even if unsuccessful, could be costly to defend and a distraction to management.

The market price of our common stock is also likely to be influenced by the tangible equity units issued by us. For example, the market price of our common stock could become more volatile and could be depressed by:

- investors' anticipation of the potential resale in the market of a substantial number of additional shares of our common stock received upon settlement of the purchase contracts that are a component of the units;
- possible sales of our common stock by investors who view the units as a more attractive means of equity participation in us than owning shares of our common stock; and
- hedging or arbitrage trading activity that may develop involving the units and our common stock.

We do not anticipate paying dividends on our common stock in the foreseeable future.

We do not anticipate paying any dividends in the foreseeable future on our common stock. We intend to retain all future earnings for the operation and expansion of our business and the repayment of outstanding debt. The New Credit Facilities are expected to contain restrictive covenants that impose significant operating and financial restrictions on us, including restrictions on our ability to pay dividends and make other restricted payments. As a result, capital appreciation, if any, of our common stock may be your major source of gain for the foreseeable future. While we may change this policy at some point in the future, we cannot assure you that we will make such a change.

The distributions we pay on our common stock may not qualify as dividends for U.S. federal income tax purposes, which could adversely affect the U.S. federal income tax consequences to you of owning our common stock.

Generally, any distributions that we make to a stockholder with respect to its shares of our common stock will constitute a dividend for U.S. federal income tax purposes to the extent of our current or accumulated earnings and profits as determined for U.S. federal income tax purposes. While we expect that we will have accumulated earnings and profits, as determined for U.S. federal income tax purposes, allocated to us as a result of our separation from Lilly, this allocation has not yet been finalized. Furthermore, our ability to generate earnings and profits, as determined for U.S. federal income tax purposes, in any future year is subject to a number of variables that are uncertain and difficult to predict.

Generally, any distribution not constituting a dividend under the rules described above will be treated as first reducing the investor's adjusted basis in shares of our common stock and, to the extent that the distribution exceeds the adjusted basis in shares of our common stock, as gain from the sale or exchange of such shares, and if the investor is a domestic corporation, it will not be entitled to claim, with respect to such non-dividend distribution, a “dividends-received” deduction, which generally applies to dividends received from other domestic corporations.

Applicable laws and regulations, provisions of our amended and restated articles of incorporation and our amended and restated bylaws may discourage takeover attempts and business combinations that shareholders might consider in their best interests.

Applicable laws, provisions of our amended and restated articles of incorporation and our amended and restated bylaws and certain contractual rights that have been granted to Lilly under the master separation agreement may delay, deter, prevent or render more difficult a takeover attempt that our shareholders might consider in their best interests. For example, they may prevent our shareholders from receiving the benefit from any premium to the market price of our common stock offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of these provisions may adversely affect the prevailing market price of our common stock if they are viewed as discouraging takeover attempts in the future.

Our amended and restated articles of incorporation and our amended and restated bylaws contain provisions that are intended to encourage prospective acquirers to negotiate with our board of directors rather than to attempt a hostile takeover, which could deter coercive takeover practices and inadequate takeover bids. These provisions provide for:

- a board of directors divided into three classes with staggered terms;
- advance notice requirements regarding how our shareholders may present proposals or nominate directors for election at shareholder meetings;
- the right of our board of directors to issue one or more series of preferred stock with such powers, rights and preferences as the board of directors shall determine;
- only the board of directors to fill newly-created directorships or vacancies on our board of directors;
- limitations on the ability of shareholders to call special meetings of shareholders and require that all shareholder action be taken at a meeting rather than by written consent;
- a two-thirds shareholder vote requirement to amend our amended and restated articles of incorporation;
- the exclusive right of our board of directors to amend our amended and restated bylaws; and
- the requirement that a 66 2/3% vote is necessary to remove directors.

These limitations may adversely affect the prevailing market price and market for our common stock if they are viewed as limiting the liquidity of our stock or discouraging takeover attempts in the future.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Properties

The address of our principal executive offices is currently c/o Elanco, 2500 Innovation Way, Greenfield IN, 46140.

We have R&D operations co-located with certain of our manufacturing sites in the U.S. to facilitate the efficient transfer of production processes from our laboratories to manufacturing sites. In addition, we maintain R&D operations at non-manufacturing locations in the U.S., Switzerland, Australia, Brazil and China. As part of the Separation, Lilly transferred to us its interest in each of these R&D facilities. Our largest R&D facility is our U.S. R&D site located in Fort Dodge, Iowa, which has approximately 0.3 million square feet.

Our global manufacturing network is comprised of 12 manufacturing sites. The largest manufacturing site in our global manufacturing network is our manufacturing site located in Clinton, Indiana, which has approximately 0.7 million square feet. In addition, our global manufacturing network will continue to be supplemented by approximately 90 CMOs. See "Item 1. Business — Manufacturing and Supply Chain."

We own or lease various additional properties for other business purposes including office space, warehouses and logistics centers. In addition, under the TSA, Lilly provides us with continued access to certain of its premises currently occupied by our employees for up to two years from the date of the Separation.

We believe that our existing properties, as supplemented by CMOs and access to Lilly facilities that will be provided under the TSA, are adequate for our current requirements and for our operations in the near future.

Item 3. Legal Proceedings

We are from time to time subject to claims and litigation arising in the ordinary course of business. These claims and litigation may include, among other things, allegations of violation of U.S. and foreign competition law, labor laws, consumer protection laws and environmental laws and regulations, as well as claims or litigation relating to product liability, intellectual property, securities, breach of contract and tort. We operate in multiple jurisdictions and, as a result, a claim in one jurisdiction may lead to claims or regulatory penalties in other jurisdictions. We intend to vigorously defend against any pending or future claims and litigation, as appropriate.

At this time, in the opinion of our management, the likelihood is remote that the impact of such proceedings, either individually or in the aggregate, would have a material adverse effect on our consolidated and combined results of operations, financial condition or cash flows. However, one or more unfavorable outcomes in any claim or litigation against us could have a material adverse effect for the period in which they are resolved. In addition, regardless of their merits or their ultimate outcomes, such matters are costly, divert management’s attention and may materially adversely affect our reputation, even if resolved in our favor.

Item 4. Mine Safety Disclosures

Not applicable.

Part II

Item 5. Market for the Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

MARKET INFORMATION

On September 20, 2018, our common stock began trading on the New York Stock Exchange under the symbol “ELAN.”

HOLDERS

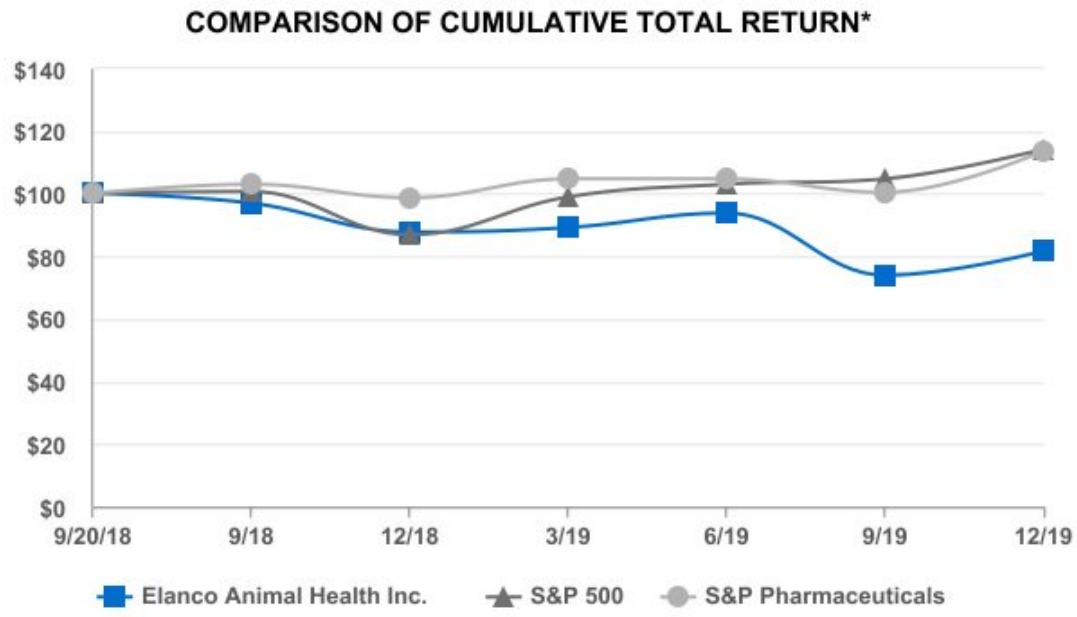
There were 313 holders of record of our common stock as of February 25, 2020. This does not include the number of stockholders who hold shares of our common stock through banks, brokers or other financial institutions.

DIVIDEND POLICY

We do not anticipate paying dividends on our common stock in the foreseeable future; however, we may change our dividend policy at any time.

PERFORMANCE GRAPH

This graph compares the return on Elanco's common stock with that of the S&P 500 Stock Index and the S&P 500 Pharmaceuticals Index from September 20, 2018 (the first day our common stock was traded in conjunction with our IPO) through December 31, 2019. The graph assumes that, on September 20, 2018, a person invested $100 each in Elanco common stock, the S&P 500 Index, and the S&P 500 Pharmaceuticals Index. The graph measures total shareholder return, which takes into account both stock price and dividends. It assumes that dividends paid by a company are reinvested in that company's stock.



*$100 invested on 9/20/2018 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

	9/20/18	9/30/18	12/31/18	3/31/19	6/30/19	9/30/19	12/31/19
Elanco Animal Health Inc.	100.00	96.92	87.58	89.08	93.89	73.86	81.81
S&P 500 Index	100.00	100.57	86.97	98.84	103.10	104.85	114.36
S&P 500 Pharmaceuticals Index	100.00	102.91	98.62	104.60	104.66	100.45	113.50

Item 6. Selected Financial Data

The following tables set forth our selected historical consolidated and combined financial data for the periods indicated below.

Our consolidated and combined financial statements include the attribution of certain assets and liabilities that have historically been held at the Lilly corporate level but which are specifically identifiable or attributable to us. Through the completion of the IPO, our consolidated and combined financial statements also include expense allocations related to certain Lilly corporate functions, including executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations. These expenses were allocated to us based on direct usage or benefit where specifically identifiable, with the remainder allocated primarily on a pro rata basis of revenue, headcount or other measures. We believe that this expense methodology, and the results thereof, is reasonable for all periods presented. However, the allocations may not be indicative of the actual expense that would have been incurred if we would have operated as an independent, publicly traded company for the periods presented. It is impractical to estimate what our standalone costs would have been for the historical periods presented. After the IPO, a TSA between Lilly and Elanco went into effect. Under the terms of the TSA, we will be able to use certain services and resources related to corporate functions historically provided to us by Lilly, such as executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations (Lilly Services) for a fixed term, established on a service-by-service basis. For those TSAs that remain in effect as of December 31, 2019, we are paying Lilly mutually agreed upon fees for the Lilly Services provided under the TSA. Our consolidated and combined financial statements reflect the charges for Lilly Services after the IPO.

The financial statements presented may not be indicative of our future performance and do not necessarily reflect what our financial position and results of operations would have been had we operated as an independent, publicly traded company for the periods presented prior to IPO.

ELANCO ANIMAL HEALTH INCORPORATED (Dollars in millions, except per-share data)	2019	2018	2017	2016	2015
Operations					
Revenue	$ 3,071.0	$ 3,066.8	$ 2,889.0	$ 2,913.5	$ 2,909.1
Cost of sales	1,470.3	1,573.8	1,493.9	1,409.0	1,533.7
Research and development	270.1	246.6	251.7	265.8	291.0
Marketing, selling and administrative	760.2	735.2	779.8	784.8	916.0
Amortization of intangible assets	200.4	197.4	221.2	170.7	163.0
Asset impairment, restructuring and other special charges	185.5	128.8	375.1	308.4	263.3
Interest expense, net of capitalized interest	78.9	29.6	—	—	—
Other–net, expense (income)	27.4	41.3	(0.1)	(2.8)	1.6
Income (loss) before income tax expense	78.2	114.1	(232.6)	(22.4)	(259.5)
Income tax expense (benefit)	10.3	27.6	78.1	25.5	(48.7)
Net income (loss)	$ 67.9	$ 86.5	$ (310.7)	$ (47.9)	$ (210.8)
Net income (loss) as a percent of revenue	2 %	3 %	(11)%	(2)%	(7)%
Net income (loss) per share - basic	$ 0.18	$ 0.28	$ (1.06)	$ (0.16)	$ (0.72)
Net income (loss) per share - diluted	0.18	0.28	(1.06)	(0.16)	(0.72)
Weighted-average number of shares outstanding - basic	369.0	313.7	293.3	293.3	293.3
Weighted-average number of shares outstanding - diluted	370.3	313.7	293.3	293.3	293.3
Financial Position					
Total assets	$ 8,985.8	$ 8,956.7	$ 8,940.3	$ 8,099.7	$ 8,433.6
Long-term debt	2,330.5	2,443.3	—	—	—
Total liabilities	3,438.9	3,759.2	1,160.0	1,082.3	1,004.1
Total equity	5,546.9	5,197.5	7,780.3	7,017.4	7,429.5

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

Management's discussion and analysis of financial condition and results of operations, is intended to assist the reader in understanding and assessing significant changes and trends related to our results of operations and financial position. This discussion and analysis should be read in conjunction with the consolidated and combined financial statements and accompanying footnotes in Item 8 of Part II of this Annual Report on Form 10-K. Certain statements in this Item 7 of Part II of this Annual Report on Form 10-K constitute forward-looking statements. Various risks and uncertainties, including those discussed in "Forward-Looking Statements" and Item 1A, "Risk Factors," may cause our actual results, financial position, and cash generated from operations to differ materially from these forward-looking statements.

Overview

Founded in 1954 as part of Eli Lilly & Co. (Lilly), Elanco is a premier animal health company that innovates, develops, manufactures and markets products for companion and food animals. Headquartered in Greenfield, Indiana, we are the fourth largest animal health company in the world, with revenue of $3,071.0 million for the year ended December 31, 2019. Globally, we are #1 in medicinal feed additives, #2 in poultry, and #3 in other pharmaceuticals, which are mainly companion animal therapeutics, measured by 2018 revenue, according to Vetnosis.

We have one of the broadest portfolios of pet parasiticides in the companion animal sector. We offer a diverse portfolio of more than 125 brands that make us a trusted partner to veterinarians and food animal producers in more than 90 countries.

On September 24, 2018, we completed our initial public offering (IPO), pursuant to which we issued and sold 19.8% of our total outstanding shares. On September 20, 2018, our common stock began trading on the New York Stock Exchange (NYSE) under the symbol "ELAN." On September 24, 2018, immediately preceding the completion of the IPO, Lilly transferred to us substantially all of its animal health businesses in exchange for (i) all of the net proceeds (approximately $1,659.7 million) we received from the sale of our common stock in the IPO, including the net proceeds we received as a result of the exercise in full of the underwriters' option to purchase additional shares, (ii) all of the net proceeds (approximately $2,000 million) we received from the issuance of our senior notes; and (iii) all of the net proceeds ($498.6 million) we received from the entry into our term loan facility. In addition, immediately prior to the completion of the IPO, we entered into certain agreements with Lilly that provide a framework for our ongoing relationship with them.

On February 8, 2019, Lilly announced an exchange offer whereby Lilly shareholders could exchange all or a portion of Lilly common stock for shares of Elanco common stock owned by Lilly. On that date, we filed a Registration Statement on Form S-4 with the SEC in connection with that exchange offer. The disposition of Elanco shares was completed on March 11, 2019, and resulted in the full separation of Elanco along with the disposal of Lilly's entire ownership and voting interest in Elanco.

We operate our business in a single segment directed at fulfilling our vision of enriching the lives of people through food, making protein more accessible and affordable and through pet companionship, helping pets live longer, healthier lives. We advance our vision by offering products in four primary categories:

Companion Animal Disease Prevention (CA Disease Prevention): We have one of the broadest parasiticide portfolios in the companion animal sector based on indications, species and formulations, with products that protect pets from worms, fleas and ticks. Combining our parasiticide portfolio with our vaccines presence, we are a leader in the U.S. in the disease prevention category based on share of revenue.

Companion Animal Therapeutics (CA Therapeutics): We have a broad pain and osteoarthritis portfolio across species, modes of action, indications and disease stages. Pet owners are increasingly treating osteoarthritis in their pets, and our *Galliprant* product is one of the fastest growing osteoarthritis treatments in the U.S. We also have treatments for otitis (ear infections), as well as cardiovascular and dermatology indications.

Food Animal Future Protein & Health (FA Future Protein & Health): Our portfolio in this category, which includes vaccines, nutritional enzymes and animal only antibiotics, serves the growing demand for

protein and includes innovative products in poultry and aquaculture production, where demand for animal health products is outpacing overall industry growth. We are focused on developing functional nutritional health products that promote food animal health, including enzymes, probiotics and prebiotics. We are a leader in providing vaccines as alternatives to antibiotics to promote animal health based on share of revenue.

Food Animal Ruminants & Swine (FA Ruminants & Swine): We have developed a range of food animal products used extensively in ruminant (e.g., cattle, sheep and goats) and swine production.

For the years ended December 31, 2019, 2018 and 2017, our revenue was $3,071.0 million, $3,066.8 million and $2,889.0 million, respectively. For the years ended December 31, 2019, 2018 and 2017, our net income (loss) was $67.9 million, $86.5 million and $(310.7) million, respectively.

Increases or decreases in inventory levels at our channel distributors can positively or negatively impact our quarterly and annual revenue results, leading to variations in quarterly revenues. This can be a result of various factors, such as end customer demand, new customer contracts, heightened and generic competition, the need for certain inventory levels, our ability to renew distribution contracts with expected terms, our ability to implement commercial strategies, regulatory restrictions, unexpected customer behavior, payment terms we extend, which are subject to internal policies, and procedures and environmental factors beyond our control, including weather conditions.

Key Trends and Conditions Affecting Our Results of Operations

Industry Trends

The animal health industry, which focuses on both food animals and companion animals, is a growing industry that benefits billions of people worldwide.

As demand for animal protein grows, food animal health is becoming increasingly important. Factors influencing growth in demand for food animal medicines and vaccines include:

- one in three people need improved nutrition;
- increased global demand for protein, particularly poultry and aquaculture;
- natural resource constraints, such as scarcity of arable land, fresh water and increased competition for cultivated land, driving the need for more efficient food production;
- loss of productivity due to food animal disease and death;
- increased focus on food safety and food security; and
- human population growth, increased standards of living, particularly in many emerging markets, and increased urbanization.

Growth in food animal nutritional health products (enzymes, probiotics and prebiotics) is influenced, among other factors, by demand for antibiotic alternatives that can promote animal health and increase productivity.

Factors influencing growth in demand for companion animal medicines and vaccines include:

- increased pet ownership globally;
- pets living longer; and
- increased pet spending as pets are viewed as members of the family by owners.

Factors Affecting Our Results of Operations

Product Development and New Product Launches

A key element of our targeted value creation strategy is to drive growth through portfolio development and product innovation, primarily in our three targeted growth categories of CA Disease Prevention, CA Therapeutics and FA Future Protein & Health. Since 2015, we have launched or acquired 14 new products, including the additions of *Entyce*, *Nocita* and *Tanovea* in 2019. Revenue from these products contributed $439.2 million to revenue for the

year ended December 31, 2019. We continue to pursue the development of new chemical and biological molecules through our approach to innovation. Our future growth and success depends on both our pipeline of new products, including new products that we may develop through joint ventures and products that we are able to obtain through license or acquisition, and the expansion of the use of our existing products. We believe we are an industry leader in animal health R&D, with a track record of product innovation, business development and commercialization.

Impact of Changing Market Demand for Antibiotics

In recent years, our operational results have been, and will continue to be, affected by regulations and changing market demand relating to the use of antibiotics and other products intended to increase food animal production.

There are two classes of antibiotics used in animal health: (i) shared-class, or medically important, antibiotics; and (ii) animal-only antibiotics. Shared-class antibiotics are used to treat infectious disease caused by pathogens that occur in both humans and animals. As part of our antibiotic stewardship plan and in compliance with FDA guidance, shared-class antibiotics are labeled only for the treatment of an established need in animals and only with veterinarian oversight. However, not all pathogens that cause disease in animals are infectious in humans, and accordingly animal-only antibiotics are not used in human medicine (i.e., not medically important). From 2015 to 2019, our revenue from shared-class antibiotics declined at a CAGR of 10%, excluding the impact of foreign exchange. This was driven primarily by changing regulations in many markets, including the Veterinary Feed Directive, as well as changing market demand and Elanco's tiered-approach to antibiotic stewardship, which included removing growth promotion from labels and requiring veterinary oversight in the U.S. and other markets.

Globally, during 2019, our revenue from shared-class antibiotics declined 13%, excluding the impact of foreign exchange, and represented 11% (4% from sales in the U.S. and 7% from sales outside of the U.S.) of our total revenue, down from 16% in 2015. From 2015 to 2019, our revenue from animal-only antibiotics grew at a CAGR of 4%, excluding the impact of foreign exchange, driven by sales outside the U.S., which offset a slight decline in the U.S. Globally, during 2019, our revenue from animal-only antibiotics declined 1%, excluding the impact of foreign exchange, and represented 24% of our total revenue, up from 23% in 2015. During 2019, 87% of our revenue from animal-only antibiotics resulted from the sale of ionophores. Ionophores are a special class of animal-only antimicrobials, and because of their animal-only designation, mode of action and spectrum of activity, their use, to date have not been impacted by regulations or changing market demand in many markets outside the U.S.

We have intentionally shifted away from shared-class antibiotics, and are focusing on animal-only antibiotics, as well as antibiotic-free solutions. When an animal-only antibiotic exists, we believe it should be the first, preferred antibiotic treatment. Antibiotic resistance concerns, or other health concerns regarding food animal products, may result in additional restrictions, expanded regulations or changes in market demand to further reduce the use of antibiotics in food animals. We believe it is important to protect the benefits of antibiotics in human medicine, while responsibly protecting the health of food animals and the safety of our food supply.

Impact of Competition

The animal health industry is competitive. Established animal health companies who consistently deliver high quality products enjoy brand loyalty from their customers, which often continues after the loss of patent-based or regulatory exclusivity. In 2019, approximately 67% of our revenue was from products that did not have patent protection. In animal health, while potentially significant, erosion from generic competition is often not as steep as in human health, with the originator often retaining a significant market share. However, generic competition can nevertheless significantly affect our results. While our largest product, *Rumensin* (monensin), has been subject to generic competition from monensin outside the U.S. for more than 10 years, our revenue from *Rumensin* sales outside the U.S. grew at a CAGR of 5% from 2015 to 2019. In the third quarter of 2019, an established animal health company received U.S. approval for generic monensin in cattle and goats for certain indications. U.S. revenue from *Rumensin* may decline as a result of the generic competition. We have experienced significant competitive headwinds from generic ractopamine in the U.S. In the third quarter of 2013, a large, established animal health company received U.S. approval for ractopamine (the generic to our drugs *Paylean* and *Optaflexx*). U.S. revenue for *Paylean* and *Optaflexx*, our ractopamine beef and swine products, has declined at a CAGR of 44% and 21%, respectively, from 2015 to 2019 as a result of generic competition and the impact of international regulatory restrictions. In 2019, we had an estimated 70% market share of all U.S. ractopamine-treated beef cattle based on management estimates.

Although we believe brand loyalty is an important contributor to a product's ongoing success, the animal health industry is also impacted by innovation. We experienced an innovation lag in the companion animal parasiticide space from 2015 to 2017. In the absence of a competitive combined oral flea and tick product, our U.S. companion animal parasiticide portfolio revenue declined 15% in 2017, excluding the impact on revenue resulting from a reduction in inventory levels within our distribution channel. In February 2018, we launched *Credelio* in the U.S. for the treatment of fleas and ticks. Since the launch of *Credelio*, our sales of parasiticides in the U.S. have begun to grow again.

Productivity

Our results during the periods presented have benefited from operational and productivity initiatives implemented following recent acquisitions and in response to changing market demand for antibiotics and other headwinds.

Our acquisitions within the last six years added in the aggregate $1.4 billion in revenue, 4,600 full-time employees, 12 manufacturing and eight R&D sites. In addition, from 2015 to 2019, changing market demand for antibiotics and other headwinds, such as competition with generics and innovation, affected some of our highest gross margin products, resulting in a change to our product mix and driving operating margin lower. In response, we implemented a number of initiatives across the manufacturing, R&D and selling, general and administrative (SG&A) functions. Our manufacturing cost savings strategies included improving manufacturing processes and headcount through lean manufacturing (minimizing waste while maintaining productivity), closing of three manufacturing sites, consolidating our CMO network, strategically insourcing certain projects, and pursuing cost savings opportunities with respect to raw materials via a new procurement process. Additional cost savings resulted from reducing the number of R&D sites from 16 to nine, SG&A savings from sales force consolidation, and reducing discretionary and other general and administrative (G&A) operating expense.

Foreign Exchange Rates

Significant portions of our revenue and costs are exposed to changes in foreign exchange rates. Our products are sold in more than 90 countries and, as a result, our revenue is influenced by changes in foreign exchange rates. For the years ended December 31, 2019 and 2018, approximately 44% and 52%, respectively, of our revenue was denominated in foreign currencies. As we operate in multiple foreign currencies, including the Euro, British pound, Swiss franc, Brazilian real, Australian dollar, Japanese yen, Canadian dollar, Chinese yuan, and other currencies, changes in those currencies relative to the U.S. dollar will impact our revenue, cost of sales and expenses, and consequently, net income. These fluctuations may also affect the ability to buy and sell our products between markets impacted by significant exchange rate variances. Currency movements decreased revenue by 2% during the year ended December 31, 2019. Currency movements had limited impact on revenue during the years ended December 31, 2018 and 2017.

General Economic Conditions

In addition to industry-specific factors, we, like other businesses, face challenges related to global economic conditions. Growth in both the food animal and companion animal sectors is driven in part by overall economic development and related growth, particularly in many emerging markets. In recent years, certain of our customers and suppliers have been affected directly by economic downturns, which decreased the demand for our products.

The cost of our products to food animal producers is small relative to their other production costs, including feed, and the use of our products is intended to improve economic outcomes for food animal producers. Similarly, industry sources have reported that pet owners indicated a preference for reducing spending on other aspects of their lifestyle, including entertainment, clothing and household goods, before reducing spending on pet care. While these factors have mitigated the impact of recent downturns in the global economy, further economic challenges could increase cost sensitivity among our customers, which may result in reduced demand for our products and could have a material adverse effect on our financial condition and results of operations.

Weather Conditions and the Availability of Natural Resources

The animal health industry and demand for many of our animal health products in a particular region are affected by weather conditions, varying weather patterns and weather-related pressures from pests, such as fleas and ticks. As a result, we may experience regional and seasonal fluctuations in our results of operations.

Food animal producers depend on the availability of natural resources, including large supplies of fresh water. Their animals' health and their ability to operate could be adversely affected if they experience a shortage of fresh water due to human population growth or floods, droughts or other weather conditions.

Drought conditions could negatively impact, among other things, the supply of corn and the availability of grazing pastures. A decrease in harvested corn results in higher corn prices, which could negatively impact the profitability of food animal producers of ruminants, pork and poultry. Higher corn prices and reduced availability of grazing pastures contribute to reductions in herd or flock sizes that in turn result in less spending on animal health products. As such, a prolonged drought could have a material adverse effect on our financial condition and results of operations. Factors influencing the magnitude and timing of effects of a drought on our performance include, but may not be limited to, weather patterns and herd management decisions.

In addition, veterinary hospitals and practitioners depend on visits from and access to the animals under their care. Veterinarians' patient volume and ability to operate could be adversely affected if they experience prolonged snow, ice or other severe weather conditions, particularly in regions not accustomed to sustained inclement weather. Adverse weather conditions or a shortage of fresh water may cause veterinarians and food animal producers to purchase less of our products.

Disease Outbreaks

Sales of our food animal products could be adversely affected by the outbreak of disease carried by animals, such as African Swine Fever. Outbreaks of disease may reduce regional or global sales of particular animal-derived food products or result in reduced exports of such products, either due to heightened export restrictions or import prohibitions, which may reduce demand for our products. Also, the outbreak of any highly contagious disease near our main production sites could require us to immediately halt production of our products at such sites or force us to incur substantial expenses in procuring raw materials or products elsewhere. Alternatively, sales of products that treat specific disease outbreaks may increase.

Manufacturing and Supply

In order to sell our products, we must be able to reliably produce and ship our products in sufficient quantities. Many of our products involve complex manufacturing processes and are sole-sourced from certain manufacturing sites.

Minor deviations in our manufacturing or logistical processes, unpredictability of a product's regulatory or commercial success or failure, the lead time necessary to construct highly technical and complex manufacturing sites, and shifting customer demand increase the potential for capacity imbalances.

Components of Revenue and Costs and Expenses

Revenue

Our revenue is primarily derived from sales of our products to third-party distributors, and directly to food producers and veterinarians. For additional information regarding our products, including descriptions of our products, see "Item 1. Business — Products."

We aggregate our products into five categories to understand revenue growth:

- CA Disease Prevention includes parasiticides and vaccine products for dogs and cats;
- CA Therapeutics includes products for the treatment of pain, osteoarthritis, otitis, cardiovascular and dermatology indications in dogs and cats;
- FA Future Protein & Health includes vaccines, antibiotics, parasiticides and other products used in poultry and aquaculture production, as well as functional nutritional health products, including enzymes, probiotics and prebiotics;
- FA Ruminants & Swine includes vaccines, antibiotics, implants, parasiticides, and other products used in ruminants and swine production, as well as certain other food animal products; and

- Strategic Exits includes business activities that we have either exited or made the strategic decision to exit, including the transitional contract manufacturing activity that we acquired in connection with our acquisition of the BI Vetmedica U.S. vaccines portfolio, two terminated legacy U.S. distribution agreements, a terminated distribution agreement outside the U.S., an equine product not core to our business and a transitional contract manufacturing activity associated with the supply to Lilly of human growth hormone.

Costs, Expenses and Other

Cost of sales consists primarily of cost of materials, facilities and other infrastructure used to manufacture our products, shipping and handling, inventory losses and expired products.

Marketing, selling and administrative expenses consist of, among other things, the costs of marketing, promotion and advertising and the costs of administration (business technology, facilities, legal, finance, human resources, business development, external affairs and procurement).

Amortization of intangible assets consists of the amortization expense for intangible assets that have been acquired through business combinations.

R&D expenses consist of project costs specific to new product R&D and product lifecycle management, overhead costs associated with R&D operations, regulatory, product registrations and investments that support local market clinical trials for approved indications. We manage overall R&D based on our strategic opportunities and do not disaggregate our R&D expenses incurred by nature or by product as we do not use or maintain such information in managing our business.

Asset impairment, restructuring and other special charges consist primarily of impairment of long-term assets, restructuring charges, costs associated with acquiring and integrating businesses, and certain non-recurring expenses, including costs related to the build out of processes and systems to support finance and global supply and logistics, among others, to stand our organization up as an independent company.

Interest expense, net of capitalized interest consists of interest incurred on our long-term debt.

Other-net, expense (income) consists primarily of realized or unrealized foreign exchange losses and loss or impairment on other investments.

Comparability of Historical Results

Our historical results of operations for the periods presented may not be comparable with prior periods or with our results of operations in the future, due to many factors, included but not limited to the factors identified in "Key Trends and Conditions Affecting Our Results of Operations."

Our Relationship with Lilly and Additional Standalone Costs

During the period prior to the IPO, our business operated solely as part of a division of Lilly. Our combined financial statements have been derived from Lilly's consolidated financial statements and accounting records. Our consolidated and combined financial statements reflect our financial position, results of operations and cash flows of the business that was transferred at the time of the separation and do not purport to reflect what the results of operations, comprehensive income/(loss), financial position, equity or cash flows would have been had we operated as an independent, publicly traded company during the periods presented prior to the IPO.

Our historical results reflect an allocation of costs for certain Lilly corporate costs for periods prior to the IPO, including, among others, executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations. These allocations are not necessarily indicative of the expenses we may incur as a standalone public company. Although we entered into certain agreements with Lilly in connection with the IPO and the Separation, the amount and composition of our expenses may vary from historical levels since the fees charged for the services under these agreements may be higher or lower than the costs reflected in the historical allocations. The total allocations included in our results for the years ended December 31, 2019, 2018 and 2017 were $0.0 million, $105.2 million, and $151.7 million, respectively. See Note 20: Related Party Agreements and Transactions to our consolidated and combined financial statements.

We are currently investing in expanding our own administrative functions, including, but not limited to, information technology, facilities management, distribution, human resources, and manufacturing, to replace services previously provided by Lilly. Because of initial stand-up costs and overlaps with services previously provided by Lilly, we have incurred and expect to continue to incur certain temporary, duplicative expenses in connection with the Separation. We have also incurred and expect to continue to incur costs related to the build out of processes and systems to support finance and global supply and logistics, among others. We currently estimate these costs taken together to be in a range from $240 million to $290 million, net of potential real estate dispositions and employee benefit changes, of which a portion will be capitalized and the remainder will be expensed.

Lilly utilizes a centralized treasury management system, of which we were a part until our IPO. For periods prior to the IPO, our consolidated and combined financial statements reflect cash held only in bank accounts in our legal name and no allocation of combined cash positions. Our consolidated and combined financial statements do not reflect an allocation of Lilly's debt or any associated interest expense. In connection with the IPO, we incurred $2.5 billion of long-term borrowings. Our historical results reflect $29.6 million of interest expense during the year ended December 31, 2018 due to the timing of the borrowings, in comparison to our interest expense of $78.9 million during the year ended December 31, 2019.

For the periods prior to the IPO, our consolidated and combined financial statements reflect income tax expense (benefit) computed on a separate company basis, as if operating as a standalone entity or a separate consolidated group in each material jurisdiction in which we operate. Our consolidated and combined financial statements for the periods prior to the IPO also reflect certain deferred tax assets and liabilities and income taxes payable based on this approach that did not transfer to us upon the Separation, as the underlying tax attributes were used by Lilly or retained by Lilly. As a result of potential changes to our business model and the fact that certain deferred tax assets and liabilities and income taxes payable did not transfer to us, income tax expense (benefit) included in the consolidated and combined financial statements may not be indicative of our future expected tax rate.

Our historical results prior to IPO also do not reflect the impact of costs we have incurred and expect to continue to incur as a consequence of becoming a standalone company, including incremental costs associated with being a publicly traded company.

Subsequent to the IPO, we have implemented competitive compensation policies and programs as a standalone public company. Our historical results prior to the IPO reflect compensation costs that were allocated by Lilly.

As a result of the IPO, we became subject to the reporting requirements of the Securities Exchange Act of 1934 and the Sarbanes-Oxley Act. We are continuing to establish or expand additional procedures and practices as a standalone public company. As a result, we will continue to incur additional costs as a standalone public company, including internal audit, external audit, investor relations, stock administration, stock exchange fees and regulatory compliance costs.

Recent Significant Acquisitions

Our financial results have been impacted by acquisitions and integrations. For the periods presented, these include primarily the acquisitions and integrations of Novartis Animal Health, which closed on January 1, 2015, Boehringer Ingelheim Vetmedica, Inc.'s U.S. feline, canine and rabies vaccine portfolio and other related assets (BIVIVP), which closed on January 3, 2017, Aratana Therapeutics, Inc., which closed on July 18, 2019, and Prevtec Microbia Inc., which closed on July 31, 2019. For more information, see Note 6: Acquisitions to our consolidated and combined financial statements.

Asset Impairment, Restructuring and Other Special Charges

During the years ended December 31, 2019, 2018 and 2017 including in connection with the productivity initiatives described above under "Key Trends and Conditions Affecting Our Results of Operations - Productivity," we incurred charges related to asset impairment, restructuring and other special charges, including integration of acquired businesses. These charges include severance costs resulting from actions taken to reduce our costs, asset impairment charges primarily related to competitive pressures for certain companion animal products, product rationalizations, site closures and integration costs related to acquired businesses, primarily Novartis Animal Health, and costs related to the build out of processes and systems to support finance and global supply and logistics, among others, as we stand our organization up as an independent company.

For more information on these charges, see Note 7: Asset Impairment, Restructuring and Other Special Charges to our consolidated and combined financial statements.

Results of Operations

The following discussion and analysis of our consolidated and combined statements of operations should be read along with our consolidated and combined financial statements and the notes thereto included elsewhere in this report. For more information, see Note 2: Basis of Presentation to our consolidated and combined financial statements.

(Dollars in millions)	Year Ended December 31,			% Change	
	2019	2018	2017	19/18	18/17
Revenue	$ 3,071.0	$ 3,066.8	$ 2,889.0	—%	6%
Costs, expenses and other:					
Cost of sales	1,470.3	1,573.8	1,493.9	(7)%	5%
% of revenue	48 %	51 %	52 %		
Research and development	270.1	246.6	251.7	10%	(2)%
% of revenue	9 %	8 %	9 %		
Marketing, selling and administrative	760.2	735.2	779.8	3%	(6)%
% of revenue	25 %	24 %	27 %		
Amortization of intangible assets	200.4	197.4	221.2	2%	(11)%
% of revenue	7 %	6 %	8 %		
Asset impairment, restructuring and other special charges	185.5	128.8	375.1	44%	(66)%
Interest expense, net of capitalized interest	78.9	29.6	—	167%	NM
Other–net, expense (income)	27.4	41.3	(0.1)	NM	NM
Income (loss) before taxes	78.2	114.1	(232.6)	NM	NM
% of revenue	3 %	4 %	(8)%	NM	NM
Income tax expense	10.3	27.6	78.1	(63)%	(65)%
Net income (loss)	$ 67.9	$ 86.5	$ (310.7)	NM	NM

Certain amounts and percentages may reflect rounding adjustments.

NM - Not meaningful

Revenue

On a global basis, our revenue within our product categories was as follows:

(Dollars in millions)	Year Ended December 31,			% Change	
	2019	2018	2017	19/18	18/17
CA Disease Prevention	$ 787.9	$ 804.6	$ 660.2	(2)%	22%
CA Therapeutics [1]	348.0	283.1	260.8	23%	9%
FA Future Protein & Health	745.1	711.2	649.2	5%	10%
FA Ruminants & Swine	1,110.3	1,174.0	1,175.0	(5)%	—%
Subtotal	2,991.3	2,972.9	2,745.2	1%	8%
Strategic Exits [1]	79.7	93.9	143.8	(15)%	(35)%
Total	$ 3,071.0	$ 3,066.8	$ 2,889.0	—%	6%

(1) Represents revenue from business activities we have either exited or made a strategic decision to exit. On June 30, 2018, Elanco made the decision to exit an equine product not core to its business. Revenue from this product is reflected in Strategic Exits for the years ended December 31, 2019 and 2018 and in CA Therapeutics for the year ended December 31, 2017. Revenue from this product was $0.4 million, $1.6 million and $3.4 million for the years ended December 31, 2019, 2018 and 2017, respectively.

On a global basis, the effect of price, foreign exchange rates and volumes on changes in revenue as compared to the prior year was as follows:

(Dollars in millions)

Full year 2019	Revenue	Price	FX Rate	Volume	Total	CER*
CA Disease Prevention	$ 787.9	1%	(1)%	(2)%	(2)%	(1)%
CA Therapeutics	348.0	5%	(2)%	20%	23%	25%
FA Future Protein & Health	745.1	4%	(3)%	4%	5%	8%
FA Ruminants & Swine	1,110.3	1%	(2)%	(5)%	(5)%	(4)%
Core Revenue	$ 2,991.3	2%	(2)%	1%	1%	3%
Strategic Exits	79.7	—%	—%	(15)%	(15)%	(15)%
Total Elanco	$ 3,071.0	2%	(2)%	—%	—%	2%

(Dollars in millions)

Full year 2018	Revenue	Price	FX Rate	Volume	Total	CER*
CA Disease Prevention	$ 804.6	8%	—%	14%	22%	22%
CA Therapeutics	283.1	7%	1%	—%	9%	7%
FA Future Protein & Health	711.2	4%	—%	6%	10%	10%
FA Ruminants & Swine	1,174.0	(1)%	—%	1%	—%	—%
Core Revenue	$ 2,972.9	3%	—%	5%	8%	8%
Strategic Exits	93.9	—%	—%	(34)%	(35)%	(35)%
Total Elanco	$ 3,066.8	3%	—%	3%	6%	6%

Note: Numbers may not add due to rounding

*CER = Constant exchange rate

Revenue

Total revenue

2019 vs. 2018

Total revenue increased $4.2 million or 0.1% in 2019 as compared to 2018, reflecting a 2% increase in price, offset by a 2% unfavorable impact from foreign exchange rates. Volume was flat as compared to prior year.

In summary, the total revenue increase was due primarily to:

- an increase in revenue of $72.0 million or 25% from CA Therapeutics products, excluding the impact of foreign exchange rates; and
- an increase in revenue of $59.5 million or 8% from FA Future Protein & Health products, excluding the impact of foreign exchange rates;

partially offset by:

- a decrease in revenue of $46.1 million or 4% from FA Ruminants & Swine products, excluding the impact of foreign exchange rates;
- a decrease in revenue of $7.3 million or 1% from CA Disease Prevention products, excluding the impact of foreign exchange rates;
- a decrease in revenue of $14.2 million or 15% from Strategic Exits, excluding the impact of foreign exchange rates; and
- a decrease in revenue of $59.7 million due to the negative impact of foreign exchange rates.

The detailed change in revenue by product category was as follows:

- CA Disease Prevention revenue decreased by $16.7 million or 2%, driven by a decline in volume and to a lesser extent the unfavorable impact of foreign exchange rates, partially offset by an increase in price. The revenue decrease was a result of several unfavorable comparisons to 2018. In 2018, vaccines benefited from the initial stocking of a new customer agreement, customers purchased higher than normal levels of parasiticides and vaccines to achieve desired incentive levels across companion animal, and all remaining inventory for *Parastar* was sold prior to rationalizing the product, all contributing to the unfavorable comparison for the year. The decrease was also driven by declines in sales of older generation parasiticides, partially offset by the continued growth of *Credelio* and *Interceptor Plus*, including the initial stocking of a new customer agreement in the third quarter of 2019.
- CA Therapeutics revenue increased by $64.9 million or 23%, driven by increased volume and to a lesser extent price, partially offset by the impact of foreign exchange rates. The revenue increase was driven by increased demand for products across the therapeutics portfolio, primarily *Galliprant*, initial stocking for a new customer agreement in the third quarter of 2019, and inclusion of sales of *Entyce* and *Nocita,* as a result of the acquisition of Aratana.
- FA Future Protein & Health revenue increased by $33.9 million or 5%, driven by both increased volume and price, partially offset by an unfavorable impact from foreign exchange rates. Growth was driven by the aqua portfolio, poultry vaccines and nutritional products, partially offset by the loss of sales for certain products in China as a result of changing antibiotic policies.
- FA Ruminants & Swine revenue decreased by $63.7 million or 5%, driven by a decline in volume and to a lesser extent the unfavorable impact of foreign exchange rates, partially offset by an increase in price. The decline in revenue was driven by softness in swine products due to African Swine Fever across Asia, a disruption in global supply of certain third-party produced injectable cattle products, reduced U.S. producer use of *Paylean*, decreased *Rumensin* sales as a result of the generic entrant, and the impact from the Australian drought. These decreases were partially offset by revenue generated from *Posilac*™ sales as a result of the revised commercial agreement entered into in the third quarter of 2019.
- Strategic Exits revenue decreased by $14.2 million to $79.7 million and represented 3% of total revenue.

2018 vs. 2017

Total revenue increased $177.8 million or 6% in 2018 as compared to 2017, reflecting a 3% increase due to higher realized prices and a 3% increase due to higher volumes.

In summary, the total revenue increase was due primarily to:

- an increase in revenue of $142.1 million or 22% from CA Disease Prevention products, excluding the impact of foreign exchange rates;
- an increase in revenue of $18.4 million or 7% from CA Therapeutics products, excluding the impact of foreign exchange rates;
- an increase in revenue of $63.8 million or 10% from FA Future Protein & Health products, excluding the impact of foreign exchange rates and

partially offset by:

- a decrease in revenue of $0.8 million or 0% from FA Ruminants & Swine, excluding the impact of foreign exchange rates and
- a decrease in revenue of $49.9 million or 35% from Strategic Exits, excluding the impact of foreign exchange rates.

The detailed change in revenue by product category was as follows:

- CA Disease Prevention revenue increased by $144.4 million or 22% due primarily to a reduction in channel inventory in 2017 providing a favorable year-on-year comparison, continued uptake of *Credelio* and Interceptor Plus, as well as realized price increases primarily impacting *Trifexis*, *Capstar* (a flea treatment) and *Comfortis*, partially offset by volume declines in certain parasiticides, primarily *Trifexis* and *Comfortis* volumes.

- CA Therapeutics revenue increased by $22.3 million or 9% due primarily to the continued uptake of Galliprant and *Osurnia*, as well as increased demand for *Onsior*, partially offset by a temporary supply shortage of *Percorten™ V* used for the treatment of canine Addison's Disease.
- FA Future Protein & Health revenue increased by $62.0 million or 10% due primarily to the launch of *Imvixa* and the growth in poultry animal-only antibiotics and poultry vaccines.
- FA Ruminants & Swine revenue decreased by $1.0 million due primarily to competitive headwinds for ractopamine based products, offset by growth in animal-only antibiotics, primarily in cattle.
- Strategic Exits revenue decreased by $49.9 million or 35% due primarily to the termination of a legacy U.S. distribution agreement in the third quarter of 2017, partially offset by revenue from the contract manufacturing agreement to supply human growth hormone to Lilly.

Costs, Expenses and Other

Cost of sales

2019 vs. 2018

Cost of sales decreased $103.5 million in 2019 as compared to 2018 due primarily to manufacturing productivity improvements and charges recorded during the year ended December 30, 2018 for inventory adjustments related to the suspension of commercial activities of *Imrestor* and the closure of the Larchwood, Iowa facility, partially offset by unfavorable product mix and logistics costs.

2018 vs. 2017

Cost of sales increased $79.9 million in 2018 as compared to 2017 primarily due to increased volume of products sold and the write-off of inventory related to the suspension of activities for *Imrestor* in 2018, partially offset by non-recurring costs incurred in 2017 associated with fair value adjustments to inventory acquired in the BIVIVP acquisition and subsequently sold.

Research and development

2019 vs. 2018

R&D expenses increased $23.5 million for 2019 as compared to 2018 primarily due to additional costs from acquired businesses during the year, including Aratana and Prevtec, increased costs from R&D infrastructure investments, and project spend as a result of pipeline progression.

2018 vs. 2017

R&D expenses decreased $5.1 million in 2018 as compared to 2017 due primarily to cost control measures and timing of projects leading to lower spend in 2018.

Marketing, selling and administrative

2019 vs. 2018

Marketing, selling and administrative expenses increased $25.0 million for 2019 as compared to 2018 due primarily to additional costs from acquired businesses during the year, primarily Aratana, and increased marketing efforts for our companion animal portfolio, and increased expenses as a result of operating as a standalone public company, partially offset by slightly lower selling costs and lower costs due to continued productivity initiatives and cost control measures across the business.

2018 vs. 2017

Marketing, selling and administrative expenses decreased $44.6 million in 2018 as compared to 2017 due primarily to productivity initiatives in sales and administrative functions and reduced direct to consumer programs combined with new product launches in 2017.

Amortization of intangible assets

2019 vs. 2018

Amortization of intangible assets increased $3.0 million for 2019 as compared to 2018 primarily due to the addition of amortization of intangible assets recorded from the acquisitions of Aratana and Prevtec in 2019 and the acceleration of the amortization of certain software assets to be retired prior to the end of their previously estimated respective useful lives due to our separation from Lilly.

2018 vs. 2017

Amortization of intangible assets decreased $23.8 million in 2018 as compared to 2017 due primarily to the acceleration of amortization related to certain product exits in 2017.

Asset impairment, restructuring and other special charges

For additional information regarding our asset impairment, restructuring and other special charges, see Note 7: Asset Impairment, Restructuring and Other Special Charges to our consolidated and combined financial statements.

2019 vs. 2018

Asset impairment, restructuring and other special charges increased $56.7 million in 2019 as compared to 2018 primarily due to higher transaction costs directly related to business acquisitions, including the pending acquisition of the animal health business of Bayer, higher integration costs of acquisitions, and costs associated with the implementation of new systems, programs, and processes due to the Separation from Lilly as well as severance costs, exit costs, impairment charges, and write-down charges recorded in 2019, as more fully described in Note 7.

2018 vs. 2017

Asset impairment, restructuring and other special charges decreased $246.3 million in 2018 as compared to 2017 primarily due to a decrease in severance related to the U.S. voluntary early retirement program offered in 2017 as well as a decrease in integration costs related to the BIVIVP acquisition in 2017, partially offset by a gain on disposal of a site that was previously closed as part of the acquisition and integration of Novartis Animal Health in 2017.

Interest expense, net of capitalized interest

2019 vs. 2018

Interest expense increased $49.3 million for the year ended December 31, 2019 due to the timing of the issuance of debt in the third quarter of 2018.

2018 vs. 2017

Interest expense was $29.6 million for the year ended December 31, 2018 due to our issuance of debt in the third quarter of 2018. There was no interest expense in 2017 and prior years.

Other–net, expense (income)

2019 vs. 2018

Other–net, expense decreased $13.9 million from $41.3 million in 2018 to $27.4 million in 2019. The decrease in expense is primarily due to the increase in the Aratana contingent consideration liability of $37.6 million associated with the *Galliprant* acquisition recorded in 2018, partially offset by the impact of $8.3 million of expense recorded in 2019 due to the release of a tax indemnity asset related to the 2015 acquisition of Novartis and $13.0 million of unfavorable adjustments to the contingent consideration liabilities recorded for *Galliprant* during 2019.

2018 vs. 2017

Other–net, expense (income) was expense of $41.3 million in 2018 compared to income of $0.1 million in 2017. The increase in expense is primarily due to the increase in the Aratana contingent consideration liability of $37.6 million associated with the *Galliprant* acquisition.

Income tax expense

Elanco's historical income tax expense may not be indicative of its future expected tax rate. See "Comparability of Historical Results, Our Relationship with Lilly and Additional Standalone Costs."

2019 vs. 2018

Income tax expense decreased $17.3 million in 2019 as compared to 2018. The decrease is primarily attributable to lower pre-tax earnings primarily due to restructuring charges, in addition to the release of tax reserves related to final resolution of the Brazilian tax matter. See Note 15: Income Taxes to our consolidated and combined financial statements.

2018 vs. 2017

Income tax expense decreased $50.5 million in 2018 as compared to 2017. The decrease is primarily due to a decrease in the U.S. valuation allowance, which was recorded in 2017 based upon the pre-IPO separate return methodology. See Note 2: Basis of Presentation and Note 15: Income Taxes to our consolidated and combined financial statements.

Liquidity and Capital Resources

We historically participated in Lilly's centralized treasury management system, including centralized cash pooling and overall financing arrangements. We have generated and expect to continue to generate positive cash flows from operations. In connection with the IPO, we entered into various long-term debt agreements as described below.

Our primary sources of liquidity are cash on hand, cash flows from operations and funds available under our Credit Facilities. As a significant portion of our business is conducted outside the U.S., we hold a significant portion of cash outside of the U.S. We monitor and adjust the amount of foreign cash based on projected cash flow requirements. Our ability to use foreign cash to fund cash flow requirements in the U.S. may be impacted by local regulations and, to a lesser extent, following U.S. tax reforms, the income taxes associated with transferring cash to the U.S. See Note 15: Income Taxes to our consolidated and combined financial statements. We currently intend to indefinitely reinvest foreign earnings for continued use in our foreign operations. As our structure evolves as a standalone company, we may change that strategy, particularly to the extent we identify tax efficient reinvestment alternatives for our foreign earnings or change our cash management strategy.

Our principal liquidity needs going forward include funding existing marketed and pipeline products, capital expenditures, business development in our targeted areas, interest expense and funding the acquisition of the animal health business of Bayer. We believe our cash and cash equivalents on hand, our operating cash flows, our existing financing arrangements and financing arrangements entered into in 2020 will be sufficient to support our cash needs for the foreseeable future, including for at least the next 12 months.

Our ability to meet future funding requirements may be impacted by macroeconomic, business and financial volatility. As markets change, we will continue to monitor our liquidity position. However, a challenging economic environment or an economic downturn may impact our liquidity or ability to obtain future financing. See "Item 1A. Risk Factors - We may not be able to generate sufficient cash to service all of our indebtedness and may be forced to take other actions to satisfy our obligations under our indebtedness, which may not be successful."

As of December 31, 2019, cash and cash equivalents was $334.0 million, a decrease of $140.8 million compared to $474.8 million at December 31, 2018. We also held $11.1 million of restricted cash at December 31, 2019, which is available solely to pay the remainder of the purchase for our businesses to Lilly. We have a corresponding liability recorded on our balance sheet and included in Payable to Lilly. Refer to the Consolidated and Combined

Statements of Cash Flows for additional details on the significant sources and uses of cash for the years ended December 31, 2019, 2018 and 2017.

Cash Flows

The following table provides a summary of cash flows from operating, investing and financing activities for the periods presented:

(Dollars in millions)	Year Ended December 31,			% Change	
Net cash provided by (used for):	2019	2018	2017	19/18	18/17
Operating activities	$ 224.1	$ 487.3	$ 173.8	(54)%	180 %
Investing activities	(234.8)	(127.0)	(964.6)	85 %	(87)%
Financing activities	(304.8)	(35.2)	847.5	766 %	(104)%
Effect of exchange-rate changes on cash and cash equivalents	(16.9)	29.0	7.9	(158)%	267 %
Net (decrease) increase in cash, cash equivalents and restricted cash	$ (332.4)	$ 354.1	$ 64.6	(194)%	448 %

Operating activities

2019 vs. 2018

Our cash flow from operating activities decreased by $263.2 million from $487.3 million for the year ended December 31, 2018 to $224.1 million for the year ended December 31, 2019. The decrease in operating cash flows was primarily attributable to a decrease in net income, increases in accounts receivable and inventories, and changes in timing of payments in the ordinary course of business.

We have extended our payment terms in the past in certain customer situations and may need to continue this practice going forward as a result of competitive pressures and the need for certain inventory levels at our channel distributors to avoid supply disruptions. Further extensions of customer payment terms could result in additional uses of our cash flow.

2018 vs. 2017

Our cash flow from operating activities increased by $313.5 million from $173.8 million for the year ended December 31, 2017 to $487.3 million for the year ended December 31, 2018. The increase is a result of an increase in net income, which was partially offset by cash used to finance working capital, primarily focused on accounts receivable and inventory.

Investing activities

2019 vs. 2018

Our cash flow used for investing activities increased by $107.8 million, to $234.8 million for the year ended December 31, 2019 compared to $127.0 million for the year ended December 31, 2018. The change was primarily driven by cash paid for the acquisition of Prevtec during 2019 and increases in purchases of software from 2018 to 2019.

2018 vs. 2017

Our cash flow used for investing activities decreased from $964.6 million for the year ended December 31, 2017 to $127.0 million for the year ended December 31, 2018. Our cash used in investing activities for the year ended December 31, 2017 included $882.1 million related to the acquisition of BIVIVP. This decrease was offset by a net increase of $35.9 million in capital expenditures from 2017 to 2018.

Financing activities

2019 vs. 2018

Our cash used for financing activities increased by $269.6 million to $304.8 million in 2019 compared to $35.2 million in 2018. Cash used in financing activities during 2018 reflected the impact of our IPO and the issuance of long-term debt in connection with our Separation from Lilly during the period. $4.2 billion of cash was generated from those transactions, which was mostly offset by $4.1 billion of payments to Lilly in connection with local country asset purchases and other financing activities related to the Separation. During 2019, we made $121.1 million of payments on our term credit facility as well as $191.6 million of payments to Lilly in connection with local country asset purchases and other financing activities related to the Separation.

2018 vs. 2017

Our cash used for financing activities was a $35.2 million in 2018 compared to cash provided by financing activities of $847.5 million in 2017, a change of $882.7 million. The cash flows in 2017 relate to net cash provided by transactions with Lilly of $848.3 million compared to cash used in transactions with Lilly of $154.4 million in 2018, a reduction in financing of cash flows between periods of $1.0 billion. This, in addition to the consideration paid to Lilly in connection with the Separation, was partially offset by net cash provided from financing transactions related to the Separation including the proceeds from long-term debt and our IPO. The remainder of the proceeds from the financing related to the Separation will be paid to Lilly in future periods and is reflected as restricted cash in our consolidated balance sheet.

Capital Expenditures

Capital expenditures were $140.4 million during 2019, an increase of $5.9 million compared to 2018. We expect 2020 capital expenditures to be approximately $150 million.

Description of Indebtedness

For a complete description of our debt and available credit facilities as of December 31, 2019, see Note 9: Debt to our consolidated and combined financial statements.

Contractual Obligations

Payments due under contractual obligations as of December 31, 2019, are set forth below:

		Years			
(Dollars in millions)	Total[1]	Less Than 1 Year	1 - 3 Years	4 - 5 Years	More Than 5 Years
Long-term debt obligations, including interest payments[2]	$ 2,771.5	$ 77.6	$ 981.2	$ 1,578.2	$ 134.5
Operating leases	91.6	26.0	32.2	16.9	16.5
Purchase obligations[3]	1,127.4	1,079.8	29.9	7.7	10.0
Other long-term liabilities	18.4	5.7	8.5	0.8	3.4
Total	$ 4,008.9	$ 1,189.1	$ 1,051.8	$ 1,603.6	$ 164.4

(1) We excluded deferred taxes because we cannot reasonably estimate the timing of future cash outflows associated with those liabilities.

(2) Our long-term debt obligations include both our expected principal and interest obligations and our interest rate swaps. We used current period assumptions for interest rates to compute expected interest payments on variable rate debt instruments and swaps.

(3) Represents open purchase orders as of December 31, 2019 and contractual payment obligations with each of our significant vendors which are noncancelable and are not contingent.

In connection with our pending acquisition of the animal health business of Bayer as discussed in Note 6: Acquisitions, in August 2019, we entered into a commitment letter that provides for financing consisting of up to $750 million in a revolving facility, $3.0 billion in a term facility, and $2.75 billion in a senior secured bridge facility. In connection with the financing commitment letter, we will incur fixed commitment fees of $40.4 million that will become due and payable upon the closing of the pending acquisition or the termination of the Purchase Agreement

with Bayer. These fees have not been recorded on the consolidated balance sheet as of December 31, 2019. See Note 22: Subsequent Events to our consolidated and combined financial statements for updates regarding financing secured after the balance sheet date.

Critical Accounting Policies

The preparation of financial statements in accordance with U.S. GAAP requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. Certain of our accounting policies are considered critical because these policies are the most important to the depiction of our financial statements and require significant, difficult or complex judgments by us, often requiring the use of estimates about the effects of matters that are inherently uncertain. Actual results that differ from our estimates could have an unfavorable effect on our financial position and results of operations. We apply estimation methodologies consistently from year to year. The following is a summary of accounting policies that we consider critical to the consolidated and combined financial statements.

Revenue Recognition

Our gross product revenue is subject to deductions that are generally estimated and recorded in the same period that the revenue is recognized and that primarily represent revenue incentives (rebates and discounts) and sales returns. For example:

- for revenue incentives, we use our historical experience with similar incentives programs and current sales data and estimates of inventory levels at our channel distributors to evaluate the impact of such programs on revenue and continually monitor the impact of this experience and adjust as necessary; and
- for sales returns, we consider items such as: local returns policies and practices; returns as a percentage of revenue; an understanding of the reasons for past returns; estimated shelf life by product; and estimate of the amount of time between shipment and return to estimate the impact of sales returns.

If any of our ratios, factors, assessments, experiences or judgments are not indicative or accurate predictors of our future experience, our results could be materially affected.

Although the amounts recorded for these revenue deductions are dependent on estimates and assumptions, historically our adjustments to actual results have not been material. The sensitivity of our estimates can vary by program, type of customer and geographic location. Amounts recorded for revenue deductions can result from a complex series of judgments about future events and uncertainties and can rely on estimates and assumptions.

See Note 4: Summary of Significant Accounting Policies to our consolidated and combined financial statements for further discussion regarding our revenue recognition policy.

Acquisitions and Fair Value

We account for the assets acquired and liabilities assumed in an acquisition based on their respective fair values as of the acquisition date. The excess of the purchase price over the fair value of the acquired net assets, where applicable, is recorded as goodwill.

The judgments made in determining estimated fair values assigned to assets acquired and liabilities assumed in a business combination, as well as estimated asset lives, can materially affect our consolidated results of operations. The fair values of intangible assets are re-determined using information available at the acquisition date based on expectations and assumptions that are deemed reasonable by management. These fair value estimates require significant judgment with respect to future volume and prices, use of working capital, the selection of appropriate discount rates, product mix, income tax rates and other assumptions and estimates. Such estimates and assumptions are determined based upon our business plans and when applicable, market participants' views of us and other similar companies. Depending on the facts and circumstances, we may deem it necessary to engage an independent valuation expert to assist in valuing significant assets and liabilities.

We determine fair value of any contingent consideration liability that results from a business combination by utilizing a market approach (i.e., based on quoted market values, significant other observable inputs for identical or comparable assets or liabilities) a discounted cash flow analysis, or a Monte Carlo simulation (i.e., based on multiple potential financial outcomes using estimated variables such as expected revenues, growth rates, and a

discount rate). Estimating the fair value of contingent consideration requires the use of significant estimates and judgments, including, but not limited to, revenue and the discount rate and will be remeasured every reporting period.

Impairment of Indefinite-Lived and Long-Lived Assets

We review the carrying value of long-lived assets (both intangible and tangible) for potential impairment on a periodic basis and whenever events or changes in circumstances indicate the carrying value of an asset (or asset group) may not be recoverable. We identify impairment by comparing the projected undiscounted cash flows to be generated by the asset (or asset group) to its carrying value. If an impairment is identified, a loss is recorded equal to the excess of the asset's net book value over its fair value utilizing a discounted cash flow analysis, and the cost basis is adjusted.

Goodwill and indefinite-lived intangible assets are reviewed for impairment at least annually and when certain impairment indicators are present. When required, a comparison of fair value to the carrying amount of assets is performed to determine the amount of any impairment.

The estimated cash flows and fair values used in our impairment reviews require significant judgment with respect to future volume; use of working capital; foreign currency exchange rates; the selection of appropriate discount rates; product mix; income tax rates and other assumptions and estimates. Such estimates and assumptions are determined based upon our business plans and when applicable, market participants' views of us and other similar companies. We make these judgments based on our historical experience, relevant market size, historical pricing of similar products and expected industry trends. These assumptions are subject to change in future periods because of, among other things, additional information, financial information based on further historical experience, changes in competition, our investment decisions, volatility in foreign currency exchange rates, and results of research and development. A change in these assumptions or the use of alternative estimates and assumptions could have a significant impact on the estimated fair values of the assets, and may result in an impairment of the existing assets in a future period.

During the years ended December 31, 2019, 2018 and 2017, we recorded asset impairments of $15.4 million, $81.9 million and $110.6 million, respectively, primarily due to product rationalization or changes in business strategy. For more information related to our impairment charges, see Note 7: Asset Impairment, Restructuring and Other Special Charges to our consolidated and combined financial statements.

Deferred Tax Asset Valuation Allowances

We maintain valuation allowances unless it is more likely than not that all or a portion of the deferred tax asset will be realized. Changes in valuation allowances are included in our tax provision in the period of change. In determining whether a valuation allowance is warranted, we evaluate factors such as prior earnings history, expected future earnings, carryback and carryforward periods, and tax strategies that could potentially enhance the likelihood of realization of a deferred tax asset. The realizability assessments made at a given balance sheet date are subject to change in the future, particularly if earnings of a subsidiary are significantly higher or lower than expected, or if we take operational or tax planning actions that could impact the future taxable earnings of a subsidiary. A change in these assumptions may result in an increase or decrease in the realizability of our existing deferred tax assets, and therefore a change in the valuation allowance, in future periods. As of December 31, 2019 and 2018, we had valuation allowances of $32.7 million and $21.4 million, respectively.

Quantitative and Qualitative Disclosures About Market Risk

Foreign Exchange Risk

We operate on a global basis and are exposed to the risk that our earnings, cash flows and equity could be adversely impacted by fluctuations in foreign exchange rates. We are primarily exposed to foreign exchange risk with respect to net assets denominated in the Euro, Swiss franc, British pound, Canadian dollar, Australian dollar and Brazilian real. As part of the TSA, Lilly maintained a foreign currency risk management program through a central shared entity, which entered into derivative contracts to hedge foreign currency risk associated with forecasted transactions for the entire company, including historically for our operations. Gains and losses on derivative contracts entered into by Lilly were previously allocated to our results to the extent they were to cover exposure related to our business and offset gains and losses on underlying foreign currency exposures. We implemented our own foreign currency risk management program and assumed all hedging activities in the second

quarter of 2019.

We face foreign currency exchange exposures when we enter into transactions arising from subsidiary trade and loan payables and receivables denominated in foreign currencies. We also face currency exposure that arises from translating the results of our global operations to the U.S. dollar at exchange rates that have fluctuated from the beginning of the period. We may enter into foreign currency forward or option derivative contracts to reduce the effect of fluctuating currency exchange rates in future periods, but our historical results prior to 2018 do not reflect the impact of any such derivatives related to our exposure to foreign currency impacts on translation.

We estimate that a hypothetical 10% adverse movement in all foreign currency exchange rates related to the translation of the results of our foreign operations would decrease our net income by approximately $7.4 million for the year ended December 31, 2019.

We also bear foreign exchange risk associated with the future cash settlement of an existing NIH. In October 2018, we entered into a fixed interest rate, 5-year, 750 million Swiss franc NIH against Swiss franc assets. The NIH is expected to generate approximately $25 million in cash and contra interest expense per year; however, there is potential for significant 2023 settlement exposure on the 750 million Swiss franc notional if the U.S. dollar devalues versus the Swiss franc.

Interest Risk

We are exposed to interest rate risk on the long-term debt we incurred in connection with our IPO. Prior to our IPO, we did not have any interest rate exposure. We have cash flow risk associated with our $371.4 million of borrowings under the Term Credit Facility that pay interest based on variable rates. We actively monitor our exposure and may enter into financial instruments to fix the interest rate based on our assessment of the risk.

Recently Issued Accounting Pronouncements

For discussion of our new accounting standards, see Note 4: Summary of Significant Accounting Policies - Implementation of New Financial Accounting Pronouncements to our consolidated and combined financial statements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

You can find quantitative and qualitative disclosures about market risk (e.g., interest rate risk) at Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources - Quantitative and Qualitative Disclosures About Market Risk.” That information is incorporated in this Item 7A by reference.

Item 8. Financial Statements and Supplementary Data

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Elanco Animal Health Incorporated

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Elanco Animal Health Incorporated (the Company) as of December 31, 2019 and 2018, the related consolidated and combined statements of operations, comprehensive income (loss), equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the "consolidated and combined financial statements"). In our opinion, the consolidated and combined financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 28, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's 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 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 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated and combined financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Sales rebates and discounts

Description of the matter

At December 31, 2019, the Company's US sales rebates and discounts liability totaled $150.4 million. As explained in Note 5 to the consolidated and combined financial statements, the Company estimates a sales rebates and discounts liability for direct customers and other indirect customers in the distribution chain under the terms of their arrangements using the expected value approach. The sales rebates and discounts are recorded as a deduction to revenue at the time the Company recognizes a sale to a customer.

Auditing the sales rebates and discounts liability in the US is complex because of the level of subjectivity involved in management's assumptions used in the measurement process and the volume of rebate programs offered. For example, estimates of the expected rebate rates based on projected sales volumes derived from current sales data and recent trends, estimates of future rebates to be paid to indirect customers in the distribution chain based on inventory volumes and historical experience with similar rebate incentive programs.

How we addressed the matter in our audit

We tested the Company's internal controls over the sales rebates and discounts liability process. This included testing controls over management's review of the significant assumptions in the estimation of sales rebates and discounts, including rebate rates by product category, forecasted sales, and channel inventory levels.

To test the Company's sales rebates and discounts liability, our audit procedures included, among others, evaluating the assumptions discussed above and testing the completeness and accuracy of the underlying data used in management's expected value analysis. For example, we compared the significant assumptions to third-party reports used by the Company to estimate indirect sales volumes during the period. Furthermore, we confirmed product remaining in the distribution channel at period end. In addition, we inspected the underlying direct and indirect customer rebate programs and compared the rebate percentages used in the Company's analyses with the program percentages. Additionally, on a sample basis, we assessed the historical accuracy of management's sales rebates and discounts estimates by comparing the prior period sales rebates and discounts liability to the amount of actual payments made in subsequent periods. We also performed independent calculations of the rebate accruals and a sensitivity analysis of certain significant assumptions to evaluate the change in the sales rebates and discounts liability resulting from changes in the assumptions.

Acquisition of Aratana Therapeutics, Inc.

Description of the matter

During 2019, the Company completed its acquisition of Aratana Therapeutics, Inc. (“Aratana”) for net consideration of $238.0 million, as disclosed in Note 6 to the consolidated and combined financial statements. The acquisition was accounted for as a business combination. Auditing the Company's accounting for its acquisition of Aratana was complex due to the significant estimation uncertainty in determining the fair value of identified intangible assets, which principally consisted of intellectual property related to marketed products and in-process research and development of $36.7 million and $31.9 million, respectively. The significant estimation uncertainty was primarily due to the sensitivity of the respective fair values to the significant underlying assumptions about the future performance of the acquired business. The Company used a discounted cash flow model to measure the intellectual property related to marketed products and in-process research and development intangible assets. The significant assumptions used to estimate the value of these intangible assets included discount rates and certain assumptions that form the basis of the forecasted results (e.g., revenue growth rates, gross margins and selling, general and administrative expenses). These significant assumptions are forward-looking and could be affected by future economic and market conditions.

How we addressed the matter in our audit

We tested the Company's controls over its accounting for acquisitions. This included testing controls over the recognition and measurement of consideration transferred and related intangible assets, including the valuation models and underlying assumptions discussed above used to develop such estimates.

To test the estimated fair value of the intellectual property related to marketed products and in-process research and development intangible assets our audit procedures included, among others, evaluating the Company’s use of the income approach and testing the significant assumptions discussed above used in the models, including the completeness and accuracy of the underlying data. For example, we compared the forecasted revenue, gross margins and selling, general and administrative expenses to current industry and economic trends as well as the historic financial performance of the acquired business. We also performed sensitivity analyses of the significant assumptions to evaluate the changes in the fair value of the intangible assets resulting from changes in the assumptions. We involved our valuation specialists to assist in our evaluation of the methodology used by the Company and significant assumptions included in the fair value estimates. For example, comparing the discount rate to the acquired business’s weighted average cost of capital and evaluating the relationship of the weighted average cost of capital, internal rate of return and weighted-average return on assets.

/s/ Ernst & Young LLP

We have served as the Company’s auditor since 2017.

Indianapolis, Indiana
February 28, 2020

Elanco Animal Health Incorporated
Consolidated and Combined Statements of Operations
(in millions, except per-share data)

	Year Ended December 31,		
	2019	2018	2017
Revenue	$ 3,071.0	$ 3,066.8	$ 2,889.0
Costs, expenses and other:			
Cost of sales	1,470.3	1,573.8	1,493.9
Research and development	270.1	246.6	251.7
Marketing, selling and administrative	760.2	735.2	779.8
Amortization of intangible assets	200.4	197.4	221.2
Asset impairment, restructuring and other special charges (Note 7)	185.5	128.8	375.1
Interest expense, net of capitalized interest	78.9	29.6	—
Other-net, expense (income)	27.4	41.3	(0.1)
	2,992.8	2,952.7	3,121.6
Income (loss) before income taxes	78.2	114.1	(232.6)
Income tax expense	10.3	27.6	78.1
Net income (loss)	$ 67.9	$ 86.5	$ (310.7)
Earnings (loss) per share:			
Basic	$ 0.18	$ 0.28	$ (1.06)
Diluted	$ 0.18	$ 0.28	$ (1.06)
Weighted average shares outstanding:			
Basic	369.0	313.7	293.3
Diluted	370.3	313.7	293.3

See notes to consolidated and combined financial statements.

Elanco Animal Health Incorporated
Consolidated and Combined Statements of Comprehensive Income (Loss)
(in millions)

	Year Ended December 31,		
	2019	2018	2017
Net income (loss)	$ 67.9	$ 86.5	$ (310.7)
Other comprehensive income (loss):			
Foreign currency translation	19.8	(47.1)	210.1
Defined benefit pension and retiree health benefit plans, net of taxes	28.7	25.4	(9.8)
Other comprehensive income (loss), net of taxes	48.5	(21.7)	200.3
Comprehensive income (loss)	$ 116.4	$ 64.8	$ (110.4)

See notes to consolidated and combined financial statements.

Elanco Animal Health Incorporated
Consolidated Balance Sheets
(in millions)

	December 31, 2019	December 31, 2018
Assets		
Current Assets		
Cash and cash equivalents	$ 334.0	$ 474.8
Accounts receivable, net of allowances of $6.2 (2019) and $8.4 (2018)	816.9	651.8
Other receivables	73.0	57.6
Inventories (Note 8)	1,050.7	1,004.1
Prepaid expenses and other	87.4	113.9
Restricted cash (Note 20)	11.1	202.7
Total current assets	2,373.1	2,504.9
Noncurrent Assets		
Goodwill (Note 11)	2,989.6	2,958.0
Other intangibles, net (Note 11)	2,482.8	2,504.8
Other noncurrent assets	185.0	66.6
Property and equipment, net (Note 12)	955.3	922.4
Total assets	$ 8,985.8	$ 8,956.7
Liabilities and Equity		
Current Liabilities		
Accounts payable	$ 222.6	$ 205.2
Employee compensation	99.6	98.9
Sales rebates and discounts	211.0	169.9
Current portion of long term debt (Note 9)	24.5	29.0
Other current liabilities	244.4	199.0
Payable to Lilly (Note 20)	16.4	268.7
Total current liabilities	818.5	970.7
Noncurrent Liabilities		
Long-term debt (Note 9)	2,330.5	2,443.3
Accrued retirement benefits (Note 18)	82.5	109.1
Deferred taxes (Note 15)	100.8	114.6
Other noncurrent liabilities	106.6	121.5
Total liabilities	3,438.9	3,759.2
Commitments and Contingencies (Note 16)		
Equity		
Preferred stock, 1,000,000,000 shares authorized, no par value; none issued	—	—
Common stock, 5,000,000,000 shares authorized, no par value; 373,011,513 and 365,643,911 shares issued and outstanding as of December 31, 2019 and 2018, respectively	—	—
Additional paid-in capital	5,636.3	5,403.3
Retained earnings	84.3	16.4
Accumulated other comprehensive loss	(173.7)	(222.2)
Total equity	5,546.9	5,197.5
Total liabilities and equity	$ 8,985.8	$ 8,956.7

See notes to consolidated and combined financial statements.

Elanco Animal Health Incorporated
Consolidated and Combined Statements of Equity
(in millions)

	Common Stock					Accumulated Other Comprehensive Income (Loss)			
	Shares	Amount	Additional Paid-in Capital	Net Parent Company Investment	Retained Earnings	Foreign Currency Translation	Defined Benefit Pension and Retiree Health Benefit Plans	Total	Total Equity
January 1, 2017	293.3	$ —	$ —	$ 7,474.3	$ —	$ (437.3)	$ (19.6)	$ (456.9)	$ 7,017.4
Net (loss)	—	—	—	(310.7)	—	—	—	—	(310.7)
Other comprehensive income (loss), net of tax	—	—	—	—	—	210.1	(9.8)	200.3	200.3
Transfers (to)/from Lilly, net	—	—	—	873.3	—	—	—	—	873.3
December 31, 2017	293.3	—	—	8,036.9	—	(227.2)	(29.4)	(256.6)	7,780.3
Net income	—	—	—	70.1	16.4	—	—	—	86.5
Adoption of Accounting Standards Update 2016-16	—	—	—	(0.3)	—	—	—	—	(0.3)
Other comprehensive income (loss), net of tax	—	—	—	—	—	(47.1)	25.4	(21.7)	(21.7)
Transfers (to)/from Lilly, net	—	—	—	(226.3)	—	—	—	—	(226.3)
Separation adjustments [1]	—	—	—	43.5	—	56.1	—	56.1	99.6
Issuance of common stock	72.3	—	1,659.7	—	—	—	—	—	1,659.7
Consideration to Lilly in connection with Separation	—	—	(4,194.9)	—	—	—	—	—	(4,194.9)
Reclassification of net parent company investment	—	—	7,923.9	(7,923.9)	—	—	—	—	—
Stock compensation	—	—	1.8	—	—	—	—	—	1.8
Capital contribution from Lilly	—	—	12.8	—	—	—	—	—	12.8
December 31, 2018	365.6	—	5,403.3	—	16.4	(218.2)	(4.0)	(222.2)	5,197.5
Net income	—	—	—	—	67.9	—	—	—	67.9
Other comprehensive income, net of tax	—	—	—	—	—	19.8	28.7	48.5	48.5
Separation activities [2]	—	—	(51.2)	—	—	—	—	—	(51.2)
Stock compensation	—	—	40.7	—	—	—	—	—	40.7
Issuance of stock under employee stock plans, net	0.1	—	—	—	—	—	—	—	—
Issuances of stock in connection with Aratana acquisition: [3]									
Issuance to Aratana shareholders for acquisition	7.2	—	238.0	—	—	—	—	—	238.0
Accelerated vesting of equity awards	0.1	—	3.6	—	—	—	—	—	3.6
Other	—	—	1.9	—	—	—	—	—	1.9
December 31, 2019	373.0	$ —	$ 5,636.3	$ —	$ 84.3	$ (198.4)	$ 24.7	$ (173.7)	$ 5,546.9

(1) See Note 3: Impact of Separation for further discussion.

(2) See Note 20: Related Party Agreements and Transactions for further discussion.

(3) See Note 6: Acquisitions for further discussion.

See notes to consolidated and combined financial statements.

Elanco Animal Health Incorporated
Consolidated and Combined Statement of Cash Flows
(in millions)

	Year Ended December 31,		
	2019	2018	2017
Cash Flows from Operating Activities			
Net income (loss)	$ 67.9	$ 86.5	$ (310.7)
Adjustments to reconcile net income (loss) to cash flows from operating activities:			
Depreciation and amortization	314.5	296.0	318.4
Change in deferred income taxes	0.1	(60.7)	(13.4)
Stock-based compensation expense	49.4	26.0	25.0
Asset impairment charges	32.6	120.5	110.6
Gain on sale of assets	—	(0.8)	(19.6)
Other non-cash operating activities, net	(12.7)	49.0	10.0
Other changes in operating assets and liabilities, net of acquisitions and divestitures:			
Receivables	(172.4)	(122.0)	48.4
Inventories	(33.1)	(20.1)	(39.0)
Other assets	7.0	(3.2)	52.5
Accounts payable and other liabilities	(29.2)	116.1	(8.4)
Net Cash Provided by Operating Activities	224.1	487.3	173.8
Cash Flows from Investing Activities			
Purchases of property and equipment	(140.4)	(134.5)	(98.6)
Disposals of property and equipment	0.3	9.4	37.6
Purchases of software	(57.0)	(2.0)	(18.5)
Cash paid for acquisitions, net of cash acquired	(32.8)	—	(882.1)
Other investing activities, net	(4.9)	0.1	(3.0)
Net Cash Used for Investing Activities	(234.8)	(127.0)	(964.6)
Cash Flows from Financing Activities			
Proceeds from issuance of long-term debt (Note 9)	—	2,500.0	—
Repayments of borrowings (Note 9)	(121.1)	(7.5)	—
Proceeds from issuance of common stock (Note 1)	—	1,659.7	—
Debt issuance costs	—	(24.5)	—
Consideration paid to Lilly in connection with the Separation (Note 1)	(191.6)	(3,991.3)	—
Other financing activities, net	1.6	(17.2)	(0.8)
Other net transactions with Lilly	6.3	(154.4)	848.3
Net Cash Provided by (Used for) Financing Activities	(304.8)	(35.2)	847.5
Effect of exchange rate changes on cash and cash equivalents	(16.9)	29.0	7.9
Net (decrease) increase in cash, cash equivalents and restricted cash	(332.4)	354.1	64.6
Cash, cash equivalents and restricted cash at January 1	677.5	323.4	258.8
Cash, cash equivalents and restricted cash at December 31	$ 345.1	$ 677.5	$ 323.4

	December 31,		
	2019	2018	2017
Cash and cash equivalents	$ 334.0	$ 474.8	$ 323.4
Restricted cash (Note 20)	11.1	202.7	—
Cash, cash equivalents and restricted cash at December 31	$ 345.1	$ 677.5	$ 323.4

See notes to consolidated and combined financial statements.

Note 1. Nature of Business and Organization

Nature of Business

Elanco was formed as a wholly-owned subsidiary of Lilly, and is a global animal health company that innovates, develops, manufactures and markets products for companion and food animals. We offer a diverse portfolio of more than 125 brands to veterinarians and food animal producers in more than 90 countries.

Organization

Elanco Parent was formed in 2018, as a wholly-owned subsidiary of Lilly, to serve as the ultimate parent company of substantially all of the animal health businesses of Lilly.

On September 24, 2018, Elanco Parent completed an IPO resulting in the issuance of 72.3 million shares of its common stock (including shares issued pursuant to the underwriters' option to purchase additional shares), which represented 19.8% of the outstanding shares, at $24 per share resulting in total net proceeds, after underwriting discounts and commissions, of $1.7 billion. In connection with the completion of the IPO, through a series of equity and other transactions, Lilly transferred to Elanco Parent the animal health businesses that form its business. In exchange, Elanco Parent has paid to Lilly approximately $4.2 billion, which included the net proceeds from the IPO, the net proceeds from the debt offering completed by Elanco Parent in August 2018 and the term loan facility entered into by Elanco Parent in September 2018 (see Note 9: Debt). These transactions are collectively referred to herein as the Separation.

On February 8, 2019, Lilly announced an exchange offer whereby Lilly shareholders could exchange all or a portion of Lilly common stock for shares of Elanco common stock owned by Lilly. The disposition of Elanco shares was completed on March 11, 2019 and resulted in the full separation of Elanco along with the disposal of Lilly's entire ownership and voting interest in Elanco.

Note 2. Basis of Presentation

We have prepared the accompanying consolidated and combined financial statements in accordance with accounting principles generally accepted in the United States (GAAP). In our opinion, the financial statements reflect all adjustments (including those that are normal and recurring) that are necessary for fair presentation of the results of operations for the periods shown. The accounts of all wholly-owned and majority-owned subsidiaries are included in the consolidated financial statements, and all intercompany balances and transactions have been eliminated.

Certain reclassifications have been made to prior periods in the unaudited condensed consolidated and combined financial statements and accompanying notes to conform with current presentation.

In preparing financial statements in conformity with GAAP, we must make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses, and related disclosures at the date of the financial statements and during the reporting period. Actual results could differ from those estimates. We issued our financial statements by filing with the Securities and Exchange Commission and have evaluated subsequent events up to the time of the filing.

For the periods after Separation, the financial statements are prepared on a consolidated basis and reflect the results of operations, comprehensive income, financial position, equity and cash flows resulting from our operations as an independent company. For periods prior to Separation, our financial statements are combined, have been prepared on a standalone basis, and are derived from Lilly's consolidated financial statements and accounting records. The consolidated and combined financial statements reflect the financial position, results of operations and cash flows related to the animal health businesses that were transferred to Elanco Parent and are prepared in conformity with GAAP.

The combined financial statements include the attribution of certain assets and liabilities that historically have been held at the Lilly corporate level but which are specifically identifiable or attributable to the businesses that have been transferred to Elanco Parent. All intercompany transactions and accounts within Elanco have been eliminated. All transactions between us and Lilly are considered to be effectively settled in the combined financial statements at the time the intercompany transaction is recorded. The total net effect of the settlement of these intercompany transactions is reflected in the combined statements of cash flows as a financing activity and in the consolidated and combined statement of equity as net parent company investment.

Prior to Separation, these combined financial statements include an allocation of expenses related to certain Lilly corporate functions, including executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations, prior to IPO. These expenses were allocated to us based on direct usage or benefit where specifically identifiable, with the remainder allocated primarily on a pro rata basis of revenue, headcount and other measures. We consider the expenses methodology and results to be reasonable for all periods presented. However, the allocations may not be indicative of the actual expense that would have been incurred had we operated as an independent, publicly traded company for the periods presented. It is impractical to estimate what the standalone costs of Elanco would have been in the historical periods. After the Separation, a TSA between Lilly and Elanco went into effect. Under the terms of the TSA, we will be able to use these Lilly services for a fixed term established on a service-by-service basis. We are paying Lilly mutually agreed upon fees for the Lilly services provided under the TSA. Our consolidated and combined financial statements reflect the charges for Lilly services after the IPO. See Note 20: Related Party Agreements and Transactions for additional details.

The income tax amounts in the combined financial statements have been calculated based on a separate return methodology and presented as if our operations were separate taxpayers in the respective jurisdictions. We file income tax returns in the U.S. federal jurisdiction and various state, local and non-U.S. jurisdictions. Prior to full separation, certain of these income tax returns were filed on a consolidated or combined basis with Eli Lilly and Company and/or its subsidiaries.

Prior to Separation, Lilly maintained various benefit and combined stock-based compensation plans at a corporate level and other benefit plans at a country level. Our employees participated in such programs and the portion of the cost of those plans related to our employees is included in our financial statements. However, the consolidated balance sheets do not include any equity issued related to stock-based compensation plans or any net benefit plan obligations unless the benefit plan covers only our dedicated employees or where the legal obligation associated with the benefit plan transferred to Elanco. Upon Lilly's full divestiture of Elanco in March 2019, all Lilly share-based awards held by our employees were converted into awards that will be settled in Elanco shares.

Prior to Separation, the equity balance in the combined financial statements represents the excess of total assets over liabilities, including intercompany balances between Elanco and Lilly (net parent company investment) and accumulated other comprehensive income (loss). Net parent company investment is primarily impacted by contributions from Lilly which are the result of treasury activities and net funding provided by or distributed to Lilly. See Note 20: Related Party Agreements and Transactions for further information.

Note 3. Impact of Separation

In connection with the Separation, we issued $2.0 billion aggregate principal amount of senior notes in a private placement, and we also entered into a $750.0 million senior unsecured revolving credit facility and $500.0 million senior unsecured term credit facility. See Note 9: Debt for further information. In connection with the Separation, we entered into various agreements with Lilly, including a master separation agreement, a tax matters agreement and the TSA.

In connection with the terms of the Separation, there were certain assets and liabilities included in the pre-Separation balance sheet that were retained by Lilly and there were certain assets not included in the pre-Separation balance sheet that were transferred to us. The cumulative adjustment to the historical balance sheet increased net assets and total equity by approximately $99.6 million. The impact on net assets primarily represents the elimination of certain income tax assets and liabilities and the contribution of additional assets.

We will also continue to have certain ongoing relationships with Lilly as described in Note 20: Related Party Agreements and Transactions.

Note 4. Summary of Significant Accounting Policies

Revenue recognition

Effective January 1, 2018, we adopted Accounting Standards Update 2014-09, *Revenue from Contracts with Customers* (ASU 2014-09) and other related updates. The new standard has been applied to contracts for which performance had not been completed as of the date of adoption. Revenue presented for periods prior to 2018 was accounted for under previous standards and has not been adjusted. Revenue and net income for the years ended December 31, 2019 and 2018 do not differ materially from amounts that would have resulted from application of the previous standards.

Product Sales

We recognize revenue primarily from product sales to customers. Revenue from sales of products is recognized at the point where the customer obtains control of the goods and we satisfy our performance obligation, which generally is at the time we ship the product to the customer. Payment terms differ by jurisdiction and customer, but payment terms in most of our major jurisdictions typically range from 30 to 120 days from date of shipment. Revenue for our product sales has not been adjusted for the effects of a financing component as we expect, at contract inception, that the period between when we transfer control of the product and when we receive payment will be one year or less. Any exceptions are either not material or we collect interest for payments made after the due date. For arrangements with contract manufacturing organizations (CMO), we recognize revenue over time or at a point in time depending on our evaluation of when the customer obtains control of the promised goods or service. Revenue is recognized over time when we are creating or enhancing an asset that the customer controls. In this instance revenue is recognized as the asset is created or enhanced or our performance does not create an asset with an alternative use and we have an enforceable right to payment for performance completed.

Provisions for rebates and discounts, as well as returns are established in the same period the related sales are recognized. We generally ship product shortly after orders are received; therefore, we generally only have a few days of orders received but not yet shipped at the end of any reporting period. Shipping and handling activities are considered to be fulfillment activities and are not considered to be a separate performance obligation. We exclude from the measurement of the transaction price all taxes assessed by a governmental authority that are imposed on our sales of product and collected from a customer.

Significant judgments must be made in determining the transaction price for sales of products related to anticipated rebates and discounts, and returns. The following describe the most significant of these judgments:

Sales Rebates and Discounts - Background and Uncertainties

- Most of our products are sold to wholesale distributors. We initially invoice our customers contractual list prices. Contracts with direct and indirect customers may provide for various rebates and discounts that may differ in each contract. As a consequence, to determine the appropriate transaction price for our product sales at the time we recognize a sale to a direct customer, we must estimate any rebates or discounts that ultimately will be due to the direct customer and other customers in the distribution chain under the terms of our contracts. Judgments are required in making these estimates.
- The rebate and discount amounts are recorded as a deduction to arrive at our net product sales. We estimate these accruals using an expected value approach.
- In determining the appropriate accrual amount, we consider our historical experience with similar incentives programs and current sales data and estimates of inventory levels at our channel distributors to evaluate the impact of such programs on revenue and continually monitor the impact of this experience and adjust as necessary. Although we accrue a liability for rebates related to these programs at the time the sale is recorded, the rebate related to that sale is typically paid up to six months after the rebate or incentive period expires. Because of this time lag, in any particular period rebate adjustments may incorporate revisions of accruals for several periods.

Sales Returns - Background and Uncertainties

- We estimate a reserve for future product returns related to product sales using an expected value approach. This estimate is based on several factors, including: local returns policies and practices; returns as a

percentage of revenue; an understanding of the reasons for past returns; estimated shelf life by product; and estimate of the amount of time between shipment and return. Adjustments to the returns reserve have been and may in the future be required based on revised estimates to our assumptions, which would have an impact on our consolidated results of operations. We record the return amounts as a deduction to arrive at our net product sales.

Research and development expenses and acquired in-process research and development

Research and development expenses include the following:

- Research and development costs, which are expensed as incurred.
- Milestone payment obligations incurred prior to regulatory approval of the product, which are accrued when the event requiring payment of the milestone occurs.
- Acquired in-process research and development (IPR&D) expense, which includes the initial costs of IPR&D projects, acquired directly in a transaction other than a business combination, that do not have an alternative future use.

Foreign Currency Translation

Operations in our subsidiaries outside the U.S. are recorded in the functional currency of each subsidiary which is determined by a review of the environment where each subsidiary primarily generates and expends cash. The results of operations for our subsidiaries outside the U.S. are translated from functional currencies into U.S. dollars using the weighted average currency rate for the period. Assets and liabilities are translated using the period end exchange rates. The U.S. dollar effects that arise from translating the net assets of these subsidiaries are recorded in other comprehensive income (loss).

Other significant accounting policies

Our other significant accounting policies are described in the remaining appropriate notes to the combined financial statements.

Implementation of New Financial Accounting Pronouncements

The following table provides a brief description of an accounting standard that was effective January 1, 2019 and was adopted on that date:

Standard	Description	Effect on the financial statements or other significant matters
Accounting Standards Update 2016-02, *Leases*	This standard was issued to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities, including leases classified as operating leases under previous GAAP, on the balance sheet and requiring additional disclosures about leasing arrangements.	We adopted the standard on January 1, 2019 using the modified retrospective approach, applied at the beginning of the period of adoption, and we elected the package of transition practical expedients. Upon adoption of the standard, we recorded $84.9 million of right-of-use assets and $85.3 million of operating lease liabilities on our consolidated balance sheet. Adoption of this standard did not have a material impact on our consolidated statement of operations for the year ended December 31, 2019. See Note 13: Leases for further information.

The following table provides a brief description of the accounting standards applicable to us that have not yet been adopted:

Standard	Description	Effective Date	Effect on the financial statements or other significant matters
Accounting Standards Update 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments*	This standard modifies the impairment model by requiring entities to use a forward-looking approach based on expected losses to estimate credit losses on certain types of financial instruments, including trade receivables. This may result in the earlier recognition of allowances for losses.	This standard is effective January 1, 2020, with early adoption permitted. We intend to adopt this standard on that date.	We do not expect that the adoption of this standard will have a material impact on our consolidated financial statements based on financial instruments currently held.
Accounting Standards Update 2018-15, *Intangibles - Goodwill and Other Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract*	This guidance aligns the requirements for capitalizing implementation costs incurred in a cloud-based hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software.	This standard is effective January 1, 2020, with early adoption permitted. We intend to adopt this standard on that date.	Adoption of this standard is not expected to have a significant impact on our consolidated financial statements.
Accounting Standards Update 2019-12, *Simplifying the Accounting for Income Taxes*	The amendments in this update simplify the accounting for income taxes by removing certain exceptions and clarifying certain requirements regarding franchise taxes, goodwill, consolidated tax expenses, and annual effective tax rate calculations.	This standard is effective January 1, 2021, with early adoption permitted. We intend to adopt this standard on that date.	We are currently evaluating the impact of adoption of the new standard on our consolidated financial statements.

Note 5. Revenue

Our sales rebates and discounts are based on specific agreements and the majority relate to sales in the U.S. As of December 31, 2019 and 2018, the liability for sales rebates and discounts in the U.S. represents approximately 71% and 70%, respectively, of our total liability with the next largest country representing approximately 8% of our total liability for 2019 and 2018.

The following table summarizes the activity in the sales rebates and discounts liability in the U.S.:

	Year Ended December 31,	
	2019	2018
Beginning balance	$ 118.5	$ 114.8
Reduction of revenue	316.3	221.0
Payments	(284.4)	(217.3)
Ending balance	$ 150.4	$ 118.5

Adjustments to revenue recognized as a result of changes in estimates for the judgments described above during the years ended December 31, 2019 and 2018 for product shipped in previous periods were not material.

Actual product returns were 0.2% and 0.6% of net revenue for the years ended December 31, 2019 and 2018, respectively, and have not fluctuated significantly as a percentage of revenue.

Disaggregation of Revenue

The following table summarizes our revenue disaggregated by product category for the years ended December 31:

	2019	2018	2017
Companion Animal Disease Prevention	$ 787.9	$ 804.6	$ 660.2
Companion Animal Therapeutics	348.0	283.1	260.8
Food Animal Future Protein & Health	745.1	711.2	649.2
Food Animal Ruminants Swine	1,110.3	1,174.0	1,175.0
Strategic Exits[1]	79.7	93.9	143.8
Total Revenue	$ 3,071.0	$ 3,066.8	$ 2,889.0

(1) Represents revenue from business activities we have either exited or made a strategic decision to exit.

Note 6. Acquisitions

During the year ended December 31, 2019, we completed the acquisitions of all outstanding shares of Aratana Therapeutics, Inc. (Aratana) and Prevtec Microbia Inc. (Prevtec). During 2017, we completed the acquisition of BIVIVP. These transactions were accounted for as business combinations under the acquisition method of accounting. Under this method, the assets acquired and liabilities assumed were recorded at their respective fair values as of the acquisition date in our consolidated and combined financial statements. The determination of estimated fair value required management to make significant estimates and assumptions. The excess of the purchase price over the fair value of the acquired net assets, where applicable, has been recorded as goodwill. The results of operations of these acquisitions are included in our consolidated and combined financial statements from the dates of acquisition.

Aratana Therapeutics, Inc.

On July 18, 2019, we acquired Aratana, a pet therapeutics company focused on innovative therapies for dogs and cats, for stock and cash-based contingent value rights. Aratana is the creator of the canine osteoarthritis medicine, *Galliprant*, the rights to which we acquired in 2016. The acquisition enhances our presence in the areas of appetite stimulants in dogs, pain relief in dogs and cats, and treatments of other conditions in the U.S. and internationally. In connection with the acquisition, we issued approximately 7.2 million shares with a value of $238.0 million to Aratana shareholders, based on our stock price on the last trading day immediately prior to the closing date. The purchase consideration also included up to $12 million in contingent value rights, which represent the rights of Aratana shareholders to receive a contingent payment of $0.25 per share in cash upon the achievement of a specified milestone as outlined in the merger agreement. We calculated an immaterial fair value for the contingent value rights using the Monte Carlo simulation model.

Contingent consideration liabilities that we previously recorded for future royalty and milestone payments in relation to the 2016 acquisition of rights to *Galliprant* were settled upon the closing of our acquisition of Aratana. The liabilities were valued at $84.7 million as of the acquisition date using the Monte Carlo simulation model. The resulting $7.5 million loss upon settlement was recorded in Other - net, expense in the consolidated and combined statement of operations for the year ended December 31, 2019.

The following table summarizes the preliminary amounts recognized for assets acquired and liabilities assumed as of the acquisition date:

Estimated Fair Value at July 18, 2019		
Cash and cash equivalents	$	26.4
Inventories		10.3
Acquired in-process research and development		31.9
Marketed products (1)		36.7
Other intangible assets (1)		13.2
Other assets and liabilities - net		24.0
Total identifiable net assets		142.5
Goodwill (2)		10.8
Settlement of existing contingent consideration liabilities		84.7
Total consideration transferred	$	238.0

(1) These intangible assets, which are being amortized on a straight-line basis over their estimated useful lives, are expected to have a weighted average useful life of approximately 12.5 years.

(2) The goodwill recognized from this acquisition is attributable primarily to expected synergies from combining the operations of Aratana with our legacy business. The majority of goodwill associated with this acquisition is not deductible for tax purposes.

The accounting for this acquisition is substantially complete, with the exception of the finalization of the valuation of intangible assets, tax-related amounts and minor working capital adjustments. The final determination of these amounts will be completed as soon as possible but no later than one year from the acquisition date.

We issued 0.1 million shares and recorded $3.6 million of stock-based compensation expense for the vesting of Aratana equity awards that was accelerated upon the closing of the acquisition during the year ended December 31, 2019.

Our consolidated statement of operations for the year ended December 31, 2019 included revenues of $10.0 million from Aratana.

Had Aratana been acquired on January 1, 2018, the unaudited pro forma combined revenues of Elanco and Aratana would have been $3.1 billion for both the years ending December 31, 2019 and December 31, 2018, and income before income taxes would have been $63.2 million and $117.7 million for the years ending December 31, 2019 and December 31, 2018, respectively.

Prevtec Microbia Inc.

On July 31, 2019, we acquired Prevtec in a cash transaction for approximately $60.3 million, inclusive of certain post-closing adjustments. Prevtec is a Canadian biotechnology company specializing in the development of vaccines intended to help prevent bacterial diseases in food animals. The acquisition allows us to expand on our previous distribution arrangement for *Coliprotec* and is consistent with our efforts to explore innovative antibiotic alternatives.

The purchase consideration included up to $16.3 million in additional cash consideration, contingent upon the achievement of specific sales milestones by December 31, 2021. We have recorded a $4.7 million liability on the consolidated balance sheet as of the acquisition date based on the fair value of the contingent consideration as calculated using the Monte Carlo simulation model.

A previously existing $0.7 million receivable owed from Prevtec to Elanco Animal Health UK Limited was settled upon the closing of our acquisition of Prevtec. The resulting immaterial gain upon settlement was recorded in Other - net, expense in the consolidated and combined statement of operations for the year ended December 31, 2019.

The following table summarizes the preliminary amounts recognized for assets acquired and liabilities assumed as of the acquisition date:

Estimated Fair Value at July 31, 2019		
Cash and cash equivalents	$	0.9
Property and equipment		0.5
Acquired in-process research and development		2.8
Marketed products[1]		58.9
Other intangible assets		1.1
Other assets and liabilities - net		(10.3)
Total identifiable net assets		53.9
Goodwill [2]		11.1
Total consideration transferred	$	65.0

(1) These intangible assets, which are being amortized on a straight-line basis over their estimated useful lives, are expected to have a weighted average useful life of 10 years.

(2) The goodwill recognized from this acquisition is attributable primarily to expected synergies from combining the operations of Prevtec with our legacy business and future unidentified projects and products. The goodwill associated with this acquisition is not deductible for tax purposes.

The accounting for this acquisition is substantially complete, with the exception of the finalization of the valuation of intangible assets, tax-related amounts and minor working capital adjustments. The final determination of these amounts will be completed as soon as possible but no later than one year from the acquisition date.

Boehringer Ingelheim Vetmedica, Inc. Vaccine Portfolio Acquisition

On January 3, 2017, we acquired BIVIVP in a cash transaction for $882.1 million. Under the terms of the agreement, we acquired a manufacturing and research and development site, a U.S. vaccine portfolio including vaccines used for the treatment of bordetella, Lyme disease, rabies and parvovirus, among others.

The following table summarizes the amounts recognized for assets acquired and liabilities assumed as of the acquisition date:

Estimated Fair Value at January 3, 2017		
Inventories [1]	$	108.6
Marketed products [2]		297.0
Property and equipment		148.2
Other assets and liabilities — net		8.2
Total identifiable net assets		562.0
Goodwill [3]		320.1
Total consideration transferred — net of cash acquired	$	882.1

(1) The fair value for inventories include a purchase accounting adjustment to write up the inventory value, which resulted in incremental cost of sales of $42.7 million in 2017. The fair value was determined by estimating the expected sales price of the inventories, reduced for all costs expected to the incurred and a profit on those costs.

(2) These intangible assets, which are being amortized on a straight-line basis over their estimated useful lives, were expected to have a weighted average useful life of 10 years.

(3) The goodwill recognized from this acquisition is attributable primarily to expected synergies from combining the operations of BIVIVP with our legacy business, future unidentified projects and products, and the assembled workforce of BIVIVP. The goodwill associated with this acquisition is deductible for tax purposes.

Our combined statement of operations for the year ended December 31, 2017 included BIVIVP revenues of $216.7 million. We are unable to provide the results of operations attributable to BIVIVP as those operations were substantially integrated into our legacy business.

Pending Acquisition

Bayer Animal Health Business

In August 2019, we entered into the Purchase Agreement with Bayer, a German corporation, to acquire Bayer's animal health business. Bayer's animal health business is a provider of products intended to improve the health and well-being of pets and farm animals. This acquisition is expected to expand our Companion Animal product category, advance our planned intentional portfolio mix transformation and create a better balance between our Food Animal and Companion Animal product categories. Pursuant to the Purchase Agreement and subject to the satisfaction of certain customary closing conditions, including the receipt of antitrust approvals and the absence of any law or order enjoining or otherwise prohibiting the transaction in specified jurisdictions, we will purchase Bayer's animal health business for approximately $5.3 billion in cash and approximately $2.3 billion of our common stock, subject to certain customary adjustments. Unless the parties agree otherwise, the transaction will close no earlier than July 1, 2020, per the terms of the Purchase Agreement. See Note 16: Commitments and Contingencies for discussion regarding certain commitments related to this transaction.

Note 7. Asset Impairment, Restructuring and Other Special Charges

In recent years, we have incurred substantial costs associated with restructuring programs and cost-reduction initiatives designed to achieve a flexible and competitive cost structure. Restructuring activities primarily include charges associated with facility rationalization and workforce reductions. In connection with our recent acquisitions, we have also incurred costs associated with executing transactions and integrating acquired operations, which may include expenditures for banking, legal, accounting, and other similar services. In addition, we have incurred costs to stand up our organization as an independent company. All operating functions can be impacted by these actions; therefore, non-cash expenses associated with our tangible and intangible assets can be incurred as a result of revised fair value projections and/or determinations to no longer utilize certain assets in the business on an ongoing basis.

For finite-lived intangible asset and other long-lived assets, whenever impairment indicators are present, we calculate the undiscounted value of projected cash flows associated with the asset, or group of assets, and compare it to the carrying amount. If the carrying amount is greater, we record an impairment loss for the excess of book value over fair value. Determinations of fair value can result from a complex series of judgments and rely on estimates and assumptions. See Note 2: Basis of Presentation for discussion regarding estimates and assumptions.

Components of asset impairment, restructuring and other special charges for the years ended December 31 are as follows:

	2019	2018	2017
Restructuring charges: [1]			
Severance and other costs	$ 8.2	$ 15.5	$ 162.0
Facility exit costs	—	5.7	31.8
Acquisition related charges:			
Transaction and integration costs [2]	144.7	26.5	90.3
Non-cash and other items:			
Asset impairment [3]	15.4	81.9	110.6
Asset write-down [4]	17.2	—	—
Gain on sale of fixed assets [5]	—	(0.8)	(19.6)
Total expense	$ 185.5	$ 128.8	$ 375.1

(1) For the year ended December 31, 2019, these charges primarily relate to a new program that will eliminate certain positions across multiple locations and functions, including exiting R&D operations in Prince Edward Island, Canada, ceasing certain manufacturing operations in Wusi, China, and streamlining operations in Speke, England. We expect to substantially complete these restructuring activities by September 2020.

For the year ended December 31, 2018, these charges primarily relate to a program to streamline international operations, including shifting focus and resources to priority areas. Among other actions, amounts reflect a change from having a physical location to a distribution model in certain countries in connection with the Separation. These activities were substantially complete as of December 31, 2019.

We historically participated in Lilly's cost-reduction initiatives, which resulted in restructuring charges in the period prior to our IPO. These restructuring charges include severance and other costs associated with the reduction of our workforce, including special termination benefits recognized in 2017 associated with the U.S. voluntary early retirement program offered by Lilly, related to our employees and pension curtailment costs and facility exit costs. We also recorded certain impairment charges related to the activities as described below.

(2) Transaction costs represent external costs directly related to acquiring businesses and primarily include expenditures for banking, legal, accounting and other similar services. Integration costs represent external, incremental costs directly related to integrating acquired businesses (e.g., expenditures for consulting, system and process integration, and product transfers), as well as stand-up costs related to the implementation of new systems, programs, and processes due to the Separation from Lilly .

(3) Asset impairment charges are associated with the following:

- For the year ended December 31, 2019, write-off certain IPR&D and manufacturing assets in the US, Canada and Speke, resulting from the adjustment to fair value of property and equipment and intangible assets that were subject to product rationalization.
- For the year ended December 31, 2018, the decision to dispose of a manufacturing facility in the U.S., the suspension of commercial activities for *Imrestor*, the write-off of certain idle assets in a U.S. manufacturing facility and product rationalization.
- For the year ended December 31, 2017, intangible asset impairments related to revised projections of fair value due to product rationalization and to a lesser extent competitive pressures.

(4) Asset write-down expenses resulted from the adjustments recorded to write assets classified as held and used and held for sale down to their current fair values. These charges primarily related to fixed assets in Prince Edward Island, Canada; Wusi, China and Indianapolis, Indiana. $11.2 million of Property and equipment, net in Prince Edward Island, Canada and Indianapolis, Indiana are classified as held for sale.

(5) Represents a gain on the disposal of a site that was previously closed as part of the acquisition and integration of Novartis Animal Health beginning on January 1, 2015.

The following table summarizes the activity in our reserves established in connection with restructuring activities:

	Exit costs	Severance	Total
Balance at December 31, 2017	$ 34.9	$ 43.1	$ 78.0
Charges	11.7	15.5	27.2
Separation adjustment	(5.9)	—	(5.9)
Reserve adjustment	(6.0)	—	(6.0)
Cash paid	(25.4)	(23.5)	(48.9)
Balance at December 31, 2018	9.3	35.1	44.4
Charges	—	19.3	19.3
Reserve adjustment (1)	—	(11.1)	(11.1)
Cash paid	(3.9)	(27.8)	(31.7)
Balance at December 31, 2019	$ 5.4	$ 15.5	$ 20.9

(1) Reserve adjustment represents the reversal of reserves for severance programs that are no longer active.

These reserves are included in other current liabilities in the consolidated balance sheets. Substantially all of the reserves are expected to be paid in the next twelve months. We believe that the reserves are adequate.

Note 8. Inventories

We state all inventories at the lower of cost or net realizable value. We use the last-in, first-out (LIFO) method for a portion of our inventories located in the continental U.S. Other inventories are valued by the first-in, first-out (FIFO) method. FIFO cost approximates current replacement cost.

Inventories at December 31 consisted of the following:

	2019	2018
Finished products	$ 402.9	$ 400.7
Work in process	603.2	570.4
Raw materials and supplies	83.9	80.4
Total (approximates replacement cost)	1,090.0	1,051.5
Decrease to LIFO cost	(39.3)	(47.4)
Inventories	$ 1,050.7	$ 1,004.1

Inventories valued under the LIFO method comprised $197.2 million and $194.8 million of total inventories at December 31, 2019 and 2018, respectively.

During the year ended December 31, 2018, we recognized $38.6 million of inventory write-offs in cost of sales primarily related to the suspension of commercial activities for *Imrestor*.

Note 9. Debt

Long-term debt as of December 31 consisted of the following:

	2019	2018
Term credit facility	$ 371.4	$ 492.5
3.912% Senior Notes due 2021	500.0	500.0
4.272% Senior Notes due 2023	750.0	750.0
4.900% Senior Notes due 2028	750.0	750.0
Other obligations	0.4	0.5
Unamortized debt issuance costs	(16.8)	(20.7)
	2,355.0	2,472.3
Less current portion of long-term debt	(24.5)	(29.0)
Total long-term debt	$ 2,330.5	$ 2,443.3

Revolving and Term Credit Facilities

On September 5, 2018, we entered into a revolving credit agreement with a syndicate of banks providing for a five-year $750.0 million senior unsecured revolving credit facility (Revolving Facility). The Revolving Facility bears interest at a variable rate plus specified margin as defined in the agreement and is payable quarterly. There were no borrowings outstanding under the Revolving Facility at December 31, 2019 or 2018. The Revolving Facility is payable in full at the end of the term.

On September 5, 2018, we also entered into a $500.0 million three-year term loan under a term credit facility with a syndicate of banks (the Term Facility and collectively with the Revolving Facility, the Credit Facilities.) The Term Facility bears interest at a variable rate plus margin as defined in Term Facility (3.01% and 3.77% at December 31, 2019 and 2018, respectively) and is payable quarterly. The Term Facility also requires a quarterly principal payment equal to 1.5% of the aggregate initial principal less any prepayment. The Term Facility is payable in full at the end of the term.

The Credit Facilities are subject to various financial and other covenants, including restrictions on the level of borrowings based on a consolidated leverage ratio and a consolidated interest coverage ratio. We were in compliance with all such covenants as of December 31, 2019.

Senior Notes

On August 28, 2018, we issued $2.0 billion of senior notes (Senior Notes) in a private placement. The Senior Notes comprised of $500.0 million of 3.912% Senior Notes due August 27, 2021, $750.0 million of 4.272% Senior Notes due August 28, 2023, and $750.0 million of 4.900% Senior Notes due August 28, 2028. The interest rate

payable on each series of Senior Notes is subject to adjustment if Moody's Investor Services, Inc. or Standard & Poor's Financial Services LLC downgrades, or subsequently upgrades, its ratings on the respective series of Senior Notes.

The indenture that governs the Senior Notes contains covenants, including limitations on our ability, and certain of our subsidiaries, to incur liens or engage in sale-leaseback transactions. The indenture also contains restrictions on our ability to consolidate, merge or sell substantially all of our assets, in addition to other customary terms. We were in compliance with all such covenants under the indenture governing the Senior Notes as of December 31, 2019.

On June 26, 2019, we completed an exchange offer pursuant to which the privately issued Senior Notes were exchanged for publicly registered Senior Notes having substantially identical terms.

Note 10. Financial Instruments and Fair Value

Financial instruments that are potentially subject to credit risk consist principally of trade receivables. Collateral is generally not required. The risk associated with this concentration is mitigated by our ongoing credit-review procedures.

A large portion of our cash is held by a few major financial institutions. We monitor the exposure with these institutions and do not expect any of these institutions to fail to meet their obligations. All highly liquid investments with a maturity of three months or less from the date of purchase are considered to be cash equivalents. The cost of these investments approximates fair value. We also consider the carrying value of restricted cash balances to be representative of its fair value.

As of December 31, 2019 and 2018, we had $18.8 million and $15.3 million, respectively, primarily related to equity method investments included in other noncurrent assets in our consolidated balance sheet.

The following table summarizes the fair value information at December 31, 2019 and 2018 for contingent consideration liabilities, and net investment hedge assets/(liabilities) measured at fair value on a recurring basis in the respective balance sheet line items, as well as long-term debt for which fair value is disclosed on a recurring basis:

		Fair Value Measurements Using			
Financial statement line item	Carrying Amount	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Fair Value
December 31, 2019					
Other noncurrent liabilities- contingent consideration	$ (4.7)	$ —	$ —	$ (4.7)	$ (4.7)
Other noncurrent assets/(liabilities) - cross currency interest rate contracts designated as net investment hedges	2.3	—	2.3	—	2.3
Long-term debt - senior notes	(2,000.0)	—	(2,120.6)	—	(2,120.6)
Long-term debt - term credit facility	(371.4)	—	(371.4)	—	(371.4)
December 31, 2018					
Other current liabilities- contingent consideration	$ (5.1)	$ —	$ —	$ (5.1)	$ (5.1)
Other noncurrent liabilities- contingent consideration	(69.0)	—	—	(69.0)	(69.0)
Other noncurrent assets/(liabilities) - cross currency interest rate contracts designated as net investment hedges	(7.4)	—	(7.4)	—	(7.4)
Long-term debt - senior notes	(2,000.0)	—	(2,005.0)	—	(2,005.0)
Long-term debt - term credit facility	(492.5)	—	(492.5)	—	(492.5)

We determine our Level 2 fair value measurements based on a market approach using quoted market values or significant other observable inputs for identical or comparable assets or liabilities.

Contingent consideration liabilities as of December 31, 2019 related to contingent consideration associated with the acquisitions of Aratana and Prevtec during the period. For Aratana, we will pay up to $12 million in contingent value rights that are dependent on the achievement of a specified milestone as outlined in the merger agreement. For Prevtec, based on the terms of the purchase agreement, we will pay up to $16.3 million contingent upon the achievement of specific *Coliprotec* sales milestones by December 31, 2021. The fair value of both contingent consideration liabilities was estimated using the Monte Carlo simulation model and Level 3 inputs including historical revenue, discount rate, asset volatility, and revenue volatility. See Note 6: Acquisitions for further discussion.

Contingent consideration liabilities as of December 31, 2018 related to *Galliprant* for which the fair value was estimated using a discounted cash flow analysis and Level 3 inputs, including projections representative of a market participant view for the probability of achieving potential future payments to Aratana and an estimated discount rate. The amount to be paid as of December 31, 2018 was dependent upon certain development, success-based regulatory, and sales-based milestones. These liabilities were settled upon the closing of our acquisition of Aratana on July 18, 2019. See Note 6: Acquisitions for further discussion.

In October 2018, we entered into a five-year cross-currency fixed interest rate swap with a 750 million Swiss Franc (CHF) notional amount, which is designated as a NIH against CHF denominated assets for which the fair value was estimated based on quoted market values of similar hedges and is classified as Level 2. The NIH is expected to generate approximately $25 million in cash and an offset to interest expense on an annual basis. For the years ended December 31, 2019 and 2018, our interest expense was offset by $25.1 million and $5.6 million, respectively, as a result of the NIH. Over the life of the derivative, gains or losses due to spot rate fluctuations are recorded in cumulative translation adjustment in other comprehensive income. During the years ended December 31, 2019 and 2018, we recorded a gain of $7.7 million and a loss of $5.9 million, respectively, net of tax, on the NIH, which is included in the change in the cumulative translation adjustment. There is a potential for significant 2023 settlement exposure as the U.S. dollar fluctuates against the Swiss Franc. The risk management objective is to manage foreign currency risk relating to net investments in certain CHF denominated assets. Changes in fair value of the derivative instruments are recognized in a component of accumulated other comprehensive loss to offset the changes in the values of the net investments being hedged.

Note 11. Goodwill and Intangibles

Goodwill

Goodwill was $3.0 billion as of December 31, 2019 and 2018. Goodwill results from excess consideration in a business combination over the fair value of identifiable net assets acquired. Goodwill is not amortized but is reviewed for impairment at least annually and when impairment indicators are present. Goodwill may be impaired if the carrying amount of a reporting unit exceeds the fair value of that reporting unit, calculated as based on discounted cash flows. An impairment charge would be recorded for the excess, if any, of the reporting unit's carrying amount over its fair value, but not to exceed the total amount of goodwill allocated to the reporting unit. The estimated fair value is based on a number of assumptions, including current market capitalization as corroboration of fair value. See Note 6: Acquisitions for further discussion of goodwill resulting from recent business combinations. The remaining change in goodwill is primarily the result of foreign exchange translation adjustments.

No impairments occurred with respect to the carrying value of goodwill for the years ended December 31, 2019, 2018 and 2017.

Other Intangibles

The components of intangible assets other than goodwill at December 31 were as follows:

	2019			2018		
Description	Carrying Amount, Gross	Accumulated Amortization	Carrying Amount, Net	Carrying Amount, Gross	Accumulated Amortization	Carrying Amount, Net
Finite-lived intangible assets:						
Marketed products	$ 3,302.7	$ (980.6)	$ 2,322.1	$ 3,193.5	$ (779.2)	$ 2,414.3
Software	159.2	(72.2)	87.0	101.3	(49.5)	51.8
Other	58.3	(34.0)	24.3	53.1	(34.0)	19.1
Total finite-lived intangible assets	3,520.2	(1,086.8)	2,433.4	3,347.9	(862.7)	2,485.2
Indefinite-lived intangible assets:						
Acquired in-process research and development	49.4	—	49.4	19.6	—	19.6
Other intangibles	$ 3,569.6	$ (1,086.8)	$ 2,482.8	$ 3,367.5	$ (862.7)	$ 2,504.8

Marketed products consist of the amortized cost of the rights to assets acquired in business combinations and approved for marketing in a significant global jurisdiction. For transactions other than a business combination, we capitalize milestone payments incurred at or after the product has obtained regulatory approval for marketing.

Software consists of certain costs incurred in connection with obtaining or developing internal-use software, including payroll and payroll-related costs for employees directly associated with the internal-use software projects and direct costs of external resources. These costs include software classified as "in process" until the project is substantially complete and the software is ready for its intended purpose, at which point the costs are amortized on a straight-line basis over the estimated useful life. Depreciation expense includes $20.4 million in 2019, $18.4 million in 2018, and $17.4 million in 2017 for amortization of software.

Other finite-lived intangibles consist primarily of the amortized cost of licensed platform technologies that have alternative future uses in research and development, manufacturing technologies and customer relationships from business combinations. Acquired IPR&D consists of the related costs capitalized, adjusted for subsequent impairments, if any. The costs of acquired IPR&D projects acquired directly in a transaction other than a business combination are capitalized if the projects have an alternative future use; otherwise, they are expensed immediately. The fair values of acquired IPR&D projects acquired in business combinations are capitalized as other intangible assets.

Several methods may be used to determine the estimated fair value of other intangibles acquired in a business combination. We utilize the "income method" for other intangibles. This method is a Level 3 fair value measurement and applies a probability weighting that considers the risk of development and commercialization to the estimated future net cash flows that are derived from projected revenues and estimated costs. These projections are based on factors such as relevant market size, patent protection, historical pricing of similar products and expected industry trends. The estimated future net cash flows are then discounted to the present value using an appropriate discount rate. This analysis is performed for each group of assets independently. The acquired IPR&D assets are treated as indefinite-lived intangible assets until completion or abandonment of the projects, at which time the assets are tested for impairment and amortized over the remaining useful life or written off, as appropriate.

See Note 6: Acquisitions for further discussion of intangible assets acquired in recent business combinations.

Other indefinite-lived intangible assets are reviewed for impairment at least annually and when impairment indicators are present. The fair value of the indefinite lived intangible assets (acquired IPR&D) is estimated using the same assumptions as used for goodwill and by applying a probability weighting that reflects the risk of development and commercialization to the estimated future net cash flows that are derived from projected revenues and estimated costs. Finite-lived intangible assets are reviewed for impairment when an indicator of impairment is

present. We compare the carrying amounts of the assets with the estimated undiscounted future cash flows. In the event the carrying amount exceeds the undiscounted cash flows, an impairment charge is recorded for the amount by which the carrying amount of the asset exceeds the estimated fair value, which is determined based on discounted future cash flows.

During 2019, we recorded impairment charges of $11.4 million primarily related to indefinite-lived intangible assets which are included in asset impairment, restructuring and other special charges on the consolidated and combined statements of operations. The impairment of indefinite-lived intangible assets primarily related to product rationalization.

During 2018, we recorded impairment charges of $22.5 million (comprised of $9.5 million impairment of finite-lived intangible assets and $13.0 million impairment of indefinite-lived intangible assets) which are included in asset impairment, restructuring and other special charges on the consolidated and combined statements of operations. The impairment of finite-lived intangible assets primarily related to competitive pressures for a certain marketed product resulting in a reduction of projected cash flows. The impairment of indefinite-lived intangible assets primarily related to revised projections of fair value due to competitive pressures and to a lesser extent product rationalization. The increase in the carrying amount of finite intangibles is primarily due to the receipt of full commercialization rights outside the U.S. for *Galliprant*.

During 2017, we had impairment charges of $94.5 million (comprised of $56.5 million impairment of finite-lived intangible assets and $38.0 million impairment of indefinite-lived intangible assets) which are included in asset impairment, restructuring and other special charges on the consolidated and combined statements of operations. The impairment of finite-lived intangible assets primarily related to competitive pressures for a certain marketed product resulting in a reduction of projected cash flows. The impairment of indefinite-lived intangible assets primarily related to revised projections of fair value due to competitive pressures and to a lesser extent product rationalization.

Intangible assets with finite lives are capitalized and are amortized over their estimated useful lives, ranging from 3 to 20 years. As of December 31, 2019, the remaining weighted-average amortization periods for finite-lived intangible assets are as follows:

	Weighted Average Life (Years)
Marketed products	13
Software	6
Other	8

The estimated amortization expense for each of the next five years associated with our finite-lived intangible assets as of December 31, 2019 is as follows:

	2020	2021	2022	2023	2024
Estimated amortization expense	$ 206.2	$ 205.4	$ 203.3	$ 203.0	$ 203.0

Note 12. Property and Equipment

Property and equipment is stated on the basis of cost. Provisions for depreciation of buildings and equipment are computed generally by the straight-line method at rates based on their estimated useful lives (12 to 50 years for buildings and 3 to 25 years for equipment). We review the carrying value of long-lived assets for potential impairment on a periodic basis and whenever events or changes in circumstances indicate the carrying value of an asset may not be recoverable. Impairment is determined by comparing projected undiscounted cash flows to be generated by the asset to its carrying value. If an impairment is identified, a loss is recorded equal to the excess of the asset's net book value over its fair value utilizing a discounted cash flow analysis, and the cost basis is adjusted.

At December 31, property and equipment consisted of the following:

	2019	2018
Land	$ 28.3	$ 27.6
Buildings	608.5	567.2
Equipment	1,109.4	1,025.1
Construction in progress	139.1	181.1
Finance lease asset	0.5	—
	1,885.8	1,801.0
Less accumulated depreciation	(930.5)	(878.6)
Property and equipment, net	$ 955.3	$ 922.4

Depreciation expense related to property and equipment was as follows:

	2019	2018	2017
Depreciation expense	$ 93.7	$ 81.3	$ 79.8

Note 13. Leases

We determine if an arrangement is a lease at inception. We have operating leases for corporate offices, research and development facilities, vehicles, and equipment. Our leases have remaining lease terms of one to 12 years, some of which have options to extend or terminate the leases. Finance leases are included in property and equipment, current portion of long-term debt, and long-term debt in our consolidated balance sheet. Finance leases are not material to our consolidated statements of operations, consolidated balance sheet, or consolidated statement of cash flows. Beginning January 1, 2019, operating leases are included in noncurrent assets, other current liabilities, and other noncurrent liabilities in our consolidated balance sheet.

Right-of-use assets included in noncurrent assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. Right-of-use assets and operating lease liabilities are recognized at commencement date based on the present value of lease payments over the lease term. As most of our leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. We use the implicit rate if it is readily determinable. The right-of-use asset also includes any lease payments made and excludes lease incentives. Our lease terms may include options to extend or terminate the lease when it is reasonably certain and there is a significant economic incentive to exercise that option.

Operating lease expense for right-of-use assets is recognized on a straight-line basis over the lease term. Variable lease payments, which represent lease payments that vary due to changes in facts or circumstances occurring after the commencement date other than the passage of time, are expensed in the period in which the obligation for these payments was incurred.

We elected not to apply the recognition requirements of ASC 842, *Leases*, to short-term leases, which are deemed to be leases with a lease term of 12 months or less. Instead, we recognize lease payments in the consolidated statements of operations on a straight-line basis over the lease term and variable payments in the period in which the obligation for these payments are incurred. We elected this policy for all classes of underlying assets. We elected not to apply the practical expedient related to the separation of lease and non-lease components or the practical expedient which allows entities to use hindsight when determining lease term.

The impact of operating leases to our consolidated financial statements for the year ended December 31, 2019 was as follows:

	2019
Lease cost	
Operating lease cost	$ 26.1
Short-term lease cost	0.5
Variable lease cost	2.5
Total lease cost [1]	$ 29.1
Other information	
Operating cash outflows from operating leases	$ 24.0
Right-of-use assets obtained in exchange for new operating lease liabilities	20.1
Weighted-average remaining lease term - operating leases	5.1 years
Weighted-average discount rate - operating leases	3.6 %

[1] Rental expense for all leases was $47.5 million and $47.1 million for the years ended December 31, 2018 and 2017, respectively.

Supplemental balance sheet information related to our operating leases is as follows:

	Balance Sheet Classification	December 31, 2019
Right-of-use assets	Other noncurrent assets	$ 85.0
Current operating lease liabilities	Other current liabilities	23.7
Non-current operating lease liabilities	Other noncurrent liabilities	61.7

As of December 31, 2019, the annual minimum lease payments of our operating lease liabilities were as follows:

Year 1	$ 26.0
Year 2	20.3
Year 3	11.9
Year 4	9.7
Year 5	7.2
After Year 5	16.5
Total lease payments	91.6
Less imputed interest	(6.2)
Total	$ 85.4

Note 14. Stock-Based Compensation

Elanco Stock Compensation Plans

The 2018 Elanco Stock Plan (Plan) provides long-term incentives to attract, motivate and retain employees and non-employee directors. The types of stock-based awards available include, but are not limited to, restricted stock units (RSUs), performance-based awards (PAs), and stock options. Our practices and policies specify that stock-based compensation awards are approved by the Compensation Committee of the Board of Directors. The Plan, initially authorized the issuance of up to 5.5 million common shares (subject to adjustments for certain events). Pursuant to the terms of the Plan, an additional 5.5 million common shares became automatically available for all awards upon completion of the Separation. The total number of shares authorized for stock-based compensation awards is 11 million as of December 31, 2019.

Stock-Based Compensation Expense

Components of stock-based compensation expense and related tax benefit for the years ended December 31 are as follows:

	2019	2018
Stock-based compensation expense [1]	$ 40.7	$ 1.8
Related tax benefit	(9.8)	(0.4)

[1] We include the impact of estimated forfeitures when determining stock-based compensation expense.

Restricted Stock Units

RSUs are granted to certain employees and are settled in shares of our common stock. RSU shares are accounted for at fair value based upon the closing stock price on the date of the grant. The corresponding expense is amortized over the vesting period, typically three years. The number of shares ultimately issued for the RSU program remains constant with the exception of forfeitures.

RSUs granted to employees for the years ended December 31 are as follows:

(Units in millions)	2019	2018
Granted units	2.9	0.2
Weighted-average fair value	$ 31.22	$ 31.09

Changes in nonvested portion of RSUs for 2019 is summarized below:

(Shares in millions)	Shares	Weighted-Average Fair Value
Nonvested units at January 1, 2019	0.2	$ 31.09
Granted	2.9	31.22
Vested	(0.8)	31.33
Forfeited	(0.1)	31.25
Nonvested units at December 31, 2019	2.2	30.42

As of December 31, 2019, the total remaining unrecognized stock-based compensation expense related to nonvested RSUs was $25.5 million, which will amortize over the weighted-average remaining requisite service period of 19 months.

Performance-Based Awards

PAs, which are granted to eligible officers and management, represent the right to receive a share of our common stock and are subject to forfeiture until restrictions lapse (including continued employment through the end of the vesting period and achievement of certain pre-established metrics). Payouts can vary depending on achievement. PA shares are accounted for at fair value based upon the closing stock price on the date of grant and fully vest at the end of the measurement period.

PA activity during the year ended December 31, 2019 is summarized below:

(Shares in millions)	Shares	Weighted-Average Fair Value
Nonvested awards at January 1, 2019	—	$ —
Granted	0.8	25.75
Vested	—	—
Forfeited	—	—
Nonvested awards at December 31, 2019	0.8	25.75

As of December 31, 2019, the total remaining unrecognized stock-based compensation expense related to nonvested PAs was $11.0 million, which will amortize over the weighted-average remaining requisite service period of 13 months.

Stock Option Program

Stock options represent the right to purchase shares of our common stock within a specified period of time at a specified price. The exercise price for a stock option will be not less than 100% of the fair market value of the common stock on the date of the grant.

Stock options are accounted for using a fair-value based method at the date of the grant in the consolidated statement of operations. The values determined through this fair-value-based method generally are amortized on a straight-line basis over the vesting term.

Stock options were granted in 2018 to our officers, management and board members at exercise prices equal to the fair market value of our stock at the date of the grant. Options fully vest 3 years from the grant date and have a term of 10 years. No stock options were granted in 2019.

The fair-value-based method for valuing each Elanco stock option grant on the grant date uses the Black-Scholes-Merton option-pricing model, which incorporates a number of valuation assumptions noted in the following table, shown at their weighted-average values for the year ended December 31:

	2018
Expected dividend yield[1]	0.70 %
Risk-free interest rate[2]	3.07 %
Expected stock price volatility[3]	28.25 %
Expected term[4] (years)	6.5

[1] Determined using the expected quarterly dividend divided by the available three-month average stock price as of the valuation date, annualized and continuously compounded.

[2] Determined using the term-matched, zero-coupon risk-free rate from the Treasury Constant Maturity yield curve, continuously compounded

[3] Determined using a leverage-adjusted historical volatility of peer companies

[4] Determined using SEC safe harbor approach, based on a 3-year cliff vesting schedule and 10-year contractual term.

Stock option activity during the year ended December 31, 2019 is summarized below:

(Shares in millions)	Shares of Common Stock Attributable to Options	Weighted-Average Exercise Price of Options	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value[1]
Outstanding at January 1, 2019	0.4	$ 31.61		
Granted	—	—		
Exercised	(0.1)	31.61		
Forfeited or expired	—	—		
Outstanding at December 31, 2019	0.3	$ 31.61	8.8	$ —
Exercisable at December 31, 2019	—	—	—	—

[1] Market price of underlying Elanco common stock less exercise price. Options do not have an intrinsic value unless the market price exceeds the exercise price.

As of December 31, 2019, there was approximately $2.2 million of unrecognized compensation costs related to nonvested stock options, which will be recognized over an expected remaining weighted-average period of 22 months.

The following table summarizes data related to stock option activity:

	2019	2018
Weighted-average grant date fair value per stock option	$ 10.21	$ 10.21
Aggregate intrinsic value on exercise	0.10	—
Cash received upon exercise	1.9	—

Treatment of Lilly Equity Awards

Prior to the Separation, our employees participated in Lilly stock-based compensation plans, the cost of which was allocated to us and recorded in costs of sales, research and development, and marketing, selling and administrative expense in the consolidated and combined statements of operations. The cost of such plans related to our employees was $5.1 million, $26.0 million and $25.0 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Following the IPO and until completion of the exchange offer, the equity awards previously granted to our employees by Lilly continued to vest with Elanco service counting toward the Lilly award's vesting provisions. On March 11, 2019, Elanco completed the exchange offer whereby Lilly disposed of all of its shares of Elanco common stock owned by Lilly. As a result, our employees' unvested Lilly equity awards were forfeited and replaced with Elanco RSUs (replacement awards), which were equivalent in value and vest on the same date as their forfeited Lilly equity awards. These replacement awards are included in the RSU activity described above.

Note 15. Income Taxes

Our income taxes for the year ended December 31, 2019 reflect the results on a stand-alone basis independent of Lilly, except for the period during which we were included in a combined tax return until full separation. In the jurisdictions in which we were included in a combined tax return, our income taxes were determined based on the tax matters agreement between us and Lilly. During the periods presented in the consolidated and combined financial statements for the year ended December 31, 2018 and December 31, 2017, our operations were generally included in the tax grouping of other Lilly entities within the respective entity's tax jurisdiction; however, in certain jurisdictions, we filed separate tax returns. Prior to the Separation, the income tax expense included in these financial statements has been calculated using the separate return basis as if Elanco filed separate tax returns.

2017 Tax Act

In 2017, the U.S. enacted the Tax Cuts and Jobs Act (2017 Tax Act), which significantly revised U.S. tax law. Guidance related to the 2017 Tax Act, including Notices, Proposed Regulations, and Final Regulations, has been issued, and we expect additional guidance will be issued in 2020. This additional guidance could materially impact our assumptions and estimates used to record our U.S. federal and state income tax expense resulting from the 2017 Tax Act.

We are included in Lilly's U.S. tax examinations by the Internal Revenue Service through the full separation date of March 11, 2019. Pursuant to the tax matters agreement we executed with Lilly in connection with the IPO, the potential liabilities or potential refunds attributable to pre-IPO periods in which Elanco was included in a Lilly consolidated or combined tax return remain with Lilly. Certain matters of Lilly's U.S. examination of tax years 2013 - 2015 effectively settled during the second quarter of 2019 and the resulting adjustments will not require any cash tax payments by Elanco. During the fourth quarter of 2019, certain matters for tax year 2015 were effectively settled upon conclusion of the IRS' examination and the resulting adjustments will not require any cash tax payments by Elanco. In the fourth quarter of 2019, the IRS began its examination of tax years 2016 - 2018.

Deferred taxes are recognized for the future tax effects of temporary differences between financial and income tax reporting based on enacted tax laws and rates. We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate resolution.

Following is the composition of income (loss) before income tax expense (benefit):

	2019	2018	2017
Federal	$ 55.5	$ 12.2	$ (133.2)
Foreign	22.7	101.9	(99.4)
Income (loss) before income taxes	$ 78.2	$ 114.1	$ (232.6)

Following is the composition of income tax expense (benefit):

	2019	2018	2017
Current:			
Federal	$ (5.5)	$ 45.1	$ —
Foreign	13.4	45.5	91.6
State	2.3	(2.3)	(0.1)
Total current tax expense	10.2	88.3	91.5
Deferred:			
Federal	14.5	(56.8)	42.6
Foreign	(7.5)	(5.6)	(16.6)
State	(6.9)	1.7	(6.3)
2017 Tax Act	—	—	(33.1)
Total deferred tax expense (benefit)	0.1	(60.7)	(13.4)
Income taxes	$ 10.3	$ 27.6	$ 78.1

Significant components of our deferred tax assets and liabilities as of December 31 are as follows:

	2019	2018
Deferred tax assets:		
Compensation and benefits	$ 25.3	$ 32.2
Accruals and reserves	13.7	26.9
Tax credit carryovers	12.8	6.2
Tax loss carryovers	69.5	17.4
Inventories	20.1	18.3
Restructuring and other reserves	24.6	6.0
Operating lease liabilities	20.5	—
Other	2.3	20.1
Total gross deferred tax assets	188.8	127.1
Valuation allowances	(32.7)	(21.4)
Total deferred tax assets	156.1	105.7
Deferred tax liabilities:		
Right-of-use assets	(20.5)	—
Intangibles	(134.5)	(130.8)
Property and equipment	(56.4)	(50.8)
Other	(0.6)	(2.7)
Total deferred tax liabilities	(212.0)	(184.3)
Deferred tax liabilities - net	$ (55.9)	$ (78.6)

Deferred tax assets and liabilities reflect the impact of re-measurement resulting from the 2017 Tax Act.

The deferred tax assets and related valuation allowance amounts for U.S. federal and state net operating losses and tax credits shown above have been reduced for differences between financial reporting and tax return filings.

At December 31, 2019, we have tax credit carryovers of $14.0 million available to reduce future income taxes. The amount is comprised of foreign, U.S. federal and state credits. The foreign credits total $5.1 million and if unused, will begin to expire in 2030. The U.S. federal credits total $3.2 million and if unused, will begin to expire in 2030. The state credits total $5.7 million and if unused, will begin to expire in 2020. The U.S. federal and state credits are subject to a full valuation allowance.

At December 31, 2019, we had net operating loss carryovers and other carryovers for foreign, U.S. federal and state income tax purposes of $348.4 million: $285.5 million will expire between 2020 and 2039; and $62.9 million of the carryovers have an indefinite carryforward period. Net operating losses and other carryovers for foreign and state income tax purposes are subject to a partial valuation allowance.

The movements in the valuation allowance are as follows:

	2019	2018
January 1	$ (21.4)	$ (127.7)
Adjustment related to Separation	—	110.4
January 1	(21.4)	(17.3)
Increase [1]	(23.2)	(5.8)
Release	11.9	1.7
December 31	$ (32.7)	$ (21.4)

[1] The increase in the valuation allowance during 2019 is primarily attributable to the acquisition of Aratana Therapeutics, Inc. and Prevtec Microbia Inc. (see Note 6: Acquisitions).

Prior to the IPO, we prepared the income tax amounts and balances based upon a separate return methodology, as if we were separate taxpayers from Lilly. As a result, certain tax credits and net operating loss carryovers are not available for use in future periods as they were used in Lilly consolidated or combined tax return filings. Accordingly, as a result of the Separation, the tax credit and net operating loss carryovers and related valuation allowance have been adjusted to reflect the balance after Separation. These adjustments had no impact on income tax expense in the consolidated and combined financial statements. The separation entries related to the valuation allowance were offset by $133.7 million, prior to tax effect, of separation entries related to the removal of the net operating losses.

The 2017 Tax Act introduced international tax provisions that significantly change the U.S. taxation of foreign earnings. At December 31, 2019, no U.S. taxes or foreign withholding taxes have been accrued with respect to the $496.7 million in unremitted earnings of our foreign subsidiaries as they are considered indefinitely reinvested for continued use in our foreign operations. It is not practicable to determine the unrecognized deferred tax liability related to these earnings.

Cash payments of income taxes were as follows:

	2019	2018	2017
Cash payments of income taxes	$ 42.5	$ 26.9	$ 35.7

The following is a reconciliation of the income tax expense (benefit) applying the U.S. federal statutory rate to income before income taxes to reported income tax expense:

	2019	2018	2017
Income tax at the U.S. federal statutory tax rate	$ 16.4	$ 24.0	$ (81.4)
Add (deduct):			
Taxation of international operations	20.7	20.5	59.8
State taxes	2.9	4.4	5.4
Income tax credits	(9.8)	(17.3)	(1.8)
Non-deductible employee compensation	4.2	(1.9)	—
IPO and separation costs	—	2.3	—
Other permanent adjustments	(4.2)	(1.0)	0.8
Change in uncertain tax positions	(14.7)	(1.7)	6.2
Change in valuation allowance	(5.2)	(1.7)	122.2
2017 Tax Act	—	—	(33.1)
Income taxes	$ 10.3	$ 27.6	$ 78.1

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits is as follows:

	2019	2018	2017
Beginning balance at January 1	$ 14.7	$ 29.6	$ 25.7
Adjustments related to Separation	(2.2)	(17.6)	—
Adjusted beginning balance at January 1	12.5	12.0	25.7
Additions based on tax positions related to the current year	1.3	2.2	7.9
Changes for tax positions of prior years	(1.2)	4.0	—
Settlements	(4.3)	(3.0)	(4.0)
Changes related to the impact of foreign currency translation	(0.1)	(0.5)	—
Ending balance at December 31	$ 8.2	$ 14.7	$ 29.6

The total amount of unrecognized tax benefits that, if recognized, would affect tax expense was $8.2 million and $12.8 million at December 31, 2019 and 2018, respectively. There were $1.9 million of 2018 unrecognized tax benefits which related to temporary differences which did not impact the effective tax rate. Adjustments related to the Separation represent unrecognized tax benefits assumed by Lilly in the Separation and have no impact on income tax expense in the consolidated and combined financial statements.

We file income tax returns in the U.S. federal jurisdiction and various state, local and non-U.S. jurisdictions. Prior to full separation, certain of these income tax returns were filed on a consolidated or combined basis with Lilly.

We recognize both accrued interest and penalties related to unrecognized tax benefits in income tax expense (benefit). We recognized income tax expense (benefit) related to interest and penalties as follows:

	2019	2018	2017
Income tax expense (benefit)	$ (10.6)	$ (2.5)	$ 2.5

At December 31, 2019 and 2018, our accruals for the payment of interest and penalties totaled $3.0 million and $13.3 million, respectively.

Note 16. Commitments and Contingencies

Legal matters

We are party to various legal actions in the normal course of business. In determining whether a pending matter is significant for financial reporting and disclosure purposes, we consider both quantitative and qualitative factors in order to assess materiality. We accrue for certain liability claims to the extent we can formulate a reasonable estimate of their costs and there is a reasonable probability of incurring significant costs or expenses. At December 31, 2019 and December 31, 2018, we had no liabilities established related to litigation as there were no significant claims which were probable and estimable. We have not historically had any significant litigation expense and are not currently subject to a significant claim.

Bayer Animal Health acquisition financing

In connection with our pending acquisition of the animal health business of Bayer as discussed in Note 6: Acquisitions, in August 2019, we entered into a commitment letter that provides for financing consisting of up to $750 million in a revolving facility, $3.0 billion in a term facility, and $2.75 billion in a senior secured bridge facility. In connection with the financing commitment letter, we will incur fixed commitment fees of $40.4 million that will become due and payable upon the closing of the pending acquisition or the termination of the Purchase Agreement with Bayer. These fees have not been recorded on the consolidated balance sheet as of December 31, 2019. See Note 22: Subsequent Events for updates regarding financing secured after the balance sheet date.

Note 17. Geographic Information

We operate as a single operating segment engaged in the development, manufacturing, marketing and sales of animal health products worldwide for both food animals and companion animals. Consistent with our operational structure, our President and Chief Executive Officer (CEO), as the chief operating decision maker, makes resource allocation and business process decisions globally across our consolidated business. Strategic decisions are managed globally with global functional leaders responsible for determining significant costs/investments and with regional leaders responsible for overseeing the execution of the global strategy. Our global research and development organization is responsible for development of new products. Our manufacturing organization is responsible for the manufacturing and supply of products and for the optimization of our supply chain. Regional leaders are responsible for the distribution and sale of our products and for local direct costs. The business is also supported by global corporate staff functions. Managing and allocating resources at the global corporate level enables our CEO to assess the overall level of resources available and how to best deploy these resources across functions, product types, regional commercial organizations and research and development projects in line with our overarching long-term corporate-wide strategic goals, rather than on a product or geographic basis. Consistent with this decision-making process, our CEO uses consolidated, single-segment financial information for purposes of evaluating performance, allocating resources, setting incentive compensation targets, as well as forecasting future period financial results.

Our products include *Rumensin*, *Optaflexx*, *Denagard*, *Tylan*, *Maxiban* and other products for livestock and poultry, as well as *Trifexis*, *Interceptor*, *Comfortis*, *Galliprant* and other products for companion animals.

We have a single customer that accounted for 12.9%, 11.9% and 12.9% of revenue for the years ended December 31, 2019, 2018 and 2017, respectively. The product sales resulted in accounts receivable with this customer of $90.5 million and $96.4 million as of December 31, 2019 and 2018, respectively.

We are exposed to the risk of changes in social, political and economic conditions inherent in foreign operations and our results of operations and the value of our foreign assets are affected by fluctuations in foreign currency exchange rates.

Selected geographic area information was as follows:

	2019	2018	2017
Revenue — to unaffiliated customers[1]:			
United States	$ 1,524.7	$ 1,483.2	$ 1,373.0
International	1,546.3	1,583.6	1,516.0
Revenue	$ 3,071.0	$ 3,066.8	$ 2,889.0
Long-lived assets[2]:			
United States	$ 709.8	$ 602.6	$ 604.7
United Kingdom	192.6	187.5	204.4
Other foreign countries	244.7	195.8	190.2
Long-lived assets	$ 1,147.1	$ 985.9	$ 999.3

(1) Revenue is attributed to the countries based on the location of the customer.

(2) Long-lived assets consist of property and equipment, net, and certain noncurrent assets, including right-of-use assets.

Note 18. Retirement Benefits

Pension Plans

There are certain defined benefit pension plans that our employees participate in that are either dedicated to our employees or where the plan assets and liabilities that relate to our employees were legally required to transfer to Elanco at the time of our separation from Lilly. The plans in Switzerland represent approximately 80% of our global benefit obligation. We use a measurement date of December 31 to develop the change in benefit obligation, change in plan assets, funded status and amounts recognized in the consolidated balance sheets at December 31 for our defined benefit pension plans, which were as follows:

	2019	2018
Change in benefit obligation:		
Benefit obligation at beginning of year	$ 234.8	$ 258.6
Service cost	9.3	11.3
Interest cost	2.2	2.5
Actuarial loss (gain)	56.4	(44.7)
Benefits paid	(5.5)	(2.7)
Plan amendments	(74.7)	—
Foreign currency exchange rate changes and other adjustments	1.9	9.8
Benefit obligation at end of year	224.4	234.8

Change in plan assets:		
Fair value of plan assets at beginning of year	131.6	131.5
Actual return on plan assets	15.3	(10.2)
Employer contribution	5.3	5.7
Benefits paid	(5.5)	(2.7)
Foreign currency exchange rate changes and other adjustments	2.0	7.3
Fair value of plan assets at end of year	148.7	131.6
Funded status	(75.7)	(103.2)
Unrecognized net actuarial loss	45.9	0.5
Unrecognized prior service cost	(74.1)	0.8
Net amount recognized	$ (103.9)	$ (101.9)
Amounts recognized in the consolidated balance sheet consisted of:		
Noncurrent assets	$ 2.1	$ 2.3
Other current liabilities	(0.3)	(0.3)
Accrued retirement benefits	(77.5)	(105.2)
Accumulated other comprehensive (income) loss before income taxes	(28.2)	1.3
Net amount recognized	$ (103.9)	$ (101.9)

The unrecognized net actuarial loss and unrecognized prior service cost for these pension plans have not yet been recognized in net periodic pension costs and are included in accumulated other comprehensive loss at December 31, 2019.

Pension plan amendment

In September 2019, we signed agreements under which certain defined pension benefits in Switzerland transferred from the previous Lilly pension fund as of December 31, 2019 to a new Elanco pension fund effective January 1, 2020. This resulted in a plan amendment during the period. The plan amendment decreased our pension benefit obligation by approximately $21 million, consisting primarily of a decrease in prior service costs of approximately $75 million, partially offset by a loss of approximately $54 million driven by changes in certain assumptions. The net impact to accumulated other comprehensive income was a gain of approximately $21 million, which will be amortized over the average remaining service period of employees expected to receive benefits under the plans.

We do not expect any plan assets to be returned to us in 2020.

The following represents our weighted-average assumptions related to these pension plans as of December 31:

(Percents)	2019	2018	2017
Discount rate for benefit obligation	0.6%	1.5%	1.1%
Discount rate for net benefit costs	1.4	1.1	1.0
Rate of compensation increase for benefit obligation	2.3	2.2	2.1
Rate of compensation increase for net benefit costs	2.2	2.1	3.1
Expected return on plan assets for net benefit costs	4.0	4.0	4.4

We annually evaluate the expected return on the plan assets in these pension plans. In evaluating the expected rate of return, we consider many factors, with a primary analysis of current and projected market conditions; asset returns and asset allocations; and the views of leading financial advisers and economists. We may also review our historical assumptions compared with actual results, as well as the assumptions and trend rates utilized by similar plans, where applicable.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid as follows:

	2020	2021	2022	2023	2024	2025-2029
Benefit payments	$ 7.9	$ 8.6	$ 8.4	$ 8.0	$ 8.1	$ 48.4

Amounts relating to these pension plans with projected benefit obligations in excess of plan assets were as follows at December 31:

	2019	2018
Projected benefit obligation	$ 218.2	$ 229.2
Fair value of plan assets	140.3	124.1

Amounts relating to these defined benefit pension plans with accumulated benefit obligations in excess of plan assets were as follows at December 31:

	2019	2018
Accumulated benefit obligation	$ 203.9	$ 194.3
Fair value of plan assets	140.3	124.1

The total accumulated benefit obligation for these defined benefit pension plans was $210.1 million and $199.9 million at December 31, 2019 and 2018, respectively.

Net pension expense related to these plans included the following components:

	2019	2018	2017
Service cost	$ 9.3	$ 11.3	$ 10.5
Interest cost	2.2	2.5	1.8
Expected return on plan assets	(4.2)	(6.2)	(2.4)
Amortization of prior service cost	(1.7)	0.2	0.1
Amortization of net actuarial loss	1.1	1.9	1.4
Other	—	0.5	—
Net pension expense	$ 6.7	$ 10.2	$ 11.4

The following represents the amounts recognized for these plans in other comprehensive loss:

	2019	2018	2017
Actuarial gain (loss) arising during period	$ (45.6)	$ 28.3	$ (17.0)
Prior year service cost during the year	74.7	—	—
Amortization of prior service cost included in net loss	(1.7)	0.2	0.1
Amortization of net actuarial loss included in net loss	1.1	1.9	1.4
Foreign currency exchange rate changes and other	1.0	(1.9)	3.5
Total other comprehensive income (loss) during period	$ 29.5	$ 28.5	$ (12.0)

Benefit Plan Investments

Our benefit plan investment policies are set with specific consideration of return and risk requirements in relationship to the respective liabilities. Our plan assets in our Switzerland pension plans represent approximately 87% of our plan assets for these pension plans. Given the long-term nature of our liabilities, these plans have the flexibility to manage an above-average degree of risk in the asset portfolios. At the investment-policy level, there are no specifically prohibited investments. However, within individual investment manager mandates, restrictions and limitations are contractually set to align with our investment objectives, ensure risk control and limit concentrations.

We manage our portfolio to minimize concentration of risk by allocating funds within asset categories. In addition, within a category we use different managers with various management objectives to eliminate any significant concentration of risk.

The investment strategy is to diversify in five major categories with a designated percentage invested in each including 5% liquidity, 36% fixed income securities, 32% equity securities, a share of 21% in real estate and 6% in other alternative investments. Each category is diversified and comprised of the following:

- Liquidity - cash and cash equivalents
- Fixed-income securities - Swiss bonds, global aggregates, global aggregate corporates, emerging market local currencies and emerging markets hard currencies.
- Equity investments - Swiss equities, global equities, low volatility equities (to reduce risk), and emerging market equities.
- Real estate - Swiss real estate and global real estate funds.
- Other investments - represents primarily investments in senior secured loans.

We determine the fair value of the investments based on a market approach using quoted market values, significant other observable inputs for identical or comparable assets or liabilities, or discounted cash flow analysis for all investments except hedge funds, private equity-like investments and real estate.

We determine the fair value of investments using the value reported by the partnership, adjusted for known cash flows and significant events through our reporting date. Values provided by the partnerships are primarily based on analysis of and judgments about the underlying investments. Inputs to these valuations include underlying NAVs, discounted cash flow valuations, comparable market valuations, and may also include adjustments for currency, credit, liquidity and other risks as applicable. The vast majority of these private partnerships provide us with annual financial statements including their compliance with fair valuation procedures consistent with applicable accounting standards.

We determine the fair value of real estate investments based on the NAV provided by the fund manager. These NAVs are developed with inputs including discounted cash flow, independent appraisal and market comparable analyses.

The fair values of these pension plan assets as of December 31, 2019 by asset category are as follows:

		Fair Value Measurements Using			
Asset Class	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments Valued at Net Asset Value[1]
Cash and cash equivalents [2]	$ 129.0	$ 129.0	$ —	$ —	$ —
Public equity securities	3.8	1.9	—	—	1.9
Fixed income:					
Developed markets	2.5	2.1	—	—	0.4
Emerging markets	9.1	8.8	0.3	—	—
Other	4.3	0.9	3.4	—	—
Total	$ 148.7	$ 142.7	$ 3.7	$ —	$ 2.3

[1] Certain investments that are measured at fair value using the NAV per share (or its equivalent) as a practical expedient have not been classified in the fair value hierarchy.

[2] Switzerland plan assets were exiting the Lilly pension plan as of December 31, 2019. As a result, assets were converted to cash and transferred to the new Elanco pension fund effective January 1, 2020.

No material transfers between Level 1, Level 2, or Level 3 occurred during the year ended December 31, 2019. The activity in the Level 3 investments during the year ended December 31, 2019 was not material.

The fair values of these pension plan assets as of December 31, 2018 by asset category are as follows:

		Fair Value Measurements Using			
Asset Class	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Investments Valued at Net Asset Value[1]
Public equity securities	$ 2.2	$ 1.0	$ —	$ —	$ 1.2
Fixed income:					
Developed markets	29.9	7.8	0.1	—	22.0
Emerging markets	6.4	0.7	0.4	—	5.3
Private alternative investments:					
Hedge funds	6.6	—	—	—	6.6
Equity-like funds	49.0	—	—	—	49.0
Real estate	20.1	0.1	—	—	20.0
Other	17.4	0.3	2.3	—	14.8
Total	$ 131.6	$ 9.9	$ 2.8	$ —	$ 118.9

[1] Certain investments that are measured at fair value using the NAV per share (or its equivalent) as a practical expedient have not been classified in the fair value hierarchy.

No material transfers between Level 1, Level 2, or Level 3 occurred during the year ended December 31, 2018. The activity in the Level 3 investments during the year ended December 31, 2018 was not material.

Contributions of $6.5 million to these pension plans are expected in 2020.

Retiree Health Benefit Plan

There are two retiree health benefit plan where the plan liabilities that relate to our employees were legally required to transfer to Elanco at the time of separation from Lilly. The accrued retirement benefits for these plans were $4.7 million and $3.9 million as of December 31, 2019 and 2018, respectively.

Defined Contribution Plans

Elanco has defined contribution savings plans that include certain employees worldwide. The purpose of these plans is generally to provide additional financial security during retirement by providing employees with an incentive to save. Our contributions to the plans are based on our employee contributions and the level of our match. Expenses related to our employees under the plans totaled $32.2 million, $20.9 million and $22.1 million for the years ended December 31, 2019, 2018, and 2017, respectively. The expense for our 401(k) plan increased in 2019 primarily due to an increase our match and participant headcount.

Treatment of Lilly Plans

Prior to the Separation, our employees participated in defined benefit pension and other postretirement plans sponsored by Lilly, which include participants of Lilly's other business. Such plans were accounted for as multiemployer plans in the combined financial statements and as a result, no asset or liability was recorded by us to recognize the funded status of these plans.

We recorded expense of $4.0 million and $73.7 million for the years ended December 31, 2018 and 2017, respectively, relating to our employees' participation in Lilly sponsored plans. The expense recorded in 2017 included $67.0 million related to a curtailment loss and special termination benefits for early retirement incentives offered by Lilly to our employees as part of a voluntary early retirement program for the U.S. plan and which has been recorded in asset impairment, restructuring and other special charges.

Note 19. Earnings Per Share

Basic Earnings Per Share

As discussed in Note 1, Elanco Parent was formed for the purpose of facilitating the IPO. Lilly held all shares of Elanco Parent from the time of formation until the IPO.

Prior to IPO, there were an aggregate of 293,290,000 shares of our common stock held by Lilly (which represents the 100 shares held by Lilly prior to giving effect to the 2,932,900-for-1 stock split that occurred on September 19, 2018). In connection with the completion of the IPO, an additional 72,335,000 shares of our common stock were issued. Earnings per share was calculated based on the assumptions that the shares held by Lilly were outstanding for all periods prior to IPO.

We compute basic earnings per share by dividing net earnings available to common shareholders by the actual weighted average number of common shares outstanding for the reporting period. For the year ended December 31, 2019, weighted average number of common shares outstanding used to calculate basic earnings per share includes the impact of approximately 7.3 million shares that were issued during the period in connection with the acquisition of Aratana. See Note 6: Acquisitions for further discussion.

Diluted Earnings Per Share

Elanco has common stock equivalents related to certain equity awards in stock-based compensation arrangements. Diluted earnings per share reflects the potential dilution that could occur if holders of unvested RSUs, PAs and stock options converted their holdings into common stock. The weighted average number of potentially dilutive shares outstanding is calculated using the treasury stock method.

Weighted average diluted shares outstanding included common stock equivalents of 1.3 million for 2019. The dilutive impact for 2018 was immaterial.

Potential common shares that would have the effect of increasing diluted earnings per share are considered to be anti-dilutive and as such, these shares are not included in the calculation of diluted earnings per share. For the year ended December 31, 2019, approximately 0.1 million shares of potential common shares were excluded from the calculation of diluted earnings per share because their effect was anti-dilutive.

Note 20. Related Party Agreements and Transactions

Transactions with Lilly Subsequent to Separation and Related to the Separation

Amounts due from/(due to) Lilly in connection with the Separation and agreed upon services as of December 31 were as follows:

	2019	2018
TSA	$ 10.5	$ (28.0)
Other activities	(15.8)	(38.0)
Local country asset purchases	(11.1)	(202.7)
Total receivable from/(payable to) Lilly	$ (16.4)	$ (268.7)

As described in Note 1, we completed an IPO in September 2018 and Lilly fully divested all ownership of Elanco in March 2019. In connection with the Separation, we entered into various agreements with Lilly related to the form of our separation and certain ongoing activities that will continue for a period of time. These included, among others, a master separation agreement (MSA), a TSA and a tax matters agreement. In addition, there was a portion of our operations for which the legal transfer of our net assets did not occur prior to the Separation due to certain regulatory requirements in each of these countries.

Transitional Services Agreement (TSA)

Historically, Lilly has provided us significant shared services and resources related to corporate functions such as executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information

technology and investor relations, which we refer to collectively as the "Lilly Services." Under the terms of the TSA, we will be able to use Lilly Services for a fixed term established on a service-by-service basis. We will pay Lilly mutually agreed-upon fees for the Lilly Services provided under the TSA, which will be based on Lilly's cost (including third-party costs) of providing the Lilly Services through March 31, 2021, and subject to a mark-up of 7% thereafter, with additional inflation-based escalation beginning January 1, 2022. The fees under the TSA became payable for all periods beginning after October 1, 2018.

Separation Activities

Subsequent to our IPO, there continue to be transactions between us and Lilly related primarily to the completion of the local country asset purchases and finalization of assets and liabilities associated with the legal separation from Lilly, combined income tax returns and the impact of the tax matters agreement, historical Lilly retirement benefits, and centralized cash management. The net impact of these activities of $51.2 million for the year ended December 31, 2019 has been reflected as Separation Activities within shareholders' equity. The most significant of these activities includes the finalization of the local country valuation of business and the resulting impact on deferred tax assets and the impact of combined tax returns.

Other Activities

We continue to share certain services and back office functions with Lilly, which in certain instances result in Lilly paying costs for Elanco (e.g., utilities, local country operating costs, etc.) that are then passed through to Elanco for reimbursement. These amounts are included in cash flows from operating activities in our consolidated and combined statements of cash flows. In addition, we operate through a single treasury settlement process and prior to the local country asset purchases (as described below) continued to transact through Lilly's processes in certain instances. As a result of these activities, there were certain amounts of financing that occurred between Lilly and Elanco during the year ended December 31, 2019. These amounts are included in cash flows from financing activities in our consolidated and combined statements of cash flows.

Local Country Asset Purchases

The legal transfer of certain of our net assets did not occur prior to the Separation due to certain regulatory requirements in each of these countries. The related assets, liabilities, and results of operations have been reported in our consolidated and combined financial statements, as we are responsible for the business activities conducted by Lilly on our behalf and are subject to the risks and entitled to the benefits generated by these operations and assets under the terms of the MSA. We held restricted cash, and the associated payable to Lilly, at the date of Separation to fund the acquisition of these assets. As of December 31, 2019, the majority of these assets have been legally acquired and the remainder are expected to be purchased during 2020. Restricted cash and Payable to Lilly of $11.1 million are recorded in the consolidated balance sheet for the remainder of the assets expected to be purchased by the end of 2020.

Intellectual Property and Technology License Agreement.

We entered into an intellectual property and technology license agreement with Lilly immediately prior to the completion of the IPO. Under the intellectual property and technology license agreement, Lilly granted Elanco an exclusive, perpetual license to exploit products in the animal health field that utilize or use certain of Lilly's intellectual property (excluding trademarks). In addition, Lilly granted Elanco non-exclusive, non-sublicensable license to screen certain compounds in Lilly's compound libraries to exploit products in the animal use certain of Lilly's intellectual property. This screening license has an initial term of two years, subject to three one-year extensions, each of which requires Lilly's consent.

We also entered into a tax matters agreement (TMA), an employee matters agreement, a toll manufacturing and supply agreement and a registration rights agreement with Lilly in connection with the Separation.

Our consolidated and combined financial statement of operations includes revenue related to a toll manufacturing agreement of $17.8 million and $7.0 million for the years ended December 31, 2019 and 2018, respectively. Also included are approximately $93.7 million and $28.1 million related to TSA charges for 2019 and 2018, respectively.

Transactions with Lilly Prior to Separation

Prior to the IPO, we did not operate as a standalone business and had various relationships with Lilly whereby Lilly provided services to us. The impact on our historical combined financial statements includes the following:

Transfers to/from Lilly, net

As discussed in Note 2: Basis of Presentation, net parent company investment is primarily impacted by contributions from Lilly, which are the result of treasury activity and net funding provided by or distributed to Lilly. For the years ended December 31, 2018 and 2017, net transfers (to)/from Lilly were $(226.3) million and $873.3 million, respectively. The most significant activity impacting the 2017 transfer was the financing by Lilly of our acquisition in the amount of $882.1 million for the acquisition of BIVIVP as described in Note 6: Acquisitions. Other activities that impacted the net transfers (to)/from Lilly include corporate overhead and other allocations, income taxes, retirement benefits, and centralized cash management.

Corporate Overhead and Other Allocations

Prior to full separation, Lilly provided us certain services, including executive oversight, treasury, legal, finance, human resources, tax, internal audit, financial reporting, information technology and investor relations. We provide Lilly certain services related to manufacturing support. Our financial statements reflect an allocation of these costs. When specific identification is not practicable, the remainder have been allocated primarily on a proportional cost method on a basis of revenue or headcount.

The allocations of services from Lilly, prior to IPO, to us were reflected as follows in the combined statements of operations:

	2018[1]	2017
Cost of sales	$ 21.8	$ 31.8
Research and development	2.2	2.8
Marketing, selling and administrative	81.2	117.1
Total	$ 105.2	$ 151.7

(1) Through September 30, 2018

There were no allocations from Lilly to us reflected in the consolidated and combined statement of operations for the year ended December 31, 2019.

We provided Lilly certain services related to manufacturing support. Allocations of manufacturing support from us to Lilly were $3.7 million and $6.2 million for the years ended December 31, 2018 and 2017, respectively, which reduced the cost of sales in the consolidated and combined statements of operations.

The financial information herein may not necessarily reflect our consolidated financial position, results of operations and cash flows in the future or what they would have been if we had been a separate, standalone entity during the periods presented. Management believes that the methods used to allocate expenses are reasonable.

Stock-based Compensation

As discussed in Note 14: Stock-based Compensation, prior to full separation, our employees participated in Lilly stock-based compensation plans, the costs of which were allocated to us and recorded in cost of sales, research and development, and marketing, selling and administrative expenses in the consolidated and combined statements of operations. The costs of such plans related to our employees were $5.1 million, $26.0 million and $25.0 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Retirement Benefits

As discussed in Note 18: Retirement Benefits, prior to full separation, our employees participated in defined benefit pension and other post retirement plans sponsored by Lilly, the costs and benefits of which were recorded in the consolidated and combined statement of operations in cost of sales, research and development, and marketing, selling and administrative expenses. The costs/(benefits) of such plans related to our employees were $(6.3) million and $73.7 million for the years ended December 31, 2018 and 2017, respectively.

Centralized Cash Management

Lilly uses a centralized approach to cash management and financing of operations. Until Separation, the majority of our business was party to Lilly's cash pooling arrangements to maximize Lilly's availability of cash for general operating and investing purposes. Under these cash pooling arrangements, cash balances were swept regularly from our accounts. Cash transfers to and from Lilly's cash concentration accounts and the resulting balances at the end of each reporting period were reflected in net parent company investment in the consolidated balance sheets.

Debt

Lilly's third-party debt and the related interest expense were not allocated to us for any of the periods presented as we were not the legal obligor of the debt and Lilly borrowings were not directly attributable to our business.

Note 21. Selected Quarterly Data (unaudited)

2019	Fourth	Third	Second	First
Revenue	$ 787.0	$ 771.3	$ 781.6	$ 731.1
Cost of sales	410.1	360.4	356.0	343.8
Operating expenses[1]	253.2	262.2	269.7	245.2
Asset impairment, restructuring, and other special charges	51.6	77.2	31.8	24.9
Interest expense, net of capitalized interest	18.7	18.7	20.7	20.8
Income (loss) before income taxes	(4.3)	(12.5)	50.2	44.8
Income tax (benefit) expense	5.2	(22.5)	14.3	13.3
Net income (loss)	(9.5)	10.0	35.9	31.5
Earnings (loss) per share—basic and diluted	(0.03)	0.03	0.10	0.09

2018	Fourth	Third	Second	First
Revenue	$ 799.3	$ 761.1	$ 770.2	$ 736.2
Cost of sales	412.5	369.8	431.5	360.0
Operating expenses[1]	246.2	237.9	252.5	245.2
Asset impairment, restructuring, and other special charges	46.0	12.4	68.0	2.4
Interest expense, net of capitalized interest	21.0	8.6	—	—
Income (loss) before income taxes	(2.2)	78.8	(40.0)	77.5
Income tax (benefit) expense	(18.6)	18.6	22.8	4.8
Net income (loss)	16.4	60.2	(62.8)	72.7
Earnings (loss) per share—basic and diluted	0.04	0.20	(0.21)	0.25

(1) Includes research and development and marketing, selling, and administrative expenses.

Numbers may not add up to totals for each year due to rounding.

Note 22. Subsequent Events

Bayer Animal Health acquisition financing

Equity offerings

On January 22, 2020, we entered into an underwriting agreement in which we agreed to sell approximately 22.7 million shares of our common stock at a public offering price of $32.00 per share. In connection with the offering, we granted the underwriters an option to purchase up to an additional 2.3 million shares, which was exercised in full on January 23, 2020. As a result, we issued and sold a total of approximately 25.0 million shares of our common stock. Total cash of $769.9 million was received upon closing on January 27, 2020.

In addition, on January 22, 2020, we issued $550 million in tangible equity units (TEUs). We offered 11 million 5.00% TEUs at the stated amount of $50 per unit, composed of a prepaid stock purchase contract and a senior amortizing note due February 1, 2023 (the mandatory settlement date). Total cash of $530.1 million was received upon closing on January 27, 2020, which was comprised of $453.8 million of prepaid stock purchase contracts and $76.3 million of senior amortizing notes, net of debt issuance costs. Unless the stock purchase contracts are redeemed by us or settled earlier at the unit holder's option, they are mandatorily convertible into shares of our common stock at a minimum of 1.3021 shares per purchase contract or a maximum of 1.5625 shares per purchase contract on the mandatory settlement date. This corresponds to a minimum of 14.3 million shares and a maximum of 17.2 million shares.

Debt activity

On January 31, 2020, we used a portion of the proceeds from the common stock and TEU issuances to repay indebtedness outstanding under our existing term loan facility. We paid $372.4 million in cash, composed of $371.4 million of principal and $1.0 million of accrued interest, resulting in a debt extinguishment loss of $0.8 million, primarily related to the write-off of deferred debt issuance costs.

On February 4, 2020, we successfully priced our senior secured credit facilities, consisting of the following:

- Term loan B facility with an aggregate principal amount of $4,275.0 million and a maturity of seven years.
- Revolving loan facility providing up to $750.0 million and a maturity of five years.

The term loan B facility was priced at par at LIBOR plus 175 basis points, and the revolving loan facility is expected to bear interest at LIBOR plus an applicable margin ranging between 1.50% and 2.25% per annum based on our corporate family rating or corporate credit rating.

We intend to use the proceeds from the equity and debt activities to finance the cash portion of the pending acquisition of Bayer's animal health business and to pay related fees and expenses. As a result, we have obtained substantially all of the financing necessary to consummate the acquisition and do not currently intend to pursue any additional financing previously provided under the commitment letter obtained in August 2019 (see Note 16: Commitments and Contingencies).

Divestitures

Osurnia and Capstar

In January 2020, we signed agreements to divest the worldwide rights to *Osurnia* and the U.S. rights to *Capstar* for an aggregate of $230 million in all cash deals, with the intent to advance our efforts to secure the necessary regulatory clearances for the pending acquisition of the Bayer animal health business. The closing of these transactions is contingent on us entering into consent decrees with certain agencies in connection with the pending acquisition as well as customary closing conditions. Both divestitures are expected to close by the end of 2020.

The related assets met the assets held for sale criteria as of December 31, 2019. No adjustment was required to record the assets at the lower of their carrying amounts or fair values less costs to sell on the consolidated balance sheet. Assets and liabilities considered held for sale in connection with the divestitures as of December 31, 2019 were included in the respective line items in the consolidated balance sheet as follows:

Inventories	$	10.6
Other intangibles, net		61.2
Property and equipment, net		0.2
Total assets held for sale		72.0
Deferred taxes		(1.4)
Total liabilities held for sale	$	(1.4)

Other intangibles, net classified as held for sale primarily consist of marketed products. We determined that the disposal of these net assets does not qualify for reporting as a discontinued operation because it does not represent a strategic shift that has or will have a major effect on our operations and financial results.

Vecoxan

In February 2020, we signed an agreement to divest the worldwide rights to *Vecoxan* for $55 million in an all cash deal, with the intent to advance our efforts to secure the necessary regulatory clearances for the pending acquisition of the Bayer animal health business. The closing of this transaction is contingent on us entering into consent decrees with certain agencies in connection with the pending acquisition as well as customary closing conditions. This divestiture is expected to close by the end of 2020.

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

None

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended ("the Exchange Act")) as of the end of the period covered by this report. Based on the evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of the end of such period our disclosure controls and procedures are effective in recording, processing, summarizing, and reporting, on a timely basis, information required to be disclosed by us in the reports that we file or submit under the Exchange Act, and that information is accumulated and communicated to the Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely discussions regarding required disclosure.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Exchange Act Rule 13a-15(f)). Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our internal control over financial reporting based on the Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). The Company acquired Aratana and Prevtec in July 2019, and management has excluded Aratana and Prevtec's internal control over financial reporting from our assessment of the effectiveness of our internal control as of December 31, 2019. Aratana and Prevtec represent approximately 3 percent of consolidated total assets and less than 1 percent of consolidated net sales as of and for the year ended December 31, 2019. Based on this evaluation, our management has concluded that, as of December 31, 2019, our internal control over financial reporting was effective.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. In addition, projections of any evaluation of effectiveness to future periods are subject to risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Ernst & Young LLP, an independent registered public accounting firm, has audited our consolidated and combined financial statements and the effectiveness of internal controls over financial reporting as of December 31, 2019 as stated in their report which is included herein.

Changes in Internal Control

During the fourth quarter of 2019, there were no changes in our internal control over financial reporting that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of Elanco Animal Health Incorporated

Opinion on Internal Control Over Financial Reporting

We have audited Elanco Animal Health Incorporated's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control – Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Elanco Animal Health Incorporated (the Company) maintained, in all material respects, effective control over financial reporting as of December 31, 2019, based on the COSO criteria.

As indicated in the accompanying Management's Report on Internal Control over Financial Reporting, management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of Aratana and Prevtec, which are included in the 2019 consolidated and combined financial statements of the Company and constituted 3% of total assets as of December 31, 2019 and less than 1% of net sales for the year then ended. Our audit of internal control over financial reporting of the Company also did not include an evaluation of the internal control over financial reporting of Aratana and Prevtec.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated and combined statements of operations, comprehensive income (loss), equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and our report dated February 28, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and 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/ Ernst & Young LLP

Indianapolis, Indiana
February 28, 2020

Part III

Item 10. Directors, Executive Officers, and Corporate Governance

Information on Directors, Executive Officers and Corporate Governance can be found in the Proxy Statement under "Governance." That information is incorporated in this report by reference.

Item 11. Executive Compensation

Information on director compensation, executive compensation, and compensation committee matters can be found in the Proxy Statement under "Director Compensation," "Committees of the Board of Directors - Compensation Committee," "Compensation Discussion and Analysis," and "Executive Compensation Tables." That information is incorporated in this report by reference.

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

Security Ownership of Certain Beneficial Owners and Management

Information relating to ownership of the company's common stock by management and by persons known by the company to be the beneficial owners of more than five percent of the outstanding shares of common stock is found in the Proxy Statement under "Ownership of Company Stock." That information is incorporated in this report by reference.

Securities Authorized for Issuance Under Equity Compensation Plans

Information about our compensation plans under which shares of our common stock have been authorized for issuance as of December 31, 2019 can be found in the Proxy Statement under "Securities Authorized for Issuance Under Equity Compensation Plans" and is incorporated in this report by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

Related Person Transactions

Information relating to related person transactions and the board's policies and procedures for approval of related person transactions can be found in the Proxy Statement under "Transactions with Related Persons." That information is incorporated in this report by reference.

Director Independence

Information relating to director independence can be found in the Proxy Statement under “Director Independence” and is incorporated in this report by reference.

Item 14. Principal Accountant Fees and Services

Information related to the fees and services of our principal independent accountants, Ernst & Young LLP, can be found in the Proxy Statement under “Proxy Item No. 2. Proposal to Ratify the Appointment of Principal Independent Auditor.” That information is incorporated in this report by reference.

Part IV

Item 15. Exhibits and Financial Statement Schedules

1. Financial Statements

The following consolidated combined financial statements of the company and its subsidiaries are found at Item 8:

- Consolidated and Combined Statements of Operations—Years Ended December 31, 2019, 2018, and 2017
- Consolidated and Combined Statements of Comprehensive Income—Years Ended December 31, 2019, 2018, and 2017
- Consolidated Balance Sheets—December 31, 2019 and 2018
- Consolidated and Combined Statements of Equity—Years Ended December 31, 2019, 2018, and 2017
- Consolidated and Combined Statements of Cash Flows—Years Ended December 31, 2019, 2018, and 2017
- Notes to Consolidated and Combined Financial Statements

2. Financial Statement Schedules

The consolidated and combined financial statement schedules of the company and its subsidiaries have been omitted because they are not required, are inapplicable, or are adequately explained in the financial statements.

Financial statements of interests of 50 percent or less, which are accounted for by the equity method, have been omitted because they do not, considered in the aggregate as a single subsidiary, constitute a significant subsidiary.

3. Exhibits

The following exhibits are either filed or furnished herewith (as applicable) or, if so indicated, incorporated by reference to the documents indicated in parentheses, which have previously been filed or furnished with the Securities and Exchange Commission.

Exhibit Number	Description
2.1	Agreement and Plan of Merger by and among Elanco Animal Health Incorporated, Elanco Athens Inc. and Aratana Therapeutics, Inc., dated April 26, 2019 (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed with the SEC on April 26, 2019).
2.2	Share and Asset Purchase Agreement, dated as of August 20, 2019, between Bayer Aktiengesellschaft and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed with the SEC on August 20, 2019).
2.3	Amendment No. 1 to Share and Asset Purchase Agreement, dated as of October 15, 2019, between Bayer Aktiengesellschaft and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed with the SEC on October 17, 2019).

2.4	Amendment No. 2 to Share and Asset Purchase Agreement, dated as of January 17, 2020, between Bayer Aktiengesellschaft and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 2.1 of the Current Report on Form 8-K filed with the SEC on January 17, 2020).
2.5	Annex 27 to the Share and Asset Purchase Agreement, dated as of August 20, 2019, between Bayer Aktiengesellschaft and Elanco Animal Health Incorporated (Incorporated by reference to Exhibit 4.3 of the Registration Statement on Form S-3 (File No. 333-235991) filed with the SEC on January 21, 2020).
3.1	Amended and Restated Articles of Incorporation of Elanco Animal Health Incorporated, effective September 18, 2018 (incorporated by reference to Exhibit 3.1 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
3.2	Amended and Restated Bylaws of Elanco Animal Health Incorporated, effective August 8, 2019 (incorporated by reference to Exhibit 3.1 of the Current Report on Form 8-K filed with the SEC on August 9, 2019).
4.1	Form of Certificate of Common Stock (incorporated by reference to Exhibit 4.1 of Amendment No. 1 to Registration Statement on Form S-1 (Registration No. 333-226536) filed with the SEC on August 28, 2018).
4.2	Indenture, dated August 28, 2018, between Elanco Animal Health Incorporated and Deutsche Bank Trust Company Americas, as trustee (incorporated by reference to Exhibit 4.2 of Amendment No. 1 to Registration Statement on Form S-1 (Registration No. 333-226536) filed with the SEC on August 28, 2018).
4.3	First Supplemental Indenture, dated August 28, 2018, between Elanco Animal Health Incorporated and Deutsche Bank Trust Company Americas, as trustee (incorporated by reference to Exhibit 4.3 of Amendment No. 1 to Registration Statement on Form S-1 (Registration No. 333-226536) filed with the SEC on August 28, 2018).
4.4	Second Supplemental Indenture, dated as of January 27, 2020, between Elanco Animal Health Incorporated and Deutsche Bank Trust Company Americas, as trustee, including the form of amortizing note (incorporated by reference to Exhibit 4.4 of Current Report on Form 8-K filed with the SEC on January 27, 2020).
4.5	Purchase Contract Agreement, dated as of January 27, 2020, between Elanco Animal Health Incorporated and Deutsche Bank Trust Company Americas, as purchase contract agent, as attorney-in-fact for holders of the purchase contracts referred to therein and as trustee under the indenture referred to therein, including the form of unit and form of purchase contract (incorporated by reference to Exhibit 4.1 of Current Report on Form 8-K filed with the SEC on January 27, 2020).
4.6	Description of Securities (filed herewith)
10.1	Master Separation Agreement, dated September 24, 2018, between Eli Lilly and Company and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.2	Transitional Services Agreement, dated September 24, 2018, between Eli Lilly and Company and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.3	Tax Matters Agreement, dated September 24, 2018, between Eli Lilly and Company and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 10.3 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.4	Employee Matters Agreement, dated September 24, 2018, between Eli Lilly and Company and Elanco Animal Health Incorporated (incorporated by reference to Exhibit 10.4 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.5	Toll Manufacturing and Supply Agreement, dated September 24, 2018, between Eli Lilly Export S.A. and Elanco UK AH Limited (incorporated by reference to Exhibit 10.5 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).

10.6	Transitional Trademark License Agreement, dated September 24, 2018, among Eli Lilly and Company, Elanco Animal Health Incorporated and Elanco US Inc. (incorporated by reference to Exhibit 10.7 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.7	Intellectual Property and Technology License Agreement, dated September 24, 2018, among Eli Lilly and Company, Elanco Animal Health Incorporated and Elanco US Inc. (incorporated by reference to Exhibit 10.8 of the Current Report on Form 8-K filed with the SEC on September 26, 2018).
10.8	Revolving Loan Credit Agreement, dated as of September 5, 2018, among Elanco Animal Health Incorporated, as borrower, JPMorgan Chase Bank, N.A., as administrative agent and the other Lenders party thereto (incorporated by reference to Exhibit 10.24 of Amendment No. 2 to Registration Statement on Form S-1 (Registration No. 333-226536) filed with the SEC on September 6, 2018).
10.9	First Amendment to Revolving Loan Credit Agreement, dated as of September 5, 2018, among Elanco Animal Health Incorporated, as borrower, JPMorgan Chase Bank, N.A., as administrative agent and the other Lenders party thereto (incorporated by reference to Exhibit 10.1 of the Current Report on Form 8-K filed with the SEC on December 20, 2019).
10.10	Term Loan Credit Agreement, dated as of September 5, 2018, among Elanco Animal Health Incorporated, as borrower, JPMorgan Chase Bank, N.A., as administrative agent and the other Lenders party thereto (incorporated by reference to Exhibit 10.25 of Amendment No. 2 to Registration Statement on Form S-1 (Registration No. 333-226536) filed with the SEC on September 6, 2018).
10.11	First Amendment to Term Loan Credit Agreement, dated as of September 5, 2018, among Elanco Animal Health Incorporated, as borrower, JPMorgan Chase Bank, N.A., as administrative agent and the other Lenders party thereto (incorporated by reference to Exhibit 10.2 of the Current Report on Form 8-K filed with the SEC on December 20, 2019).
10.12	2018 Elanco Stock Plan (incorporated by reference to Exhibit 4.3 of Registration Statement on Form S-8 (Registration No. 333-227447) filed with the SEC on September 20, 2018).*
10.13	Elanco Animal Health Incorporated Directors' Deferral Plan as amended (incorporated by reference to Exhibit 10.1 of the Quarterly Report on Form 10-Q filed with the SEC on May 14, 2019)*
10.14	Director Letter Agreement between Emu Holdings Company and R. David Hoover, dated as of May 25, 2018 (incorporated by reference to Exhibit 10.19 of Elanco Animal Health Incorporated's registration statement on Form S-1 (File No. 333-226536) filed with the SEC on August 2, 2018)*
10.15	Form of 2018 Change in Control Severance Pay Plan for Select Employees (incorporated by reference to Exhibit 10.20 of Amendment No. 1 to Elanco Animal Health Incorporated's registration statement on Form S-1 (File No. 333-226536) filed with the SEC on August 28, 2018).*
10.16	Form of Elanco Animal Health Incorporated Restricted Stock Unit Awards Agreement (incorporated by reference to Exhibit 10.21 of Amendment No. 1 to Elanco Animal Health Incorporated's registration statement on Form S-1 (File No. 333-226536) filed with the SEC on August 28, 2018).*
10.17	Form of Elanco Animal Health Incorporated Nonqualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.22 of Amendment No. 1 to Elanco Animal Health Incorporated's registration statement on Form S-1 (File No. 333-226536) filed with the SEC on August 28, 2018).*
10.18	Retention Bonus Agreement, dated October 18, 2018, by and between Elanco US Inc. and Todd S. Young (incorporated by reference to Exhibit 10.2 to Elanco Animal Health Incorporated's Report on Form 8-K filed with the SEC on October 30, 2018).*
10.19	Employment Offer Letter with Mr. Todd S. Young, dated October 15, 2018, by and between Elanco US Inc. and Todd S. Young (incorporated by reference to Exhibit 10.1 to Elanco Animal Health Incorporated's Report on Form 8-K filed with the SEC on October 30, 2018).*

10.20	Form of Performance Award Agreement (Incorporated by reference to Exhibit 10.1 to Form 8-K filed with the SEC on February 19, 2019)*
10.21	Form of Restricted Stock Unit Award Agreement (Incorporated by reference to Exhibit 10.2 to Form 8-K filed with the SEC on February 19, 2019)*
10.22	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.22 to Annual Reporting on Form 10-K filed with the SEC on February 20, 2019)*
10.23	Form of Replacement Performance Award Agreement for Certain Named Executive Officers (incorporated by reference to Exhibit 10.23 to Annual Report on Form 10-K filed with the SEC on February 20, 2019)*
10.24	Form of Replacement Performance Award Agreement for Jeffery N. Simmons (incorporated by reference to Exhibit 10.24 to Annual Report on Form 10-K filed with the SEC on February 20, 2019)*
10.25	Form of Replacement Restricted Stock Unit Award Agreement for Certain Named Executive Officers (incorporated by reference to Exhibit 10.25 to Annual Report on Form 10-K filed with the SEC on February 20, 2019)*
10.26	The Elanco Corporate Bonus Plan (incorporated by reference to Exhibit 10.16 of Elanco Animal Health Incorporated's registration statement on Form S-1 (File No. 333-226536))*
10.27	Form of Elanco Animal Health Incorporated Restricted Stock Unit Award Agreement for non-employee directors with respect to annual awards (incorporated by reference to Exhibit 10.2 of the Quarterly Report on Form 10-Q with the SEC on May 14, 2019).*
10.28	Form of Elanco Animal Health Incorporated Restricted Stock Unit Award Agreement for non-employee directors with respect to one-time founder award (incorporated by reference to Exhibit 10.3 of the Quarterly Report on Form 10-Q filed with the SEC on May 14, 2019).*
10.29	Elanco Animal Health Incorporated Replacement Restricted Stock Unit Award Agreement, dated March 12, 2019, by Elanco Animal Health Incorporated (incorporated by reference to Exhibit 10.4 of the Quarterly Report on Form 10-Q filed with the SEC on May 14, 2019).*
10.30	Elanco Animal Health Incorporated Executive Deferral Plan (incorporated by reference to Exhibit 10.1 of the Quarterly Report on Form 10-Q filed with the SEC on August 13, 2019)
21.1	Subsidiaries of Elanco Animal Health Incorporated (filed herewith)
23.1	Consent of Ernst & Young LLP (filed herewith)
31.1	Section 302 Certification of the Chief Executive Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Section 302 Certification of the Chief Financial Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32	Certification of the Chief Executive Officer and the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (filed herewith).
101	Interactive Data Files.

*Management contracts or compensatory plans or arrangements

Item 16. Form 10-K Summary

Not applicable.

Signatures

Pursuant to the requirements 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.

ELANCO ANIMAL HEALTH INCORPORATED
(Registrant)

Date: February 28, 2020 /s/ Jeffrey N. Simmons
Jeffrey N. Simmons
President and Chief Executive Officer

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.

/s/ Jeffrey N. Simmons	Date:	February 28, 2020
Jeffrey N. Simmons President and Chief Executive Officer (principal executive officer) and Director		
/s/ Todd S. Young	Date:	February 28, 2020
Todd S. Young Executive Vice President, Chief Financial Officer (principal financial officer)		
/s/ James M. Meer	Date:	February 28, 2020
James M. Meer Vice President, Chief Accounting Officer (principal accounting officer)		
/s/ R. David Hoover	Date:	February 28, 2020
R. David Hoover Chairman of the Board		
/s/ Kapila Kapur Anand	Date:	February 28, 2020
Kapila Kapur Anand Director		
/s/ John P. Bilbrey	Date:	February 28, 2020
John P. Bilbrey Director		
/s/ Art A. Garcia	Date:	February 28, 2020
Art A. Garcia Director		
/s/ Michael J. Harrington	Date:	February 28, 2020
Michael J. Harrington Director		
/s/ Deborah T. Kochevar	Date:	February 28, 2020
Deborah T. Kochevar Director		
/s/ Lawrence E. Kurzius	Date:	February 28, 2020
Lawrence E. Kurzius Director		
/s/ Kirk McDonald	Date:	February 28, 2020
Kirk McDonald Director		
/s/ Denise Scots-Knight Ph.D.	Date:	February 28, 2020
Denise Scots-Knight Director		

EXHIBIT 4.6

Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934

Elanco Animal Health Incorporated ("Elanco") has two classes of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): (1) common stock, no par value, and (2) 5.00% tangible equity units.

Description of common stock

The following is a summary of Elanco common stock and important provisions of Elanco's amended and restated articles of incorporation and amended and restated bylaws. This summary does not purport to be complete and is subject to and qualified by Elanco's amended and restated articles of incorporation and amended and restated bylaws, each of which is an exhibit to the Annual Report on Form 10-K to which this description is an exhibit, and by the provisions of applicable law.

Elanco's authorized capital stock is comprised of 6,000,000,000 shares, which are made up of (i) 5,000,000,000 shares of common stock, no par value and (ii) 1,000,000,000 shares of preferred stock, no par value, the rights and preferences of which may be established from time to time by Elanco's board of directors. Holders of Elanco common stock are entitled to the rights set forth below.

Voting Rights

The holders of Elanco common stock are entitled to one vote per share on all matters submitted to a vote of Elanco's shareholders (including the election or removal of directors), and do not have cumulative voting rights. Directors are elected by a plurality of the votes entitled to be cast. Except as otherwise provided in Elanco's amended and restated articles of incorporation or as required by law, all matters to be voted on by Elanco's shareholders other than matters relating to the election and removal of directors will be approved if votes cast in favor of the matter exceed the votes cast opposing the matter at a meeting at which a majority of the outstanding shares entitled to vote on such matter is represented in person or by proxy.

Dividend Rights

Holders of Elanco common stock will share equally in any dividends that may be declared by Elanco's board of directors out of funds legally available therefor, subject to the rights of the holders of any outstanding preferred stock.

Liquidation Rights

In the event of any voluntary or involuntary liquidation, dissolution or winding up of Elanco's affairs, holders of Elanco common stock would be entitled to share ratably in Elanco's assets that are legally available for distribution to shareholders. If Elanco has any preferred stock outstanding at such time, holders of the preferred stock may be entitled to distribution and/or liquidation preferences. In either such case, Elanco must pay the applicable distribution to the holders of its preferred stock before it may pay distributions to the holders of Elanco common stock.

Other Rights

Holders of Elanco common stock do not have preemptive or other rights to subscribe for additional shares of Elanco's stock. All outstanding shares of Elanco common stock are validly issued, fully paid and nonassessable. The rights, preferences and privileges of holders of Elanco common stock will be subject to those of the holders of any shares of preferred stock that Elanco may issue in the future.

Description of the units

Elanco has issued 11,000,000 5.00% tangible equity units (the "Units"), each with a stated amount of $50.00. Each Unit is comprised of a prepaid stock purchase contract (a "purchase contract") issued by Elanco and a senior amortizing note (an "amortizing note") issued by Elanco.

The following summary of the terms of the Units, the summary of the terms of the purchase contracts set forth under the caption "Description of the Purchase Contracts" and the summary of the terms of the amortizing notes set forth under the caption "Description of the Amortizing Notes" contain a description of certain terms of the Units and their components but are not complete and are subject to, and qualified in their entirety by reference to: (1) the Purchase Contract Agreement, dated as of January 27, 2020 (the "purchase contract agreement"), between Elanco and Deutsche Bank Trust Company Americas, as purchase contract agent (the "purchase contract agent"), attorney-in-fact for the holders of purchase contracts from time to time and as trustee (the "trustee") under the indenture described below, (2) the Indenture, dated as of August 28, 2018, between Elanco, as issuer, and Deutsche Bank Trust Company Americas, as trustee, and (3) the Second Supplemental Indenture, dated as of January 27, 2020, between Elanco, as issuer and Deutsche Bank Trust Company Americas, as trustee, each of which is an exhibit to the Annual Report on Form 10-K to which this description is an exhibit.

Components of the Units

Each Unit was initially comprised of:

- a prepaid stock purchase contract issued by Elanco pursuant to which Elanco will deliver to the holder, not later than 5:00 p.m., New York City time, on February 1, 2023 (subject to postponement in certain limited circumstances, the "mandatory settlement date"), unless earlier settled, a number of shares of Elanco common stock, no par value per share (the "Common Stock"), per purchase contract equal to the settlement rate described under "Description of the Purchase Contracts — Delivery of Common Stock;" and

- a senior amortizing note issued by Elanco with an initial principal amount of $7.2007 that pays equal quarterly installments of $0.6250 per amortizing note (except for the May 1, 2020 installment payment, which will be $0.6528 per amortizing note), which cash payment in the aggregate will be equivalent to 5.00% per year with respect to the $50.00 stated amount per Unit.

Unless previously settled at the option of the holder as described in "Description of the Purchase Contracts — Early Settlement" or "Description of the Purchase Contracts — Early Settlement Upon a Fundamental Change" or settled at Elanco's option as described in "Description of the Purchase Contracts — Early Mandatory Settlement at Elanco's Election," Elanco will deliver to each holder of the option not more than 1.5625 shares and not less than 1.3021 shares of Elanco common stock on the mandatory settlement date, based upon the applicable "settlement rate" (as defined under "Description of the Purchase Contracts — Delivery of Common Stock"), which is subject to adjustment as described herein, and the "applicable market value" (as defined under "Description of the Purchase Contracts — Delivery of Common Stock") of Elanco common stock, as described under "Description of the Purchase Contracts — Delivery of Common Stock."

Each amortizing note had an initial principal amount of $7.2007. On each February 1, May 1, August 1, and November 1, commencing on May 1, 2020, each amortizing note will pay equal cash installments of $0.6250 on each amortizing note (except for the May 1, 2020 installment payment, which will be $0.6528 per amortizing note), which cash payment in the aggregate per year will be equivalent to 5.00% per year with respect to each $50.00 stated amount of Units. Each installment payment will constitute a payment of interest (at a rate of 2.75% per annum) and a partial repayment of principal on the amortizing note, allocated as set forth on the amortization schedule set forth under "Description of the Amortizing Notes — Amortization Schedule."

The initial stated amount of each Unit must be allocated between the amortizing note and the purchase contract based upon their relative fair market values. At initial issuance, Elanco determined that the fair market value

of each amortizing note is $7.2007 and the fair market value of each purchase contract is $42.7993, as set forth in the purchase contract agreement.

Separating and Recreating Units

Upon the conditions and under the circumstances described below, a holder of a Unit will have the right to separate a Unit into its component parts, and a holder of a separate purchase contract and a separate amortizing note will have the right to combine the two components to recreate a Unit.

Separating Units

At initial issuance, the purchase contracts and amortizing notes were purchased and transferred only as Units consisting of a "component purchase contract" and a "component amortizing note" and traded under the CUSIP number for the Units.

On any business day during the period beginning on, and including, the business day immediately following the date of initial issuance of the Units to, but excluding, the second scheduled trading day immediately preceding February 1, 2023 or, if earlier, the second scheduled trading day immediately preceding any "early mandatory settlement date" (as defined under "Description of the Purchase Contracts — Early Mandatory Settlement at Elanco's Election") and also excluding the business day immediately preceding any installment payment date (*provided*, the right to separate the Units shall resume after such business day), a holder will have the right to separate the holder's Unit into its constituent purchase contract and amortizing note (which is referred to herein as a "separate purchase contract" and a "separate amortizing note," respectively, and which will thereafter trade under their respective CUSIP numbers), in which case that Unit will cease to exist. If the holder beneficially owns a Unit, the holder may separate it into its component purchase contract and component amortizing note by delivering written instructions to the broker or other direct or indirect participant through which the holder holds an interest in such Unit (the "participant") to notify the purchase contract agent, the trustee and The Depository Trust Company ("DTC") through DTC's Deposit/Withdrawal at Custodian ("DWAC") system of the holder's desire to separate the Unit. Holders who elect to separate a Unit into its constituent purchase contract and amortizing note shall be responsible for any fees or expenses payable in connection with such separation. "Business day" means any day other than a Saturday, Sunday or any day on which banking institutions in New York, New York are authorized or obligated by applicable law or executive order to close or be closed. Separate purchase contracts and separate amortizing notes will be transferable independently from each other.

Recreating Units

On any business day during the period beginning on, and including, the business day immediately following the date of initial issuance of the Units to, but excluding, the second scheduled trading day immediately preceding February 1, 2023 or, if earlier, the second scheduled trading day immediately preceding any early mandatory settlement date and also excluding the business day immediately preceding any installment payment date (*provided*, the right to recreate the Units shall resume after such business day), a holder may recreate a Unit from the holder's separate purchase contract and separate amortizing note. If the holder beneficially owns a separate purchase contract and a separate amortizing note, the holder may recreate a Unit by delivering written instruction to the holder's participant to notify the purchase contract agent, the trustee and DTC through DTC's DWAC system of the holder's desire to recreate the Unit. Holders who elect to recreate Units shall be responsible for any fees or expenses payable in connection with such recreation.

Global Securities

Each Unit, purchase contract and amortizing note is represented by global securities registered in the name of a nominee of DTC. Holders are not entitled to receive definitive physical certificates for the Units, purchase contracts or amortizing notes, except under the limited circumstances. Beneficial interests in a Unit and, after separation, the separate purchase contract and separate amortizing note will be represented through book-entry accounts of, and transfers will be effected through, direct or indirect participants in DTC.

Replacement of Unit Certificates

In the event that physical certificates evidencing the Units have been issued, any mutilated Unit certificate will be replaced by Elanco at the expense of the holder upon surrender of the certificate to the purchase contract agent. Unit certificates that become destroyed, lost or stolen will be replaced by Elanco at the expense of the holder upon delivery to Elanco and the purchase contract agent of evidence of their destruction, loss or theft satisfactory to Elanco and the purchase contract agent. In the case of a destroyed, lost or stolen Unit certificate, an indemnity satisfactory to Elanco and the purchase contract agent may be required at the expense of the holder of the Units before a replacement will be issued.

Notwithstanding the foregoing, Elanco will not be obligated to replace any Unit certificates on or after the second scheduled trading day immediately preceding February 1, 2023 or the second scheduled trading day immediately preceding any early mandatory settlement date. In those circumstances, the purchase contract agreement will provide that, in lieu of the delivery of a replacement Unit certificate, the purchase contract agent, upon delivery of the evidence and indemnity described above, will deliver or arrange for delivery of the shares of Elanco common stock issuable pursuant to the purchase contracts included in the Units evidenced by the Unit certificate.

Description of the purchase contracts

Each purchase contract initially formed a part of a Unit. Each Unit may be separated by a holder into its constituent purchase contract and amortizing note on any business day during the period beginning on, and including, the business day immediately following the date of initial issuance of the Units to, but excluding, the second scheduled trading day immediately preceding February 1, 2023 or, if earlier, the second scheduled trading day immediately preceding any "early mandatory settlement date," and also excluding the business day immediately preceding any installment payment date (provided, the right to separate the Units shall resume after such business day). Following such separation, purchase contracts may be transferred separately from amortizing notes.

As used herein, unless the context otherwise requires, references to: (i) "close of business" refer to 5:00 p.m., New York City time, and (ii) "open of business" refer to 9:00 a.m., New York City time.

Delivery of Common Stock

Unless settled early at the holder's or Elanco's option, for each purchase contract Elanco will deliver to the holder on February 1, 2023 (subject to postponement in certain limited circumstances described below, the "mandatory settlement date") a number of shares of Elanco common stock. The number of shares of Elanco common stock issuable upon settlement of each purchase contract (the "settlement rate") will be determined as follows:

- if the "applicable market value" (as defined below) of Elanco common stock is greater than the "threshold appreciation price" (as defined below), then the holder will receive 1.3021 shares of Elanco common stock for each purchase contract (the "minimum settlement rate");
- if the applicable market value of Elanco common stock is less than or equal to the threshold appreciation price but greater than or equal to the "reference price" (as defined below), then the holder will receive a number of shares of Elanco common stock for each purchase contract equal to the Unit stated amount of $50.00, divided by the applicable market value; and
- if the applicable market value of Elanco common stock is less than the reference price, then the holder will receive 1.5625 shares of Elanco common stock for each purchase contract (the "maximum settlement rate").

The maximum settlement rate and the minimum settlement rate are each subject to adjustment as described under "— Adjustments to the Fixed Settlement Rates" below. Each of the minimum settlement rate and the maximum settlement rate is referred to as a "fixed settlement rate."

The reference price is calculated by dividing $50.00 by the then applicable maximum settlement rate and initially was approximately equal to $32.00.

The threshold appreciation price is calculated by dividing $50.00 by the then applicable minimum settlement rate. The threshold appreciation price, which was initially approximately $38.40, represents a premium of approximately 20% over the reference price.

"Applicable market value" means the arithmetic average of the VWAP per share of Elanco common stock over the settlement period. The "settlement period" means the 20 consecutive trading day period beginning on, and including, the 21st scheduled trading day immediately preceding February 1, 2023.

"VWAP" per share of Elanco common stock on any trading day means the per share volume-weighted average price as displayed under the heading "Bloomberg VWAP" on Bloomberg (or any successor service) page "ELAN <Equity> AQR" (or its equivalent successor if such page is not available) in respect of the period from the scheduled open until the scheduled close of trading of the primary trading session on such trading day; or, if such price is not available, the market value per share of Elanco common stock on such trading day as determined, using a volume-weighted average method, by a nationally recognized independent investment banking firm retained by Elanco for this purpose. For the avoidance of doubt, "VWAP" will be determined without regard to after hours trading or any other trading outside of the regular trading session trading hours.

"Trading day" means a day on which:

- there is no "market disruption event" (as defined below); and
- trading in Elanco common stock (or other security for which a VWAP must be determined) generally occurs on the relevant stock exchange (as defined below);

provided, that if Elanco common stock (or such other security) is not so listed or traded, "trading day" means a "business day."

"Relevant stock exchange" means the NYSE or, if Elanco common stock (or other security for which a VWAP or closing price must be determined) is not then listed on the NYSE, on the principal other U.S. national or regional securities exchange on which Elanco common stock (or such other security) is then listed or, if Elanco common stock (or such other security) is not then listed on a U.S. national or regional securities exchange, on the principal other market on which Elanco common stock (or such other security) is then listed or admitted for trading.

"Scheduled trading day" means a day that is scheduled to be a trading day on the relevant stock exchange. If Elanco common stock (or other such security) is not listed or admitted for trading on a relevant stock exchange, "scheduled trading day" means a "business day."

"Market disruption event" means:

- a failure by the relevant stock exchange to open for trading during its regular trading session; or
- the occurrence or existence on the relevant stock exchange prior to 1:00 p.m., New York City time, on any scheduled trading day for Elanco common stock (or such other security) for more than one half-hour period in the aggregate during regular trading hours of any suspension or limitation imposed on trading (by reason of movements in price exceeding limits permitted by the relevant stock exchange or otherwise) in Elanco common stock (or such other security) or in any options contracts or futures contracts relating to Elanco common stock (or such other security).

On the mandatory settlement date, Elanco common stock will be issued and delivered to the holder or the holder's designee, upon:

- surrender of certificates representing the purchase contracts, if such purchase contracts are held in certificated form; and
- payment by the holder of any transfer or similar taxes payable in connection with the issuance of Elanco common stock to any person other than you.

As long as the purchase contracts are evidenced by one or more global purchase contract certificates deposited with DTC, procedures for settlement will be governed by DTC's applicable procedures.

If one or more of the 20 consecutive scheduled trading days in the settlement period is not a trading day, the mandatory settlement date will be postponed until the second scheduled trading day immediately following the last trading day of the settlement period.

Prior to the close of business on the last trading day of the settlement period, the shares of Elanco common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of Elanco common stock by virtue of holding such purchase contract. The person in whose name any shares of Elanco common stock shall be issuable upon settlement of the purchase contract on the mandatory settlement date will be treated as the holder of record of such shares as of the close of business on the last trading day of the settlement period.

Elanco will pay any documentary, stamp or similar issue or transfer tax due on the issue of any shares of Elanco common stock upon settlement of the purchase contracts, unless the tax is due because the holder requests any shares to be issued in a name other than the holder's name, in which case the holder will be obligated to pay that tax.

Hypothetical Settlement Values

For illustrative purposes only, the following table shows the number of shares of Elanco common stock issuable upon settlement of a purchase contract at assumed applicable market values. The table assumes that there will be no adjustments to the fixed settlement rates described under "— Adjustments to the Fixed Settlement Rates" below and that the purchase contracts have not been settled early at the option of holders or at Elanco's option as described under "— Early Settlement," "— Early Settlement Upon a Fundamental Change" or "— Early Mandatory Settlement at Elanco's Election" below. The actual applicable market value may differ from those set forth in the table below. Based on a reference price of approximately $32.00 and a threshold appreciation price of approximately $38.40, a holder of a Unit or a separate purchase contract, as applicable, would receive on the mandatory settlement date the number of shares of Elanco common stock for each Unit or separate purchase contract set forth below:

Assumed Applicable Market Value	Number of Shares of Common Stock to be Received on the Mandatory Settlement Date	Assumed Settlement Value (Calculated as Applicable Market Value multiplied by the Number of Shares of Common Stock to be received on the Mandatory Settlement Date)
$ 10.00	1.5625	$ 15.63
$ 15.00	1.5625	$ 23.44
$ 20.00	1.5625	$ 31.25
$ 25.00	1.5625	$ 39.06
$ 30.00	1.5625	$ 46.88
$ 32.00	1.5625	$ 50.00
$ 34.00	1.4706	$ 50.00
$ 36.00	1.3889	$ 50.00
$ 38.40	1.3021	$ 50.00
$ 40.00	1.3021	$ 52.08
$ 50.00	1.3021	$ 65.11
$ 60.00	1.3021	$ 78.13
$ 70.00	1.3021	$ 91.15
$ 80.00	1.3021	$ 104.17
$ 90.00	1.3021	$ 117.19

As the above table illustrates, if, on the mandatory settlement date, the applicable market value is greater than the threshold appreciation price, Elanco would be obligated to deliver 1.3021 shares of Elanco common stock for each purchase contract. As a result, if the applicable market value exceeds the threshold appreciation price, the holder will receive only a portion of the appreciation in the market value of the shares of Elanco common stock such holder would have received had the holder purchased $50.00 worth of shares of Elanco common stock at the reference price.

If, on the mandatory settlement date, the applicable market value is less than or equal to the threshold appreciation price but greater than or equal to the reference price of approximately $32.00, Elanco would be obligated to deliver a number of shares of Elanco common stock on the mandatory settlement date equal to $50.00, divided by the applicable market value. As a result, Elanco would retain all appreciation in the market value of Elanco common stock underlying each purchase contract between the reference price and the threshold appreciation price.

If, on the mandatory settlement date, the applicable market value is less than the reference price of approximately $32.00, Elanco would be obligated to deliver upon settlement of the purchase contract 1.5625 shares of Elanco common stock for each purchase contract, regardless of the market price of Elanco common stock. As a result, the holder would realize the entire loss on the decline in market value of the Elanco common stock underlying each purchase contract since the date of the pricing of Units.

Because the applicable market value of the common stock is determined over the settlement period, the number of shares of Elanco common stock delivered for each purchase contract may be greater than or less than the number that would have been delivered based on the closing price (or VWAP) per share of the common stock on the last trading day in the settlement period. In addition, the holder will bear the risk of fluctuations in the market price of the shares of Elanco common stock deliverable upon settlement of the purchase contracts between the last trading day in the settlement period and the date such shares are delivered.

Early Settlement

Prior to the close of business on the second scheduled trading day immediately preceding February 1, 2023, the holder, as a holder of Units or a holder of separate purchase contracts, may elect to settle the holder's purchase contracts early, in whole or in part, and receive a number of shares of Elanco common stock per purchase contract equal to the "early settlement rate" (and any cash payable for fractional shares). The early settlement rate is equal to the minimum settlement rate in effect on the early settlement date unless the holder elects to settle the holder's purchase contracts early in connection with a fundamental change, in which case the holder will receive upon settlement of the holder's purchase contracts a number of shares of Elanco common stock based on the "fundamental change early settlement rate" as described under "— Early Settlement Upon a Fundamental Change."

The holder's right to receive Elanco common stock (and any cash payable for fractional shares) upon early settlement of a purchase contract is subject to:

- delivery of a written and signed notice of election (an "early settlement notice") to the purchase contract agent electing early settlement of such purchase contract;
- if the Unit that includes such purchase contract or such purchase contract is held in certificated form, surrendering the certificates representing the purchase contract, or if held in global form, surrendering in accordance with DTC's applicable procedures; and
- payment by the holder of any transfer or similar taxes payable in connection with the issuance of Elanco common stock to any person other than the holder.

As long as the purchase contracts or the Units are evidenced by one or more global certificates deposited with DTC, procedures for early settlement will be governed by DTC's applicable procedures.

Upon surrender of the Unit or the separate purchase contract and payment of any applicable transfer or similar taxes due because of any issue of such shares in a name of a person other than the holder, the holder will receive the applicable number of shares of Elanco common stock (and any cash payable for fractional shares) due upon early settlement on the second business day following the "early settlement date" (as defined below).

If the holder complies with the requirements for effecting early settlement of the holder's purchase contracts earlier than the close of business on any business day, then that day will be considered the "early settlement date." If the holder complies with such requirements at or after the close of business on any business day or at any time on a day that is not a business day, then the next succeeding business day will be considered the "early settlement date." Prior to the close of business on the early settlement date, the shares of Elanco common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of Elanco common stock by virtue of holding such purchase contract. The person in whose name any shares of Elanco common stock shall be issuable upon such early settlement of the purchase contract will be treated as the holder of record of such shares as of the close of business on the relevant early settlement date.

Upon early settlement at the holder's election of the purchase contract component of a Unit, the amortizing note underlying such Unit will remain outstanding and be beneficially owned by or registered in the name of, as the case may be, the holder who elected to settle the related purchase contract early and will no longer constitute a part of the Unit.

Early Settlement Upon a Fundamental Change

If a "fundamental change" occurs and the holder elects to settle the holder's purchase contracts early in connection with such fundamental change, the holder will receive per purchase contract a number of shares of Elanco common stock (and any cash payable for fractional shares) (or, if a reorganization event has occurred, cash, securities or other property, as applicable) equal to the "fundamental change early settlement rate," as described below. An early settlement will be deemed for these purposes to be "in connection with" such fundamental change if the holder delivers the holder's early settlement notice to the purchase contract agent, and otherwise satisfies the

requirements for effecting early settlement of the holder's purchase contracts, during the period beginning on, and including, the effective date of the fundamental change and ending at the close of business on the 35th business day thereafter (or, if earlier, the second scheduled trading day immediately preceding February 1, 2023) (the "fundamental change early settlement period"). This right is referred to as the "fundamental change early settlement right."

A holder's right to Elanco common stock (and any cash payable for fractional shares) (or, if a reorganization event has occurred, cash, securities or other property, as applicable) upon early settlement in connection with a fundamental change is subject to compliance with the conditions described under "— Early Settlement."

Upon surrender of the Unit or the separate purchase contract and payment of any applicable transfer or similar taxes due because of any issue of such shares in a name of a person other than the holder, the holder will receive the applicable number of shares of Elanco common stock (and any cash payable for fractional shares) (or, if a reorganization event has occurred, cash, securities or other property, as applicable) issuable as a result of the holder's exercise of the fundamental change early settlement right on the second business day following the "fundamental change early settlement date" (as defined below).

If the holder complies with the requirements for effecting early settlement of the holder's purchase contracts in connection with a fundamental change prior to the close of business on any business day during the fundamental change early settlement period, then that day will be considered the "fundamental change early settlement date." If the holder complies with such requirements at or after the close of business on any business day during the fundamental change early settlement period or at any time on a day during the fundamental change early settlement period that is not a business day, then the next succeeding business day will be considered the "fundamental change early settlement date."

Elanco will provide the purchase contract agent, the trustee and the holders of Units and separate purchase contracts with a notice of a fundamental change within five business days after its effective date and issue a press release announcing such effective date. The notice will also set forth, among other things:

- the applicable fundamental change early settlement rate;
- if not Elanco common stock, the kind and amount of cash, securities and other property receivable by the holder upon settlement; and
- the deadline by which each holder's fundamental change early settlement right must be exercised.

A "fundamental change" will be deemed to have occurred upon the occurrence of any of the following:

(1) any "person" or "group" within the meaning of Section 13(d) of the Exchange Act, other than Elanco, any of its subsidiaries or any of Elanco's and their employee benefit plans, files a Schedule TO or any other schedule, form or report under the Exchange Act disclosing that such person or group has become the direct or indirect "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act) of Elanco common stock representing more than 50% of the voting power of Elanco common stock;

(2) the consummation of (A) any recapitalization, reclassification or change of Elanco common stock (other than changes resulting from a subdivision or combination) as a result of which Elanco common stock would be converted into, or exchanged for, stock, other securities, other property or assets; (B) any share exchange, consolidation or merger of Elanco pursuant to which Elanco common stock will be converted into cash, securities or other property or assets; or (C) any sale, lease or other transfer in one transaction or a series of transactions of all or substantially all of the consolidated assets of Elanco and its subsidiaries, taken as a whole, to any person or persons other than one of its wholly owned subsidiaries;

(3) Elanco's stockholders approve any plan or proposal for the liquidation or dissolution of Elanco; or

(4) Elanco common stock (or other common stock receivable upon settlement of the holder's purchase contracts, if applicable) ceases to be listed or quoted on any of the NYSE, the Nasdaq Global Select Market or the Nasdaq Global Market (or any of their respective successors).

A transaction or transactions described in clauses (1) or (2) above will not constitute a fundamental change, however, if (a) at least 90% of the consideration received or to be received by Elanco's shareholders (excluding cash payments for fractional shares and cash payments made in respect of dissenters' appraisal rights) in connection with such transaction or transactions consists of shares of Elanco common stock that are listed or quoted on any of the NYSE, the Nasdaq Global Select Market or the Nasdaq Global Market (or any of their respective successors), or will be so listed or quoted when issued or exchanged in connection with such transaction or transactions, and (b) as a result of such transaction or transactions such consideration becomes the consideration receivable upon settlement of the holder's purchase contracts, if applicable, excluding cash payments for fractional shares.

Notwithstanding anything to the contrary herein, in no event shall the Acquisition (as defined in the purchase contract agreement) and related transactions constitute a fundamental change.

If any transaction in which Elanco common stock is replaced by the securities of another entity occurs, following completion of any related fundamental change early settlement period (or, in the case of a transaction that would have been a fundamental change but for the immediately preceding paragraph, following the effective date of such transaction), references to Elanco in the definition of "fundamental change" above shall instead be references to such other entity.

The "fundamental change early settlement rate" will be determined by Elanco by reference to the table below, based on the date on which the fundamental change occurs or becomes effective (the "effective date") and the "stock price" in the fundamental change, which will be:

- in the case of a fundamental change described in clause (2) of the definition of "fundamental change" in which all holders of shares of Elanco common stock receive only cash in the fundamental change, the stock price will be the cash amount paid per share of Elanco common stock; and

- in all other cases, the stock price will be the arithmetic average of the VWAPs of Elanco common stock over the five consecutive trading day period ending on, and including, the trading day immediately preceding the effective date.

The stock prices set forth in the column headings of the table below will be adjusted as of any date on which the fixed settlement rates are adjusted. The adjusted stock prices will equal the stock prices applicable immediately prior to such adjustment, multiplied by a fraction, the numerator of which is the maximum settlement rate immediately prior to the adjustment giving rise to the stock price adjustment and the denominator of which is the maximum settlement rate as so adjusted. The fundamental change early settlement rates per purchase contract in the table below will be adjusted in the same manner and at the same time as the fixed settlement rates as set forth under "— Adjustments to the Fixed Settlement Rates."

The following table sets forth the fundamental change early settlement rate per purchase contract for each stock price and effective date set forth below:

	Stock Price											
Effective Date	**$10.00**	**$20.00**	**$25.00**	**$32.00**	**$35.00**	**$38.40**	**$45.00**	**$60.00**	**$70.00**	**$80.00**	**$90.00**	**$100.00**
January 27, 2020	1.5327	1.4646	1.4202	1.3688	1.3519	1.3364	1.3149	1.2925	1.2871	1.2846	1.2835	1.2830
May 1, 2020	1.5365	1.4731	1.4279	1.3740	1.3562	1.3397	1.3171	1.2938	1.2884	1.2861	1.2851	1.2846
August 1, 2020	1.5399	1.4818	1.4359	1.3794	1.3604	1.3429	1.3190	1.2950	1.2897	1.2875	1.2866	1.2862
November 1, 2020	1.5430	1.4908	1.4445	1.3851	1.3649	1.3462	1.3208	1.2961	1.2909	1.2889	1.2881	1.2877
February 1, 2021	1.5458	1.5002	1.4539	1.3912	1.3695	1.3494	1.3223	1.2970	1.2920	1.2902	1.2895	1.2893
May 1, 2021	1.5482	1.5097	1.4637	1.3975	1.3742	1.3525	1.3236	1.2977	1.2931	1.2915	1.2910	1.2908
August 1, 2021	1.5505	1.5199	1.4750	1.4047	1.3793	1.3556	1.3245	1.2982	1.2941	1.2929	1.2925	1.2924
November 1, 2021	1.5527	1.5301	1.4875	1.4129	1.3847	1.3585	1.3248	1.2986	1.2952	1.2943	1.2941	1.2940
February 1, 2022	1.5547	1.5402	1.5018	1.4223	1.3906	1.3611	1.3242	1.2988	1.2963	1.2957	1.2956	1.2956
May 1, 2022	1.5566	1.5492	1.5176	1.4334	1.3969	1.3629	1.3222	1.2989	1.2974	1.2972	1.2972	1.2972
August 1, 2022	1.5586	1.5565	1.5361	1.4486	1.4045	1.3630	1.3177	1.2993	1.2989	1.2988	1.2988	1.2988
November 1, 2022	1.5605	1.5605	1.5547	1.4732	1.4139	1.3576	1.3090	1.3005	1.3005	1.3005	1.3005	1.3005
February 1, 2023	1.5625	1.5625	1.5625	1.5625	1.4286	1.3021	1.3021	1.3021	1.3021	1.3021	1.3021	1.3021

The exact stock price and effective date may not be set forth in the table above, in which case:

- if the applicable stock price is between two stock prices in the table or the applicable effective date is between two effective dates in the table, the fundamental change early settlement rate will be determined by straight line interpolation between the fundamental change early settlement rates set forth for the higher and lower stock prices and the earlier and later effective dates, as applicable, based on a 365-or 366-day year, as applicable;

- if the applicable stock price is greater than $100.00 per share (subject to adjustment in the same manner and at the same time as the stock prices set forth in the column headings of the table above), then the fundamental change early settlement rate will be the minimum settlement rate; or

- if the applicable stock price is less than $10.00 per share (subject to adjustment in the same manner and at the same time as the stock prices set forth in the column headings of the table above, the "minimum stock price"), the fundamental change early settlement rate will be determined as if the stock price equaled the minimum stock price, and using straight line interpolation, as described in the first bullet of this paragraph, if the effective date is between two effective dates in the table.

The maximum number of shares of Elanco common stock deliverable under a purchase contract is 1.5625, subject to adjustment in the same manner and at the same time as the fixed settlement rates as set forth under "— Adjustments to the Fixed Settlement Rates."

Our obligation to settle the purchase contracts at the fundamental change early settlement rate could be considered a penalty, in which case the enforceability thereof would be subject to general principles of reasonableness of economic remedies.

We will deliver the shares of Elanco common stock (and any cash payable for fractional shares) (or, if a reorganization event has occurred, cash, securities or other property, as applicable) payable as a result of the holder's exercise of the fundamental change early settlement right on the second business day following the fundamental change early settlement date.

Prior to the close of business on the fundamental change early settlement date, the shares of Elanco common stock or other securities, if applicable, underlying each purchase contract will not be outstanding, and the

holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of Elanco common stock or such other securities by virtue of holding such purchase contract. The person in whose name any shares of Elanco common stock or such other securities shall be deliverable following exercise of a holder's fundamental change early settlement right will be treated as the holder of record of such shares or such other securities as of the close of business on the fundamental change early settlement date.

Upon early settlement at the holder's election upon a fundamental change of the purchase contract component of a Unit, the amortizing note underlying such Unit will remain outstanding and will be beneficially owned by or registered in the name of, as the case may be, the holder who elected to settle the related purchase contract early upon the fundamental change and will no longer constitute a part of the Unit.

If the holder does not elect to exercise their fundamental change early settlement right, the holder's purchase contracts will remain outstanding and will be subject to normal settlement on any subsequent early settlement date, any subsequent fundamental change early settlement date, any subsequent early mandatory settlement date or the mandatory settlement date, as the case may be.

Early Mandatory Settlement at Elanco's Election

Elanco has the right to settle the purchase contracts on or after November 1, 2020, in whole but not in part, on a date fixed by Elanco as described below at the "early mandatory settlement rate" described below. This right is referred to as Elanco "early mandatory settlement right."

The "early mandatory settlement rate" will be the maximum settlement rate as of the date (the "notice date") of the early mandatory settlement notice (as defined below).

The "closing price" per share of Elanco common stock (or any other security) on any day means:

- the closing sale price per share (or if no closing sale price is reported, the average of the bid and ask prices or, if more than one in either case, the average of the average bid and the average ask prices) on that date as reported in composite transactions for the relevant stock exchange;

- if Elanco common stock (or any other security) is not listed for trading on a relevant stock exchange on the relevant date, the last quoted bid price for Elanco common stock (or such other security) in the over-the-counter market on the relevant date as reported by OTC Markets Group Inc. or a similar organization; and

- if Elanco common stock (or any other security) is not so quoted, the average of the mid-point of the last bid and ask prices for Elanco common stock (or such other security) on the relevant date from each of at least three nationally recognized independent investment banking firms selected by Elanco for this purpose.

In the event Elanco elects to settle the purchase contracts early, holders of the amortizing notes (whether as components of Units or separate amortizing notes) will have the right to require Elanco to repurchase some or all of their amortizing notes on the repurchase date and at the repurchase price, as described under "Description of the Amortizing Notes — Repurchase of Amortizing Notes at the Option of the Holder." If Elanco exercises its early mandatory settlement right and the holder of any Unit does not require Elanco to repurchase the amortizing note that is a component of such Unit, such amortizing note will remain outstanding and will be beneficially owned by or registered in the name of, as the case may be, such holder. If Elanco exercises its early mandatory settlement right and the holder of any Unit requires Elanco to repurchase the amortizing note that is a component of such Unit but the related repurchase date falls after the early mandatory settlement date, such amortizing note will remain outstanding (pending such repurchase date) and will be beneficially owned by or registered in the name of, as the case may be, such holder.

If Elanco elects to exercise its early mandatory settlement right, Elanco will provide the purchase contract agent and the holders of Units, separate purchase contracts and separate amortizing notes with a notice of Elanco's election (the "early mandatory settlement notice") and issue a press release announcing Elanco's election. The early mandatory settlement notice will specify, among other things:

- the early mandatory settlement rate;
- the date on which Elanco will deliver shares of Elanco common stock (and any cash payable for fractional shares) following exercise of its early mandatory settlement right (the "early mandatory settlement date"), which will be on or after November 1, 2020 and at least five but not more than 20 business days following the notice date;
- that holders of Units and separate amortizing notes will have the right to require Elanco to repurchase their amortizing notes that are a component of the Units or their separate amortizing notes, as the case may be (subject to certain exceptions described under "Description of the Amortizing Notes — Repurchase of Amortizing Notes at the Option of the Holder");
- if applicable, the "repurchase price" and "repurchase date" (each as defined below under "Description of the Amortizing Notes — Repurchase of Amortizing Notes at the Option of the Holder");
- if applicable, the last date on which holders of amortizing notes may exercise their repurchase right; and
- if applicable, the procedures that holders of amortizing notes must follow to require Elanco to repurchase their amortizing notes.

Elanco will deliver the shares of Elanco common stock (and any cash payable for fractional shares) to the holder on the early mandatory settlement date.

Prior to the close of business on the notice date, the shares of Elanco common stock underlying each purchase contract will not be outstanding, and the holder of such purchase contract will not have any voting rights, rights to dividends or other distributions or other rights of a holder of Elanco common stock by virtue of holding such purchase contract. The person in whose name any shares of Elanco common stock shall be issuable following exercise of Elanco's early mandatory settlement right will be treated as the holder of record of such shares as of the close of business on the notice date.

Adjustments to the Fixed Settlement Rates

The fixed settlement rates will be adjusted as described below, except that Elanco will not make any adjustments to the fixed settlement rates if holders of the purchase contracts participate (other than in the case of (x) a share split or share combination or (y) a tender or exchange offer), at the same time and upon the same terms as holders of Elanco common stock and solely as a result of holding the purchase contracts, in any of the transactions described below without having to settle their purchase contracts as if they held a number of shares of Elanco common stock equal to the maximum settlement rate, *multiplied by* the number of purchase contracts held by such holders.

(a) If Elanco issues common stock to all or substantially all of the holders of Elanco common stock as a dividend or other distribution, or if Elanco effect a share split or share combination, then each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{OS_1}{OS_0}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the close of business on the record date (as defined below) for such dividend or distribution or immediately prior to the open of business on the effective date (as defined below) for such share split or share combination, as the case may be;

SR_1 = the fixed settlement rate in effect immediately after the close of business on such record date or immediately after the open of business on such effective date, as the case may be;

OS_0 = the number of shares of Elanco common stock outstanding immediately prior to the close of business on such record date or immediately prior to the open of business on such effective date, as the case may be (in either case, prior to giving effect to such event); and

OS_1 = the number of shares of Elanco common stock that would be outstanding immediately after, and solely as a result of, such dividend, distribution, share split or share combination.

Any adjustment made pursuant to this clause (a) will become effective immediately after the close of business on the record date for such dividend or distribution, or immediately after the open of business on the effective date for such share subdivision or share combination, as the case may be. If any dividend or distribution described in this clause (a) is declared but not so paid or made, each fixed settlement rate will be readjusted, effective as of the date Elanco's board of directors (or a committee thereof) publicly announces its decision not to make such dividend or distribution, to such fixed settlement rate that would be in effect if such dividend or distribution had not been declared. For the purposes of this clause (a), the number of shares of Elanco common stock outstanding immediately prior to the close of business on the record date for such dividend or distribution or the open of business on the effective date for such share subdivision or share combination, as applicable, will not include shares held in treasury but will include any shares issuable in respect of any scrip certificates issued in lieu of fractions of shares of Elanco common stock. Elanco will not pay any such dividend or make any such distribution on shares of Elanco common stock held in treasury.

"Record date" means, when used with respect to any dividend, distribution or other transaction or event in which the holders of Elanco common stock (or other applicable security) have the right to receive any cash, securities or other property or in which Elanco common stock (or other applicable security) is exchanged for or converted into any combination of cash, securities or other property, the date fixed for determination of holders of Elanco common stock (or other applicable security) entitled to receive such cash, securities or other property (whether such date is fixed by Elanco's board of directors or a committee thereof, or by statute, contract or otherwise).

"Effective date" means the first date on which the shares of Elanco common stock trade on the relevant stock exchange, regular way, reflecting the relevant share split or share combination, as applicable.

(b) If Elanco issues to all or substantially all holders of Elanco common stock rights, options or warrants (other than rights issued pursuant to a stockholder rights plan) entitling them, for a period of up to 45 calendar days from the date of issuance of such rights, options or warrants, to subscribe for or purchase Elanco's shares of Elanco common stock at a price per share less than the average of the closing prices (as defined under "— Early Mandatory Settlement at Elanco's Election") per share of Elanco common stock for the 10 consecutive trading day (as defined below) period ending on, and including, the trading day immediately preceding the date of announcement for such distribution per share of Elanco common stock, then each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{(OS_0 + X)}{(OS_0 + Y)}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the close of business on the record date for such issuance;

SR_1 = the fixed settlement rate in effect immediately after the close of business on such record date;

OS_0 = the number of shares of Elanco common stock outstanding immediately prior to the close of business on such record date;

X = the total number of shares of Elanco common stock issuable pursuant to such rights, options or warrants; and

Y = the total number of shares of Elanco common stock equal to the aggregate price payable to exercise such rights, options or warrants, divided by the average of the closing prices per share of Elanco common stock for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement for such distribution.

Any adjustment made pursuant to this clause (b) will be made successively whenever any such rights, options or warrants are issued and will become effective immediately after the close of business on the record date for such issuance. In the event that such rights, options or warrants described in this clause (b) are not so issued, each fixed settlement rate will be readjusted, effective as of the date Elanco's board of directors (or a committee thereof) publicly announces its decision not to issue such rights, options or warrants, to such fixed settlement rate that would then be in effect if such issuance had not been declared. To the extent that such rights, options or warrants are not exercised prior to their expiration or shares of Elanco common stock are otherwise not delivered pursuant to such rights, options or warrants upon the exercise of such rights, options or warrants, each fixed settlement rate will be readjusted, effective as of the date of such expiration or the date it is determined such shares will not be delivered, as the case may be, to such fixed settlement rate that would then be in effect had the adjustment made upon the issuance of such rights, options or warrants been made on the basis of the delivery of only the number of shares of Elanco common stock actually delivered.

In determining whether any rights, options or warrants entitle the holders thereof to subscribe for or purchase shares of Elanco common stock at less than the average of the closing prices per share of Elanco common stock for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the date of announcement for such distribution, and in determining the aggregate price payable to exercise such rights, options or warrants, there will be taken into account any consideration received by Elanco for such rights, options or warrants and any amount payable on exercise or conversion thereof, the value of such consideration, if other than cash, to be determined by Elanco's board of directors, or a committee thereof.

For the purposes of this clause (b), the number of shares of Elanco common stock at the time outstanding will not include shares held in treasury but will include any shares issuable in respect of any scrip certificates issued in lieu of fractions of shares of Elanco common stock. Elanco will not issue any such rights, options or warrants in respect of shares of Elanco common stock held in treasury.

(c) (1) If Elanco distributes to all or substantially all holders of Elanco common stock shares of Elanco's capital stock (other than Elanco common stock), evidences of Elanco's indebtedness, assets or rights, options or warrants to acquire Elanco's capital stock, indebtedness or assets, excluding:

- any dividend or distribution (including share splits or share combinations) as to which an adjustment was effected pursuant to clause (a) above;

- any rights, options or warrants as to which an adjustment was effected pursuant to clause (b) above;
- except as otherwise described below, rights issued pursuant to any stockholder rights plan of ours then in effect;
- any dividend or distribution described in clause (d) below;
- distributions of exchange property in a transaction described in "— Recapitalizations, Reclassifications and Changes of Our Common Stock;" and
- any spin-off (as defined below) to which the provisions set forth below in clause (c)(2) shall apply;

then each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{SP_0}{(SP_0 - FMV)}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the close of business on the record date for such dividend or distribution;

SR_1 = the fixed settlement rate in effect immediately after the close of business on such record date;

SP_0 = the average of the closing prices per share of Elanco common stock for the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the ex-date for such dividend or distribution; and

FMV = the fair market value (as determined by Elanco's board of directors or a committee thereof) on the ex-date for such dividend or distribution, of the shares of Elanco's capital stock, evidences of Elanco's indebtedness, assets or rights, options or warrants so distributed, expressed as an amount per share of Elanco common stock.

Notwithstanding the foregoing, if FMV (as defined above) is equal to or greater than SP_0 (as defined above) or if the difference between SP_0 and FMV is less than $1.00, in lieu of the foregoing adjustment, provision shall be made for each holder of a Unit or separate purchase contract to receive, for each Unit or separate purchase contract, at the same time and upon the same terms as holders of Elanco common stock, the kind and amount of Elanco's capital stock, evidences of Elanco's indebtedness, assets or rights, options or warrants that such holder would have received if such holder owned a number of shares of Elanco common stock equal to the maximum settlement rate in effect on the record date for the dividend or distribution.

Any adjustment made pursuant to this clause (c)(1) will become effective immediately after the close of business on the record date for such dividend or distribution. In the event that such dividend or distribution is not so made, each fixed settlement rate will be readjusted, effective as of the date Elanco's board of directors (or a committee thereof) publicly announces its decision not to make such dividend or distribution, to such fixed settlement rate that would then be in effect if such dividend or distribution had not been declared. Elanco will not make any such distribution on shares of Elanco common stock held in treasury.

"Ex-date," when used with respect to any issuance or distribution, means the first date on which shares of Elanco common stock (or other applicable security) trade on the applicable exchange or in the applicable market, regular way, without the right to receive such issuance, dividend or distribution in question from Elanco or, if

applicable, from the seller of Elanco common stock (or other applicable security) on such exchange or market (in the form of due bills or otherwise) as determined by such exchange or market.

(c) (2) In the event that Elanco makes a dividend or distribution to all or substantially all holders of Elanco common stock consisting of capital stock of, or similar equity interests in, or relating to, a subsidiary or other business unit of Elanco's that, upon issuance, will be traded on a U.S. national securities exchange (herein referred to as a "spin-off"), each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{(FMV_0 + MP_0)}{MP_0}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the open of business on the ex-date for the spin-off;

SR_1 = the fixed settlement rate in effect immediately after the open of business on the ex-date for the spin-off;

FMV_0 = the average of the closing prices (as defined above, as if references to "Elanco common stock" therein were references to such capital stock or similar equity interest distributed to the holders of Elanco common stock) per share of the capital stock or similar equity interests so distributed applicable to one share of Elanco common stock for the 10 consecutive trading day period commencing on, and including, the ex-date date for the spin-off (the "valuation period"); and

MP_0 = the average of the closing prices per share of Elanco common stock for the valuation period.

Any adjustment made pursuant to this clause (c)(2) will become effective immediately after the close of business on the last trading day of the valuation period but will be given effect as of immediately after the open of business on the ex-date of the spin-off. Because Elanco will make the adjustment to each fixed settlement rate with retroactive effect, Elanco will delay any settlement of a Unit or separate purchase contract where any date for determining the number of shares of Elanco common stock issuable to a holder occurs during the valuation period until the second business day after the last date for determining the number of shares of Elanco common stock issuable to such holder with respect to such settlement occurs. In the event that such dividend or distribution described in this clause (c)(2) is not so made, each fixed settlement rate will be readjusted, effective as of the date Elanco's board of directors (or a committee thereof) publicly announces its decision not to pay such dividend or distribution, to such fixed settlement rate that would then be in effect if such distribution had not been declared. Elanco will not make any such dividend or distribution on shares of Elanco common stock held in treasury.

(d) If Elanco makes a dividend or distribution consisting exclusively of cash to all or substantially all holders of Elanco common stock, excluding:

- any cash that is distributed in, and will constitute exchange property as a result of, a reorganization event (as defined below) in exchange for shares of Elanco common stock; and
- any dividend or distribution in connection with Elanco's liquidation, dissolution or winding up;

then each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{SP_0}{(SP_0 - C)}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the close of business on the record date for such dividend or distribution;

SR_1 = the fixed settlement rate in effect immediately after the close of business on the record date for such dividend or distribution;

SP_0 = the average of the closing prices per share of Elanco common stock over the 10 consecutive trading day period ending on, and including, the trading day immediately preceding the ex-date for such dividend or distribution; and

C = the amount in cash per share Elanco distributes to holders of Elanco common stock.

If C (as defined above) is equal to or greater than SP_0 (as defined above) or if the difference between SP_0 and C is less than $1.00, in lieu of the foregoing adjustment, provision shall be made for each holder of a Unit or separate purchase contract to receive, for each Unit or separate purchase contract, at the same time and upon the same terms as holders of Elanco common stock, the amount of cash that such holder would have received if such holder owned a number of shares of Elanco common stock equal to the maximum settlement rate on the record date for such cash dividend or distribution.

Any adjustment made pursuant to this clause (d) will become effective immediately after the close of business on the record date for such dividend or distribution. In the event that any dividend or distribution described in this clause (d) is not so made, each fixed settlement rate will be readjusted, effective as of the date Elanco's board of directors (or a committee thereof) publicly announces its decision not to pay such dividend or distribution, to such fixed settlement rate which would then be in effect if such dividend or distribution had not been declared. Elanco will not make any such dividend or distribution on shares of Elanco common stock held in treasury.

For the purposes of this clause (d), in no event shall the Acquisition (as defined in the purchase contract agreement) and related transactions be deemed to be a liquidation, dissolution or winding up.

(e) If Elanco or any of its subsidiaries successfully complete a tender or exchange offer for Elanco common stock where the cash and the value of any other consideration included in the payment per share of Elanco common stock validly tendered or exchanged exceeds the average of the closing prices per share of Elanco common stock for the 10 consecutive trading day period (the "averaging period") commencing on, and including, the trading day next succeeding the last date on which tenders or exchanges may be made pursuant to such tender offer or exchange offer (the "expiration date"), then each fixed settlement rate will be adjusted based on the following formula:

$$SR_1 = SR_0 \times \frac{(AC + (SP \times OS_1))}{(SP \times OS_0)}$$

where,

SR_0 = the fixed settlement rate in effect immediately prior to the close of business on the expiration date;

SR_1 = the fixed settlement rate in effect immediately after the close of business on the expiration date;

AC = the aggregate value of all cash and the fair market value (as determined by Elanco's board of directors, or a committee thereof) on the expiration date of any other consideration paid or payable for shares of Elanco common stock acquired pursuant to such tender offer or exchange offer;

OS_1 = the number of shares of Elanco common stock outstanding immediately after the expiration date, after giving effect to the purchase of all shares accepted for purchase or exchange in such tender or exchange offer;

OS_0 = the number of shares of Elanco common stock outstanding immediately prior to the expiration date, prior to giving effect to the purchase of any shares accepted for purchase or exchange in such tender or exchange offer; and

SP = the average of the closing prices per share of Elanco common stock over the averaging period.

Any adjustment made pursuant to this clause (e) will become effective immediately after the close of business on the expiration date. Because Elanco will make the adjustment to each fixed settlement rate with retroactive effect, Elanco will delay any settlement of a Unit or separate purchase contract where any date for determining the number of shares of Elanco common stock issuable to a holder occurs during the averaging period until the second business day after the last date for determining the number of shares of Elanco common stock issuable to such holder with respect to such settlement occurs. In the event that Elanco is, or one of its subsidiaries is, obligated to purchase shares of Elanco common stock pursuant to any such tender or exchange offer, but Elanco is, or such subsidiary is, permanently prevented by applicable law from effecting any such purchases, or all such purchases are rescinded, then each fixed settlement rate will be readjusted to be such fixed settlement rate that would then be in effect if such tender or exchange offer had not been made.

To the extent that Elanco has a rights plan in effect with respect to Elanco common stock on any date for determining the number of shares of Elanco common stock issuable to a holder, the holder will receive, in addition to Elanco common stock, the rights under the rights plan, unless, prior to such determination date, the rights have separated from Elanco common stock, in which case each fixed settlement rate will be adjusted at the time of separation as if Elanco made a distribution to all holders of Elanco common stock as described in clause (c)(1) above, subject to readjustment in the event of the expiration, termination or redemption of such rights.

For purposes of this "— Adjustments to the Fixed Settlement Rates" section, "trading day" means a day on which:

- trading in Elanco common stock (or other security for which a closing sale price must be determined) generally occurs on the relevant stock exchange, or, if Elanco common stock (or such other security) is not then listed on a relevant stock exchange, on the principal other market on which Elanco common stock (or such other security) is then listed or admitted for trading; and

- a closing price per share for Elanco common stock (or closing sale price for such other security) is available on such securities exchange or market.

If Elanco common stock (or such other security) is not so listed or traded, "trading day" means a "business day."

In addition, subject to applicable law and the applicable listing standards of the NYSE (or any other securities exchange where Elanco common stock is listed) and in accordance with the provisions of the purchase contract agreement, Elanco may make such increases in each fixed settlement rate as Elanco determines to be in its best interests or Elanco deems advisable. Elanco may also (but is not required to) increase each fixed settlement rate in order to avoid or diminish any income tax to holders of Elanco common stock resulting from any dividend or distribution of shares of Elanco common stock (or issuance of rights, options or warrants to acquire shares of Elanco

common stock) or from any event treated as such for income tax purposes or for any other reason. Elanco may only make such a discretionary adjustment if Elanco makes the same proportionate adjustment to each fixed settlement rate.

Adjustments to each fixed settlement rate will be calculated to the nearest 1/10,000th of a share. No adjustment in the fixed settlement rates will be required unless the adjustment would require an increase or decrease of at least one percent. If any adjustment is not required to be made because it would not change the fixed settlement rates by at least one percent, then the adjustment will be carried forward and taken into account in any subsequent adjustment; *provided* that, on any date for determining the number of shares of Elanco common stock issuable to a holder, adjustments to the fixed settlement rates will be made with respect to any such adjustment carried forward and which has not been taken into account before such determination date.

The fixed settlement rates will only be adjusted as set forth above and will not be adjusted:

- upon the issuance of any shares of Elanco common stock pursuant to any present or future plan providing for the reinvestment of dividends or interest payable on Elanco's securities and the investment of additional optional amounts in Elanco common stock under any plan;
- upon the issuance of any shares of Elanco common stock or rights, options or warrants to purchase those shares pursuant to any present or future employee, director or consultant benefit plan or program of or assumed by Elanco or any of its subsidiaries;
- upon the repurchase of any shares of Elanco common stock pursuant to an open market share repurchase program or other buy-back transaction, including structured or derivative transactions, that is not a tender offer or exchange offer of the nature described in clause (e) above;
- for the sale or issuance of shares of Elanco common stock, or securities convertible into or exercisable for shares of Elanco common stock, for cash, including at a price per share less than the fair market value thereof or otherwise or in an acquisition, including the Acquisition, except as described in one of clauses (a) through (e) above;
- for a third-party tender offer;
- upon the issuance of any shares of Elanco common stock pursuant to any option, warrant, right or exercisable, exchangeable or convertible security outstanding as of the date the Units were first issued;
- solely for a change in the par value of Elanco common stock;
- for accrued and unpaid interest, if any; or
- for any other issuance of shares of Elanco common stock or any securities convertible into or exchangeable for shares of Elanco common stock or the right to purchase shares of Elanco common stock or such convertible or exchangeable securities, except as described above, including in connection with the Acquisition and related transactions.

Whenever the fixed settlement rates are adjusted, Elanco will deliver to the purchase contract agent a certificate setting forth in reasonable detail the method by which the adjustment to each fixed settlement rate was determined and setting forth each adjusted fixed settlement rate. In addition, Elanco will, within five business days of any event requiring such adjustment, provide or cause to be provided written notice of the adjustment to the holders of the Units and separate purchase contracts and describe in reasonable detail the method by which each fixed settlement rate was adjusted.

Elanco will adjust the fundamental change early settlement rates at the time Elanco adjusts the fixed settlement rates. For the avoidance of doubt, if Elanco makes an adjustment to the fixed settlement rates, it will result in a corresponding adjustment to the early settlement rate and the early mandatory settlement rate. For the further avoidance of doubt, if Elanco makes an adjustment to the fixed settlement rates, no separate inversely proportionate adjustment will be made either to (i) the threshold appreciation price because it is equal to $50.00 divided by the minimum settlement rate as adjusted in the manner described herein (rounded to the nearest $0.0001) or (ii) the reference price because it is equal to $50.00 divided by the maximum settlement rate as adjusted in the manner described herein (rounded to the nearest $0.0001).

Whenever the terms of the purchase contracts require Elanco to calculate closing prices, VWAPs or any other prices or amounts over a span of multiple days (including, without limitation, the applicable market value or the "stock price"), Elanco will make appropriate adjustments, if any, to each to account for any adjustment to the fixed settlement rates if the related record date, ex-date, effective date or expiration date occurs during the period in which the closing prices, the VWAPs or such other prices or amounts are to be calculated.

Recapitalizations, Reclassifications and Changes of Elanco Common Stock

In the event of:

- any consolidation or merger of Elanco with or into another person (other than a merger or consolidation in which Elanco is the continuing or surviving corporation and in which the shares of Elanco common stock outstanding immediately prior to the merger or consolidation are not exchanged for cash, securities or other property of Elanco or another person;

- any direct or indirect sale, lease, assignment, transfer or conveyance of all or substantially all of Elanco's consolidated property or assets;

- any reclassification of Elanco common stock into securities, including securities other than Elanco common stock (other than changes in par value or resulting from a subdivision or combination); or

- any statutory exchange of Elanco's securities with another person (other than in connection with a merger or acquisition);

in each case, as a result of which Elanco common stock would be converted into, or exchanged for, securities, cash or other property (each, a "reorganization event"), each purchase contract outstanding immediately prior to such reorganization event will, without the consent of the holders of the purchase contracts, become a contract to purchase the kind of securities, cash and/or other property that a holder of Elanco common stock would have been entitled to receive in connection with such reorganization event (such securities, cash and other property, the "exchange property" with each unit of exchange property being the kind and amount of exchange property that a holder of one share of Elanco common stock would have received in such reorganization event) and, prior to or at the effective time of such reorganization event, Elanco or the successor or purchasing person, as the case may be, shall execute with the purchase contract agent and the trustee a supplemental agreement pursuant to the purchase contract agreement and the purchase contracts to provide for such change in the right to settle the purchase contracts. Notwithstanding anything to the contrary herein, in no event shall the Acquisition and related transactions constitute a reorganization event.

For purposes of the foregoing, the type and amount of exchange property in the case of any reorganization event that causes Elanco common stock to be converted into, or exchanged for, the right to receive more than a single type of consideration (determined based in part upon any form of shareholder election) will be deemed to be the weighted average of the types and amounts of consideration actually received by the holders of Elanco common stock.

The number of units of exchange property Elanco will deliver for each purchase contract settled following the effective date of such reorganization event will be equal to the number of shares of Elanco common stock Elanco

would otherwise be required to deliver as determined by the fixed settlement rates then in effect on the applicable settlement date, or such other settlement rates as provided herein (without interest thereon and without any right to dividends or distributions thereon which have a record date prior to the close of business such purchase contracts are actually settled). Each fixed settlement rate will be determined using the applicable market value of a unit of exchange property, and such value will be determined, on any date of determination, with respect to:

- in the case of any publicly traded securities that comprise all or part of the exchange property, based on the VWAP of such securities on such date;
- in the case of any cash that comprises all or part of the exchange property, based on the amount of such cash; and
- in the case of any other property that comprises all or part of the exchange property, based on the value of such property on such date, as determined by a nationally recognized independent investment banking firm retained by Elanco for this purpose.

In addition, if the exchange property in respect of any reorganization event includes, in whole or in part, securities of another entity, Elanco shall amend the terms of the purchase contract agreement and the purchase contracts, without the consent of holders thereof, to: (x) provide for anti-dilution and other adjustments that shall be as nearly equivalent as practicable, as determined by the officer executing such amendment, to the adjustments described above under the heading "— Adjustments to the Fixed Settlement Rates;" and (y) otherwise modify the terms of the purchase contract agreement and the purchase contracts to reflect the substitution of the applicable exchange property for Elanco common stock (or other exchange property then underlying the purchase contracts). In establishing such anti-dilution and other adjustments referenced in the immediately preceding sentence, such officer shall act in a commercially reasonable manner and in good faith.

Fractional Shares

No fractional shares of Elanco common stock will be issued to holders upon settlement of the purchase contracts. In lieu of fractional shares otherwise issuable, holders will be entitled to receive an amount in cash equal to the fraction of a share of Elanco common stock, calculated on an aggregate basis in respect of the purchase contracts being settled (*provided that*, so long as the Units are in global form, Elanco may elect to aggregate Units for purposes of these calculations on any basis permitted by the applicable procedures of DTC), *multiplied by* the VWAP of Elanco common stock on the trading day immediately preceding the mandatory settlement date, early settlement date, fundamental change early settlement date or early mandatory settlement date, as the case may be.

Legal Holidays

In any case where the mandatory settlement date, early settlement date, fundamental change early settlement date or early mandatory settlement date, as the case may be, shall not be a business day, notwithstanding any term to the contrary in the purchase contract agreement or purchase contract, the settlement of the purchase contracts shall not be effected on such date, but instead shall be effected on the next succeeding business day with the same force and effect as if made on such settlement date, and no interest or other amounts shall accrue or be payable by Elanco or to any holder in respect of such delay.

Consequences of Bankruptcy

Pursuant to the terms of the purchase contract agreement, the mandatory settlement date for each purchase contract, whether held separately or as part of a Unit, will automatically accelerate upon the occurrence of specified events of bankruptcy, insolvency or reorganization with respect to Elanco. Pursuant to the terms of the purchase contract agreement, upon acceleration, holders will be entitled under the terms of the purchase contracts to receive a number of shares of Elanco common stock per purchase contract equal to the maximum settlement rate in effect immediately prior to such acceleration (regardless of the market value of Elanco common stock at that time). If for any reason the accelerated purchase contracts are not settled by the delivery of Elanco common stock (for example, a

bankruptcy court may prevent Elanco from delivering Elanco common stock in settlement of the accelerated purchase contracts), a holder may have a damage claim against Elanco for the value of the common stock that Elanco would have otherwise been required to deliver upon settlement of the purchase contracts. Elanco expects that any such damage claim that holders have against Elanco following such acceleration would rank equally with the claims of holders of Elanco common stock in the relevant bankruptcy proceeding. As such, to the extent Elanco fails to deliver Elanco common stock to the holders upon such an acceleration, the holders will only be able to recover damages to the extent holders of Elanco common stock receive any recovery.

Modification

The purchase contract agreement will contain provisions permitting us, the purchase contract agent and the trustee to modify the purchase contract agreement or the purchase contracts without the consent of the holders of purchase contracts (whether held separately or as a component of Units) for any of the following purposes:

- to evidence the succession of another person to Elanco, and the assumption by any such successor of the covenants and obligations of Elanco's in the purchase contract agreement and the units and separate purchase contracts, if any;
- to add to the covenants for the benefit of holders of purchase contracts or to surrender any of Elanco's rights or powers under the agreement;
- to evidence and provide for the acceptance of appointment of a successor purchase contract agent;
- upon the occurrence of a reorganization event, solely: (i) to provide that each purchase contract will become a contract to purchase exchange property; and (ii) to effect the related changes to the terms of the purchase contracts, in each case, as required by the applicable provisions of the purchase contract agreement;
- to cure any ambiguity or manifest error, to correct or supplement any provisions that may be inconsistent; and
- to make any other provisions with respect to such matters or questions, so long as such action does not adversely affect the interest of the holders.

The purchase contract agreement will contain provisions permitting Elanco, the purchase contract agent and the trustee, with the consent of the holders of not less than a majority of the purchase contracts at the time outstanding, to modify the terms of the purchase contracts or the purchase contract agreement. However, no such modification may, without the consent of the holder of each outstanding purchase contract affected by the modification,

- reduce the number of shares of Elanco common stock deliverable upon settlement of the purchase contract (except to the extent expressly provided in the anti-dilution adjustments);
- change the mandatory settlement date, or adversely modify the right to settle purchase contracts early or the fundamental change early settlement right;
- impair the right to institute suit for the enforcement of the purchase contracts; or
- reduce the above-stated percentage of outstanding purchase contracts the consent of the holders of which is required for the modification or amendment of the provisions of the purchase contracts or the purchase contract agreement.

In executing any supplement, modification or amendment to the purchase contract agreement, the purchase contract agent and trustee shall be provided an officer's certificate and an opinion of counsel stating that the

execution of such supplemental agreement is authorized or permitted by the purchase contract agreement, and that any and all conditions precedent to the execution and delivery of such supplemental agreement have been satisfied.

Consolidation, Merger, Conveyance, Transfer or Lease

The purchase contract agreement will provide that Elanco will not consolidate or merge with or into any other entity, or sell, transfer, lease or otherwise convey its properties and assets as an entirety or substantially as an entirety to any entity, unless:

- (i) it is the continuing entity (in the case of a merger), or (ii) the successor entity formed by such consolidation or into which it is merged or which acquires by sale, transfer, lease or other conveyance of its properties and assets, as an entirety or substantially as an entirety, is a corporation organized and existing under the laws of the United States of America or any State thereof, the District of Columbia or any territory thereof, and expressly assumes, by a supplement to the purchase contract agreement, all Elanco's obligations under the purchase contract agreement; and

- immediately after giving effect to the transaction, no event of default, and no event which after notice or lapse of time or both would become an event of default under the purchase contract agreement or the purchase contracts, has or will have occurred and be continuing.

Notwithstanding anything to the contrary herein, in no event shall the Acquisition and related transactions be limited by this "— Consolidation, Merger, Conveyance, Transfer or Lease."

Although there is a limited body of case law interpreting the phrase "substantially as an entirety," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve a disposition of Elanco's properties and assets "substantially as an entirety." As a result, it may be unclear as to whether the foregoing restrictions on mergers, consolidations, sales, conveyances, transfers, leases and other dispositions would apply to a particular transaction as described above absent a decision by a court of competent jurisdiction.

Reservation of Common Stock

Elanco will at all times reserve and keep available out of Elanco's authorized and unissued common stock, solely for issuance upon settlement of the purchase contracts, the number of shares of common stock that would be issuable upon the settlement of all purchase contracts then outstanding, assuming settlement at the maximum settlement rate.

Governing Law

The purchase contract agreement, the Units, the purchase contracts and any claim, controversy or dispute arising under or related to the purchase contract agreement, the Units or the purchase contracts are governed by, and construed in accordance with, the laws of the State of New York.

Waiver of Jury Trial

The purchase contract agreement provides that Elanco, the purchase contract agent and the trustee will waive its respective rights to trial by jury in any action or proceeding arising out of or related to the purchase contracts, the purchase contract agreement or the transactions contemplated thereby, to the maximum extent permitted by law.

Information Concerning the Purchase Contract Agent

Deutsche Bank Trust Company Americas is the purchase contract agent. The purchase contract agent act as the agent for the holders of Units and separate purchase contracts from time to time but shall have no fiduciary relationship to the holder of the Units or any other party. The purchase contract agreement does not obligate the purchase contract agent to exercise any discretionary actions in connection with a default under the terms of the purchase contracts or the purchase contract agreement.

The purchase contract agreement contains provisions limiting the liability of the purchase contract agent. The purchase contract agreement contains provisions under which the purchase contract agent may resign or be replaced. This resignation or replacement would be effective upon the acceptance of appointment by a successor purchase contract agent.

Elanco maintains banking relationships in the ordinary course of business with the purchase contract agent and its affiliates.

Description of the amortizing notes

The amortizing notes were issued by Elanco pursuant to an indenture, between Elanco, as issuer, and Deutsche Bank Trust Company Americas, as trustee, dated August 28, 2018 and a related supplemental indenture, dated as of January 27, 2020, between Elanco and the trustee (collectively referred to herein as the "indenture").

General

The amortizing notes were issued as a separate series of senior debt securities under the indenture. The amortizing notes were issued by Elanco in an aggregate initial principal amount of $79,207,700. The final installment payment date will be February 1, 2023. Elanco may not redeem the amortizing notes, and no sinking fund is provided for the amortizing notes.

Each amortizing note initially forms a part of a Unit. Each Unit may be separated by a holder into its constituent purchase contract and amortizing note on any business day during the period beginning on, and including, the business day immediately following the date of initial issuance of the Units to, but excluding, the second scheduled trading day immediately preceding February 1, 2023 or, if earlier, the second scheduled trading day immediately preceding any "early mandatory settlement date" and also excluding the business day immediately preceding any installment payment date (provided, the right to separate the Units shall resume after such business day). Following such separation, amortizing notes may be transferred separately from purchasing contracts.

Amortizing notes may only be issued in certificated form in exchange for a global security under the circumstances. In the event that amortizing notes are issued in certificated form, such amortizing notes may be transferred or exchanged at the offices described below.

Payments on amortizing notes issued as a global security will be made to DTC, or a successor depositary. In the event amortizing notes are issued in certificated form, installment payments will be made, at the corporate trust office of the trustee. Installment payments on certificated amortizing notes may be made at Elanco's option by check mailed to the address of the persons entitled thereto. The amortizing notes are not guaranteed by any of Elanco's subsidiaries.

There are no covenants or provisions in the indenture that would afford the holders of the amortizing notes protection in the event of a highly leveraged transaction, reorganization, restructuring, merger or similar transaction involving Elanco that may adversely affect such holders, except to the extent set forth under "— Consolidation, Merger, Conveyance, Transfer or Lease."

The indenture does not limit the aggregate principal amount of indebtedness that may be issued thereunder and provides that debt securities may be issued thereunder from time to time in one or more series.

Ranking

The amortizing notes are Elanco's general unsecured senior obligations and rank equally in right of payment with all of Elanco's other existing and future unsecured senior indebtedness and guarantees and are structurally subordinated to the indebtedness and other liabilities of Elanco's subsidiaries. The amortizing notes rank senior to all of Elanco's existing and future indebtedness, if any, that is subordinated to the amortizing notes. The amortizing notes are effectively subordinated to any of Elanco's secured indebtedness to the extent of the collateral securing that indebtedness.

The amortizing notes are Elanco 's obligations exclusively, and are not the obligations of any of Elanco's subsidiaries.

Elanco conducts its operations through its subsidiaries. Accordingly, Elanco's ability to meet its obligations under the amortizing notes will depend on the generation of cash flow by its subsidiaries, including its international subsidiaries, and their ability to make such cash available to Elanco, by dividend, debt repayment or otherwise. Elanco 's subsidiaries are not obligated to pay dividends or make loans or distributions to Elanco and each subsidiary is a distinct legal entity, and under certain circumstances, legal, tax and contractual restrictions may limit Elanco's ability to obtain cash from its subsidiaries. As a result, Elanco may not be able to cause such subsidiaries to distribute funds or provide loans sufficient to enable Elanco to meet its debt and other obligations, including obligations under the amortizing notes.

Installment Payments

Each amortizing note had an initial principal amount of $7.2007. On each February 1, May 1, August 1 and November 1, commencing on May 1, 2020 (each, an "installment payment date"), Elanco will pay, in cash, equal quarterly installments of $0.6250 on each amortizing note (except for the May 1, 2020 installment payment, which will be $0.6528 per amortizing note). Each installment payment will constitute a payment of interest (at a rate of 2.75% per annum) and a partial repayment of principal on the amortizing note, allocated as set forth on the amortization schedule set forth under "— Amortization Schedule."

Installments will be paid to the person in whose name an amortizing note is registered as of 5:00 p.m., New York City time, on January 15, April 15, July 15 and October 15, as applicable.

Each installment payment for any period will be computed on the basis of a 360-day year of twelve 30-day months. The installment payable for any period shorter or longer than a full installment payment period will be computed on the basis of the actual number of days elapsed per 30-day month. In the event that any date on which an installment is payable is not a business day, then payment of the installment on such date will be made on the next succeeding day that is a business day, and without any interest or other payment in respect of any such delay.

Amortization Schedule

The total installments of principal of and interest on the amortizing notes for each installment payment date are set forth below:

Installment Payment Date	Amount of Principal	Amount of Interest
May 1, 2020	$ 0.6011	$ 0.0517
August 1, 2020	$ 0.5796	$ 0.0454
November 1, 2020	$ 0.5836	$ 0.0414
February 1, 2021	$ 0.5876	$ 0.0374
May 1, 2021	$ 0.5917	$ 0.0333
August 1, 2021	$ 0.5957	$ 0.0293
November 1, 2021	$ 0.5998	$ 0.0252
February 1, 2022	$ 0.6040	$ 0.0210
May 1, 2022	$ 0.6081	$ 0.0169
August 1, 2022	$ 0.6123	$ 0.0127
November 1, 2022	$ 0.6165	$ 0.0085
February 1, 2023	$ 0.6207	$ 0.0043

Repurchase of Amortizing Notes at the Option of the Holder

If Elanco elects to exercise its early mandatory settlement right with respect to the purchase contracts, then holders of the amortizing notes (whether as components of Units or separate amortizing notes) will have the right (the "repurchase right") to require Elanco to repurchase some or all of their amortizing notes for cash at the repurchase price per amortizing note to be repurchased on the repurchase date, as described below. Holders may not require Elanco to repurchase a portion of an amortizing note. Holders will not have the right to require Elanco to repurchase any or all of such holder's amortizing notes in connection with any early settlement of such holder's purchase contracts at the holder's option, as described above under "Description of the Purchase Contracts — Early Settlement" and "Description of the Purchase Contracts — Early Settlement Upon a Fundamental Change."

The "repurchase date" will be a date specified by Elanco in the early mandatory settlement notice, which will be at least 20 but not more than 35 business days following the date of Elanco's early mandatory settlement notice as described under "Description of the Purchase Contracts — Early Mandatory Settlement at Elanco's Election" (and which may or may not fall on the early mandatory settlement date).

The "repurchase price" per amortizing note to be repurchased will be equal to the principal amount of such amortizing note as of the repurchase date, plus accrued and unpaid interest on such principal amount from, and including, the immediately preceding installment payment date to, but not including, the repurchase date, calculated at an annual rate of 2.75%; *provided that*, if the repurchase date falls after a regular record date for any installment payment and on or prior to the immediately succeeding installment payment date, the installment payment payable on such installment payment date will be paid on such installment payment date to the holder as of such regular record date and will not be included in the repurchase price per amortizing note.

To exercise the holder's repurchase right, the holder must deliver, on or before 5:00 p.m., New York City time, on the business day immediately preceding the repurchase date, the amortizing notes to be repurchased (or the Units, if the early mandatory settlement date occurs on or after the repurchase date and the holder has not separated their Units into their constituent components), together with a duly completed written repurchase notice in the form entitled "Form of Repurchase Notice" on the reverse side of the amortizing notes (a "repurchase notice"), in each case, in accordance with appropriate DTC procedures, unless the holders holds certificated amortizing notes (or Units), in which case the holder must deliver the amortizing notes to be repurchased (or Units), duly endorsed for transfer, together with a repurchase notice, to the paying agent. The holder's repurchase notice must state:

- if certificated amortizing notes (or Units) have been issued, the certificate numbers of the amortizing notes (or Units), or if not certificated, the holder's repurchase notice must comply with appropriate DTC procedures;

- the number of amortizing notes to be repurchased; and

- that the amortizing notes are to be repurchased by Elanco pursuant to the applicable provisions of the amortizing notes and the indenture.

The holder may withdraw any repurchase notice (in whole or in part) by a written, irrevocable notice of withdrawal delivered (in the case of an amortizing note in global form, in accordance with the appropriate DTC procedures) on or before 5:00 p.m., New York City time, on the business day immediately preceding the repurchase date. The notice of withdrawal must state:

- if certificated amortizing notes (or Units) have been issued, the certificate numbers of the withdrawn amortizing notes (or Units), or if not certificated, the holder's notice must comply with appropriate DTC procedures;

- the number of the withdrawn amortizing notes; and

- the number of amortizing notes, if any, that remain subject to the repurchase notice.

Elanco will be required to repurchase the amortizing notes on the repurchase date. The holder will receive payment of the repurchase price on the later of (i) the repurchase date and (ii) the time of book-entry transfer or the delivery of the amortizing notes. If the trustee holds money sufficient to pay the repurchase price of the amortizing notes to be purchased on the repurchase date, then:

- such amortizing notes will cease to be outstanding and interest will cease to accrue (whether or not book-entry transfer of the amortizing notes is made or whether or not the amortizing notes are delivered to the trustee); and

- all other rights of the holder will terminate (other than the right to receive the repurchase price and, if the repurchase date falls between a regular record date and the corresponding installment payment date, the related installment payment).

In connection with any repurchase offer pursuant to an early mandatory settlement notice, Elanco will, if required, comply with the provisions of the tender offer rules under the Exchange Act that may then be applicable.

No amortizing notes may be repurchased at the option of holders if the principal amount thereof has been accelerated, and such acceleration has not been rescinded, on or prior to the repurchase date (except in the case of an acceleration resulting from a default by Elanco of the payment of the repurchase price with respect to such amortizing notes).

Events of Default

Each of the following will be an "event of default" under the indenture with respect to the amortizing notes:

(1) default in the payment of any installment payment on any amortizing notes as and when the same shall become due and payable and continuance of such failure for a period of 30 days;

(2) default in the payment of the repurchase price of any amortizing notes when the same shall become due and payable;

(3) Elanco's failure to give notice of a fundamental change as described under "Description of the Purchase Contracts — Early Settlement Upon a Fundamental Change" when due and continuance of such failure for a period of five business days;

(4) Elanco 's failure to perform for 90 days after notice any other covenant in the amortizing notes or the indenture; and

(5) certain events of bankruptcy or insolvency of Elanco, whether voluntary or not.

Notwithstanding anything to the contrary herein, in no event shall the consummation of the Acquisition and related transactions constitute an event of default under the indenture.

If an event of default (other than an event of default described in clause (5) above) occurs and is continuing, either the trustee or the holders of not less than 25% in the principal amount of outstanding amortizing notes may, by written notice to Elanco (and to the trustee if given by the holders), declare to be due and payable immediately the principal of and accrued and unpaid interest, if any, on the amortizing notes. In the case of an event of default described in clause (5) above, the principal amount of and accrued and unpaid interest, if any, on the amortizing notes will automatically become due and payable. Upon such a declaration of acceleration, such principal and accrued and unpaid interest, if any, will be due and payable immediately.

At any time after a declaration of acceleration with respect to the amortizing notes has been made, but before a judgment or decree for payment of the money due has been obtained by the trustee, the holders of a majority in principal amount of the outstanding amortizing notes, by written notice to Elanco and the trustee, may rescind and annul such declaration and its consequences if (1) Elanco has paid or deposited with the trustee a sum sufficient to pay (i) all overdue installments of interest on such amortizing notes, (ii) all principal of the amortizing notes which has become due otherwise than by such declaration of acceleration and any interest thereon, (iii) to the extent enforceable under applicable law, interest upon overdue installments of interest and principal, and (iv) amounts payable to the trustee and (2) all events of default, other than the non-payment of the principal with respect to the amortizing notes which have become due solely by such declaration of acceleration, have been cured or waived as provided in the indenture.

The indenture provides that the trustee will be under no obligation to exercise any of its rights or powers under the indenture unless the trustee receives security or indemnity reasonably satisfactory to it against any loss, liability or expense. Subject to certain rights of the trustee, the holders of a majority in principal amount of the amortizing notes will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee with respect to the amortizing notes.

No holder of any amortizing notes will have any right to institute any proceeding, judicial or otherwise, with respect to the indenture or for the appointment of a receiver or trustee, or for any remedy under the indenture, unless:

- such holder has previously given to the trustee written notice of a continuing event of default with respect to the amortizing notes; and
- the holders of not less than 25% in principal amount of the outstanding amortizing notes have made written request, and offered reasonable indemnity, to the trustee to institute the proceeding as trustee, and after receipt of such request the trustee has not received from the holders of a majority in principal amount of the amortizing notes a direction inconsistent with that request and has failed to institute the proceeding within 60 days.

Notwithstanding the foregoing, the holder of any amortizing note will have an absolute and unconditional right to receive payment of the principal of and any interest on that amortizing note on or after the due dates

expressed in that amortizing note and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such holder.

The indenture requires Elanco to furnish to the trustee upon request a statement as to compliance with the indenture. The indenture provides that the trustee may withhold notice to the holders of the amortizing notes of any default or event of default (except in payment on any amortizing notes) with respect to the amortizing notes if it in good faith determines that withholding notice is in the interest of the holders of those amortizing notes.

Discharge and Defeasance of Indenture

After Elanco has deposited with the trustee, cash or government securities, in trust for the benefit of the holders of the amortizing notes, sufficient to pay the portion of all future scheduled installment payments constituting the payment of principal in respect of the amortizing notes and the portion of the repurchase price constituting the principal amount of the amortizing notes, and the portion of all future scheduled installment payments constituting the payment of interest in respect of the amortizing notes and the portion of the repurchase price constituting the accrued but unpaid interest on the amortizing notes when due, and satisfied certain other conditions, including (in the case of defeasance only) receipt of an opinion of counsel that holders of the amortizing notes will not recognize taxable gain or loss for United States federal income tax purposes, then:

- Elanco will be deemed to have paid and satisfied Elanco's obligations on all outstanding amortizing notes, which is known as defeasance and discharge; or

- Elanco will cease to be under any obligation, other than to pay when due the principal of, premium, if any, and interest on amortizing notes, which is known as covenant defeasance.

When there is a defeasance and discharge, the indenture will no longer govern the amortizing notes, Elanco will no longer be liable for payments required by the terms of the amortizing notes and the holders thereof will be entitled only to the deposited funds. When there is a covenant defeasance, however, Elanco will continue to be obligated to make payments when due if the deposited funds are not sufficient.

Consolidation, Merger, Conveyance, Transfer or Lease

The indenture will provide that Elanco will not consolidate or merge with or into any other entity, or sell, transfer, lease or otherwise convey its properties and assets as an entirety or substantially as an entirety to any entity, unless:

- (i) it is the continuing entity (in the case of a merger), or (ii) the successor entity formed by such consolidation or into which it is merged or which acquires by sale, transfer, lease or other conveyance of its properties and assets, as an entirety or substantially as an entirety, is a corporation organized and existing under the laws of the United States of America or any State thereof, the District of Columbia or any territory thereof, and expressly assumes, by supplemental indenture, the due and punctual payment of the installment payments on all amortizing notes and the performance of all of the covenants under the indenture; and

- immediately after giving effect to the transaction, no event of default, and no event which after notice or lapse of time or both would become an event of default under the indenture, has or will have occurred and be continuing.

Notwithstanding anything to the contrary herein, in no event shall the Acquisition and related transactions be limited by this "— Consolidation, Merger, Conveyance, Transfer or Lease."

Although there is a limited body of case law interpreting the phrase "substantially as an entirety," there is no precise established definition of the phrase under applicable law. Accordingly, in certain circumstances there may be a degree of uncertainty as to whether a particular transaction would involve a disposition of Elanco's properties

and assets "substantially as an entirety." As a result, it may be unclear as to whether the foregoing restrictions on mergers, consolidations, sales, conveyances, transfers, leases and other dispositions would apply to a particular transaction as described above absent a decision by a court of competent jurisdiction.

Modifications and Amendments

Elanco and the trustee may amend or supplement the indenture or the amortizing notes without consent of the holders to:

- cure any ambiguity, omission, defect or inconsistency in the indenture;
- provide for the assumption by a successor corporation as set forth in "— Consolidation, Merger, Conveyance, Transfer or Lease;"
- comply with any requirements of the Securities and Exchange Commission in connection with the qualification of the indenture under the Trust Indenture Act;
- to evidence and provide for the acceptance of appointment with respect to the amortizing notes by a successor trustee in accordance with the indenture, and add or change any of the provisions of the indenture as shall be necessary to provide for or facilitate the administration of the trusts under the indenture by more than one trustee;
- secure the notes;
- add guarantees with respect to the notes;
- add covenants or events of default for the benefit of the holders or surrender any right or power conferred upon Elanco; and
- make any change that does not adversely affect the rights of any holder in any material respect.

In addition, Elanco may modify and amend the indenture or the amortizing notes as to all other matters with the consent of the holders of at least a majority in principal amount of the outstanding amortizing notes; *provided, however*, that Elanco may not make any modification or amendment to the indenture or the amortizing notes without the consent of each holder affected thereby if that modification or amendment will:

- change any installment payment date or reduce the amount owed on any installment payment date;
- reduce the repurchase price or amend or modify in any manner adverse to the holders of the amortizing notes Elanco's obligation to make such payment;
- reduce the percentage in principal amount of amortizing notes whose holders must consent to an amendment of the indenture;
- make any change in the amendment provisions that require each holder's consent or in the waiver provisions of the indenture; or
- impair the right of any holder to receive payment of principal and interest on such holder's amortizing notes on or after the due dates therefor or the right to institute suit for the enforcement of any such payment on or after the due dates therefor.

Governing Law

The indenture and the amortizing notes are governed by and construed in accordance with the laws of the State of New York.

Waiver of Jury Trial

The indenture provides that Elanco and the trustee will waive their respective rights to trial by jury in any action or proceeding arising out of or related to the amortizing notes, the indenture or the transactions contemplated thereby, to the maximum extent permitted by law.

Information Concerning the Trustee

Deutsche Bank Trust Company Americas is the trustee under the indenture for the amortizing notes. Elanco and certain of its affiliates maintain deposit accounts and banking relationships with Deutsche Bank Trust Company Americas. Affiliates of Deutsche Bank Trust Company Americas have purchased, and are likely to purchase in the future, Elanco's securities and securities of its affiliates.

As trustee under the indenture, Deutsche Bank Trust Company Americas will perform only those duties that are specifically described in the indenture unless an event of default under the indenture occurs and is continuing. It is under no obligation to exercise any of its powers under the indenture at the request of any holder of amortizing notes unless that holder offers reasonable indemnity to the trustee against the costs, expenses and liabilities which it might incur as a result.

Deutsche Bank Trust Company Americas administers its corporate trust business at 60 Wall Street, 24th Floor, New York, NY 10005 or such other address as it may notify to Elanco from time to time.

Book-Entry Procedures and Settlement

The Units, the separate purchase contracts and the separate amortizing notes have been issued under a book-entry system in the form of global securities. Elanco has registered the global securities in the name of The Depository Trust Company, New York, New York, or DTC, or its nominee and will deposit the global securities with that depositary.

Following the issuance of a global security in registered form, the depositary will credit the accounts of its participants with the Units, the separate purchase contracts and the separate amortizing notes, as the case may be, upon Elanco's instructions. Only persons who hold directly or indirectly through financial institutions that are participants in the depositary can hold beneficial interests in the global securities. Because the laws of some jurisdictions require certain types of purchasers to take physical delivery of such securities in definitive form, a purchaser may encounter difficulties in its ability to own, transfer or pledge beneficial interests in a global security.

So long as the depositary or its nominee is the registered owner of a global security, Elanco, the trustee and the purchase contract agent will treat the depositary as the sole owner or holder of the Units, the separate purchase contracts and the separate amortizing notes, as the case may be. Therefore, except as set forth below, owners of beneficial interests will not be entitled to have Units, separate purchase contracts or separate amortizing notes registered in their name or to receive physical delivery of certificates representing the Units, the separate purchase contracts or the separate amortizing notes. Accordingly, owners of beneficial interests will have to rely on the procedures of the depositary and the participant in the depositary through whom they hold their beneficial interest in order to exercise any rights of a holder under the indenture or the purchase contract agreement, as the case may be. Elanco understands that under existing practices, the depositary would act upon the instructions of a participant or authorize that participant to take any action that a holder is entitled to take.

As long as the separate amortizing notes are represented by the global securities, Elanco will pay installments on those separate amortizing notes to or as directed by DTC as the registered holder of the global

securities. Payments to DTC will be in immediately available funds by wire transfer. DTC will credit the relevant accounts of their participants on the applicable date. Neither Elanco nor the trustee will be responsible for making any payments to participants or customers of participants or for maintaining any records relating to the holdings of participants and their customers, and beneficial owners will have to rely on the procedures of the depositary and its participants.

Settlement

Secondary market trading between DTC participants will occur in the ordinary way in accordance with DTC rules and will be settled in immediately available funds using DTC's Same-Day Funds Settlement System.

Definitive Securities and Paying Agents

Book-entry securities represented by a global security will be exchanged for definitive (paper) securities only if:

- the depositary is at any time unwilling or unable to continue as depositary for such security or ceases to be a clearing agency registered under the Exchange Act, and a successor depositary registered as a clearing agency under the Exchange Act is not appointed by Elanco within 90 days; or

- an Event of Default with respect to the amortizing notes, or any failure on the part of Elanco to observe or perform any covenant or agreement in the purchase contracts, has occurred and is continuing and a beneficial owner requests that its amortizing notes and/or purchase contracts, as the case may be, be issued in physical, certificated form.

The global security will be exchangeable in whole for definitive securities in registered form, with the same terms and of an equal aggregate principal amount. Definitive Units, separate purchase contracts or separate amortizing notes, as the case may be, will be registered in the name or names of the person or persons specified by the depositary in a written instruction to the registrar of the securities. The depositary may base its written instruction upon directions it receives from its participants.

If any of the events described above occurs, then the beneficial owners will be notified through the chain of intermediaries that definitive securities are available and notice will be published as described below under "—Notices." Beneficial owners of book-entry Units, separate purchase contracts or separate amortizing notes, as the case may be, will then be entitled (1) to receive physical delivery in certificated form of definitive Units, separate purchase contracts or separate amortizing notes, as the case may be, equal in aggregate amount of Units, separate purchase contracts or separate amortizing notes, as the case may be, to their beneficial interest and (2) to have the definitive securities registered in their names. Thereafter, the holders of the definitive Units, separate purchase contracts and separate amortizing notes, as the case may be, will be recognized as the "holders" of the Units, separate amortizing notes and separate purchase contracts for purposes of the purchase contract agreement and indenture, respectively.

Each of the purchase contract agreement and indenture provides for the replacement of a mutilated, lost, stolen or destroyed definitive security, so long as the applicant furnishes to Elanco and the trustee such security or indemnity and such evidence of ownership as Elanco and the trustee may require.

In the event definitive separate amortizing notes are issued, the holders thereof will be able to receive installment payments at the office of Elanco's paying agent. The final installment payment of a definitive separate amortizing note may be made only against surrender of the separate amortizing note to one of Elanco's paying agents. Elanco also has the option of making installment payments by mailing checks to the registered holders of the separate certificated amortizing notes.

In the event definitive Units, separate purchase contracts or separate amortizing notes are issued, the holders thereof will be able to transfer their securities, in whole or in part, by surrendering such securities for registration of transfer at the office specified in the purchase contract agreement or the indenture, as applicable. A form of such instrument of transfer will be obtainable at the relevant office. Upon surrender, Elanco will execute, and the purchase contract agent and the trustee will authenticate and deliver, new Units, separate purchase contracts or separate amortizing notes, as the case may be, to the designated transferee in the amount being transferred, and a new security for any amount not being transferred will be issued to the transferor. Such new securities will be delivered free of charge at the relevant office, as requested by the owner of such new Units, separate purchase contracts or separate amortizing notes. Elanco will not charge any fee for the registration of transfer or exchange, except that Elanco may require the payment of a sum sufficient to cover any applicable tax or other governmental charge payable in connection with the transfer.

Notices

So long as the global securities are held on behalf of DTC or any other clearing system, notices to holders of securities represented by a beneficial interest in the global securities may be given by delivery of the relevant notice to DTC or the alternative clearing system, as the case may be. So long as the amortizing notes are in the form of global securities, any notice will be deemed to have been given on the date given to DTC or the alternative clearing system, as the case may be.

SUBSIDIARIES OF THE COMPANY
EXHIBIT 21.1

The following is a list of subsidiaries of the company as of December 31, 2019, omitting some subsidiaries which, considered in the aggregate, would not constitute a significant subsidiary.

Subsidiary Name	Jurisdiction
Aratana Therapeutics, Inc.	United States
ChemGen Corporation	Massachusetts
Dista Products Limited	United Kingdom
Elanco (Shanghai) Animal Health Co., Ltd.	China
Elanco (Taiwan) Animal Health Co. Ltd. (FKA: Lohmann Animal Health (Farmosa) Co. Ltd.)	Taiwan
Elanco (Thailand) Ltd. (FKA: Lohmann Animal Health (Thailand) Co., Ltd.)	Thailand
Elanco Animal Health (Pty) Ltd.	South Africa
Elanco Animal Health UK Limited (FKA: Novartis Animal Health UK Limited)	United Kingdom
Elanco Animal Health, Korea, Ltd.	Korea
Elanco Animal Vaccines Limited (FKA: Novartis Animal Vaccines Limited)	United Kingdom
Elanco Argentina S.R.L. (later Elanco S.R.L.)	Argentina
Elanco Australasia Pty. Ltd.	Australia
Elanco Australia Holding Pty Limited	Australia
Elanco Bangladesh Limited	Bangladesh
Elanco Belgium BVBA	Belgium
Elanco Brazil Holdings Ltda	Brazil
Elanco Canada Limited	Canada
Elanco Centre de Recherche Sante Animale SA	Switzerland
Elanco Chile SpA	Chile
Elanco Colombia S.A.S.	Colombia
Elanco Denmark ApS	Denmark
Elanco Denmark ApS -- Norway Branch	Norway
Elanco Denmark ApS -- Sweden Branch	Sweden
Elanco Deutschland GmbH	Germany
Elanco Europe GmbH	Switzerland
Elanco Europe Ltd.	United Kingdom
Elanco Financing S.A.	Switzerland
Elanco France S.A.S. (FKA: Novartis Sante Animale S.A.S.	France
Elanco GmbH	Germany
Elanco Hayvan Sağlığı Limited Şirketi	Turkey
Elanco India Private Limited	India
Elanco Innovation and Alliance Centre India LLP	India
Elanco International, Inc.	Indiana
Elanco Ireland Limited	Ireland
Elanco Italia S.p.A. (FKA: Novartis Animal Health S.p.A.)	Italy
Elanco Japan K.K .	Japan
Elanco Malaysia Sdn Bhd	Malaysia
Elanco Nederland B.V.	Netherlands
Elanco Netherlands Holding B.V.	Netherlands
Elanco New Zealand	New Zealand

SUBSIDIARIES OF THE COMPANY
EXHIBIT 21.1

The following is a list of subsidiaries of the company as of December 31, 2019, omitting some subsidiaries which, considered in the aggregate, would not constitute a significant subsidiary.

Elanco Philippines Inc.	Philippines
Elanco Polska spółka z ograniczoną odpowiedzialnością	Poland
Elanco Rus Ltd.	Russia
Elanco Salud Animal S.A. de C.V.	Mexico
Elanco Saude Animal Ltda. (FKA: Novartis Saude Animal Ltda)	Brazil
Elanco Shanghai - Beijing Branch	China
Elanco Spain S.L. - Portugal Branch	Portugal
Elanco Spain, S.L. (FKA: Novartis Sanidad Animal, S.L.U.)	Spain
Elanco Tiergesundheit AG -- Austria Branch	Austria
Elanco Tiergesundheit AG -- Czech Branch	Czech
Elanco Tiergesundheit AG -- Egypt Representative Office	Egypt
Elanco Tiergesundheit AG -- Hungary Branch	Hungary
Elanco Tiergesundheit AG -- Lebanon Representative Office	Lebanon
Elanco Tiergesundheit AG -- Poland Branch	Poland
Elanco Tiergesundheit AG -- Saudi Arabia Branch	Saudi Arabia
Elanco Tiergesundheit AG - South Africa	South Africa
Elanco Tiergesundheit AG -- Vietnam Representative Office	Vietnam
Elanco Tiergesundheit AG (FKA: Novartis Tiergesundheit AG)	Switzerland
Elanco Tiergesundheit AG --Tunisia Representative Office	Tunisia
Elanco UK AH Limited	United Kingdom
Elanco US Inc.	Delaware
Elanco Veterina SVN d.o.o. (FKA: Novartis Veterina d.o.o.)	Slovenia
Immuno-Vet Services (Pty) Ltd. South Africa	South Africa
Immunovet Services Zambia Ltd.	South Africa
Ivy Animal Health, Inc.	Delaware
Lohmann Animal Health (Malaysia) Sdn. Bhd	Malaysia
Lohmann Animal Health Beteiligungs GmbH	Germany
Lohmann Animal Health GmbH	Germany
Lohmann Animal Health International Inc.	Maine
Lohmann Animal Health Phils. Corp.	Philippines
Lohmann Animal Health South Africa (Pty) Ltd.	South Africa
Lohmann Asia Holding Co. Ltd.	Thailand
Prevtec do Brasil	Brazil
Prevtec Microbia GmbH	Germany
Prevtec Microbia HK Ltd.	China
Prevtec Microbia Inc.	Canada
Pt. Lohmann Elanco Animal Health Indonesia (FKA: Pt. Lohmann Animal Health Indonesia)	Indonesia
Vericore Limited	United Kingdom
Vet Therapeutics, Inc.	United States

EXHIBIT 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (Form S-3 ASR No. 333-235991 and Form S-8 333-227447) of Elanco Animal Health Incorporated and in the related Prospectus of our reports dated February 28, 2020, with respect to the consolidated and combined financial statements of Elanco Animal Health Incorporated, and the effectiveness of internal control over financial reporting of Elanco Animal Health Incorporated, included in this Annual Report (Form 10-K) for the year ended December 31, 2019.

/s/ Ernst & Young LLP

Indianapolis, Indiana

February 28, 2020

EXHIBIT 31.1

CERTIFICATIONS

I, Jeffrey N. Simmons, certify that:

1. I have reviewed this report on Form 10-K of Elanco Animal Health Incorporated;

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 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 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 28, 2020

By: /s/ Jeffrey N. Simmons
Jeffrey N. Simmons
President and Chief Executive Officer

EXHIBIT 31.2

CERTIFICATIONS

I, Todd S. Young, certify that:

1. I have reviewed this report on Form 10-K of Elanco Animal Health Incorporated;

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 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 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 28, 2020

By: /s/ Todd S. Young
Todd S. Young
Executive Vice President and Chief Financial Officer

EXHIBIT 32

Pursuant to section 906 of the Sarbanes-Oxley Act of 2002 (subsections (a) and (b) of section 1350, chapter 63 of title 18, United States Code), each of the undersigned officers of Elanco Animal Health Incorporated, an Indiana corporation (the "Company"), does hereby certify that, to the best of their knowledge:

The Annual Report on Form 10-K for the year ended December 31, 2019 (the "Form 10-K") of the Company fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 and information contained in the Form 10-K fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 28, 2020

/s/Jeffrey N. Simmons

Jeffrey N. Simmons
President and Chief Executive Officer

Date: February 28, 2020

/s/Todd S. Young

Todd S. Young
Executive Vice President and Chief Financial Officer