TELEFLEX INC
Form 10-K
February 21, 2019

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

FORM 10-K

(Mark One)
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018 or
¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to .
Commission file number 1-5353

TELEFLEX INCORPORATED
(Exact name of registrant as specified in its charter)

Delaware	23-1147939
(State or other jurisdiction of incorporation or organization)	(I.R.S. employer identification no.)
550 East Swedesford Road, Suite 400, Wayne, Pennsylvania	19087
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (610) 225-6800
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange On Which Registered
Common Stock, par value $1 per share	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 ý 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 ý
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 x No ¨
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes x No ¨
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x
Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

	Smaller reporting company ¨

Large accelerated filer x	Accelerated filer ¨	Non-accelerated filer ¨	Emerging growth company ¨

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ¨ ¨

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ¨ No x

The aggregate market value of the Common Stock of the registrant held by non-affiliates of the registrant (28,548,748 shares) on July 1, 2018 (the last business day of the registrant's most recently completed fiscal second quarter) was $7,592,539,530[(1)]. The aggregate market value was computed by reference to the closing price of the Common Stock on such date, as reported by the New York Stock Exchange.

The registrant had 46,020,435 Common Shares outstanding as of February 19, 2019.

DOCUMENT INCORPORATED BY REFERENCE:

Certain provisions of the registrant's definitive proxy statement in connection with its 2018 Annual Meeting of Stockholders, to be filed within 120 days of the close of the registrant's fiscal year, are incorporated by reference in Part III hereof.

(1) For purposes of this computation only, the registrant has defined "affiliate" as including executive officers and directors of the registrant and owners of more than five percent of the common stock of the registrant, without conceding that all such persons are "affiliates" for purposes of the federal securities laws.

TELEFLEX INCORPORATED
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FOR THE YEAR ENDED DECEMBER 31, 2018
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Information Concerning Forward-Looking Statements

All statements made in this Annual Report on Form 10-K, other than statements of historical fact, are forward-looking statements. The words “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “will,” “would,” “should,” “guida “continue,” “project,” “forecast,” “confident,” “prospects” and similar expressions typically are used to identify forward-lookin statements. Forward-looking statements are based on the then-current expectations, beliefs, assumptions, estimates and forecasts about our business and the industry and markets in which we operate. These statements are not guarantees of future performance and are subject to risks and uncertainties, which are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed or implied by these forward-looking statements due to a number of factors, including:

- changes in business relationships with and purchases by or from major customers or suppliers, including delays or cancellations in shipments;
- demand for and market acceptance of new and existing products;
- our inability to integrate acquired businesses into our operations, realize planned synergies and operate such businesses profitably in accordance with our expectations;
- our inability to effectively execute our restructuring programs;
- our inability to realize anticipated savings resulting from restructuring plans and programs;
- the impact of enacted healthcare reform legislation and proposals to amend or replace the legislation;
- changes in Medicare, Medicaid and third-party coverage and reimbursements;
- the impact of tax legislation and related regulations;
- competitive market conditions and resulting effects on revenues and pricing;
- increases in raw material costs that cannot be recovered in product pricing;
- global economic factors, including currency exchange rates, interest rates, trade disputes, sovereign debt issues and the impact of the United Kingdom's pending departure from the European Union, commonly referred to as "Brexit";
- difficulties entering new markets; and
- general economic conditions.

For a further discussion of the risks relating to our business, see Item 1A, “Risk Factors” in this Annual Report on Form 10-K. We expressly disclaim any obligation to update these forward-looking statements, except as otherwise explicitly stated by us or as required by law or regulation.

PART I

ITEM 1. BUSINESS

Teleflex Incorporated is referred to herein as “we,” “us,” “our,” “Teleflex” and the “Company.”

THE COMPANY

Teleflex is a global provider of medical technology products that enhance clinical benefits, improve patient and provider safety and reduce total procedural costs. We primarily design, develop, manufacture and supply single-use medical devices used by hospitals and healthcare providers for common diagnostic and therapeutic procedures in critical care and surgical applications. We market and sell our products to hospitals and healthcare providers worldwide through a combination of our direct sales force and distributors. Because our products are used in numerous markets and for a variety of procedures, we are not dependent upon any one end-market or procedure. We manufacture our products at approximately 35 manufacturing sites, with major manufacturing operations located in the Czech Republic, Germany, Malaysia, Mexico and the United States (the "U.S.").

We are focused on achieving consistent, sustainable and profitable growth and improving our financial performance by increasing our market share and improving our operating efficiencies through:

- development of new products and product line extensions;
- investment in new technologies and broadening the application of our existing technologies;
- expansion of the use of our products in existing markets and introduction of our products into new geographic markets;
- achievement of economies of scale as we continue to expand by utilizing our direct sales force and distribution network to sell new products, as well as by increasing efficiencies in our sales and marketing organizations, research and development activities and manufacturing and distribution facilities; and
- expansion of our product portfolio through select acquisitions, licensing arrangements and business partnerships that enhance, expand or expedite our development initiatives or our ability to increase our market share.

Our research and development capabilities, commitment to engineering excellence and focus on low-cost manufacturing enable us to bring cost effective, innovative products to market that improve the safety, efficacy and quality of healthcare. Our research and development initiatives focus on developing these products for both existing and new therapeutic applications, as well as developing enhancements to, and product line extensions of, existing products. During 2018 we introduced several product line extensions and 11 new products. Our portfolio of existing products and products under development consists primarily of Class I and Class II medical devices, most of which require 510(k) clearance by the United States Food and Drug Administration ("FDA") for sale in the United States, and some of which are exempt from the requirement to obtain 510(k) clearance. We believe that 510(k) clearance or 510(k)-exempt status reduces our research and development costs and risks, and typically results in a shorter timetable for new product introductions as compared to the premarket approval, or PMA, process that would be required for Class III medical devices. See "Government Regulation" below for additional information.

HISTORY AND RECENT DEVELOPMENTS

Teleflex was founded in 1943 as a manufacturer of precision mechanical push/pull controls for military aircraft. From this original single market, single product orientation, we expanded and evolved through entries into new businesses, development of new products, introduction of products into new geographic or end-markets and acquisitions and dispositions of businesses. Throughout our history, we have continually focused on providing innovative, technology-driven, specialty-engineered products that help our customers meet their business requirements.

Beginning in 2007, we significantly changed the composition of our portfolio of businesses, expanding our presence in the medical device industry, while divesting all of our other businesses, which served the aerospace, automotive, industrial and marine markets. Following the divestitures of our marine business and cargo container and systems businesses in 2011, we became exclusively a medical device company.

We expect to continue to increase the size of our business through a combination of acquisitions and organic growth initiatives.

Recent acquisitions and distributor-to-direct sales conversions

In 2017, we completed two large scale acquisitions: NeoTract, Inc. ("NeoTract") and Vascular Solutions, Inc. (“Vascular Solutions”). NeoTract was a medical device company that developed and commercialized the UroLift System, a minimally invasive medical device for treating lower urinary tract symptoms due to benign prostatic hyperplasia, or BPH. Vascular Solutions was a medical device company that developed and marketed clinical products for use in minimally invasive coronary and peripheral vascular procedures.

During the past several years, we have also completed a number of smaller acquisitions and "distributor to direct" sales conversions in several countries. Distributor to direct sales conversations generally involve the elimination of a distributor from the sales channel, either by acquiring the distributor or terminating the distribution relationship (in some instances, particularly in Asia, the conversions involve our acquisition or termination of a master distributor and the continued sale of our products through sub-distributors). Our distributor to direct sales conversions generally enable us to obtain improved product pricing and more direct access to the end users of our products within the sales channel.

See Note 4 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information regarding recent acquisitions and distributor to direct sales conversions.

Restructuring programs

We continue to execute our footprint realignment and other restructuring programs designed to improve efficiencies in our manufacturing and distribution facilities and, to a lesser extent, our sales and marketing and research and development organizations. See Note 5 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

OUR SEGMENTS

We have the following seven reportable segments: Vascular North America, Interventional North America, Anesthesia North America, Surgical North America, EMEA, Asia and OEM. In connection with the presentation of segment information, we present certain operating segments, which include Interventional Urology North America and Respiratory North America, as well as Latin America, collectively in the “all other” category because separate information with regard to each of these operating segments is not material.

The following charts depict our net revenues by reportable operating segment and by the operating segments in the "all other" category as a percentage of our total consolidated net revenues for the years ended December 31, 2018, 2017 and 2016.

Vascular North America: Our Vascular North America segment is comprised of our North American vascular access business, which offers products that facilitate a variety of critical care therapies and other applications. These products primarily consist of our Arrow branded catheters and related devices, such as catheter positioning systems. They are used in a wide range of procedures, including the administration of intravenous therapies, the measurement

of blood pressure and the withdrawal of blood samples through a single puncture site. This portfolio principally consists of the following products:

- Arrow Central Venous Catheters (CVCs): Arrow CVCs are inserted in the neck or shoulder area and come in multiple lengths with up to five channels, or lumens. They are available with a pressure injectable option that gives clinicians who perform contrast-enhanced CT scans the ability to use an indwelling (in the body) pressure injectable Arrow CVC to inject contrast dye for the scan without having to insert a second catheter.
- Arrow EZ-IO Intraosseous Vascular Access System: The Arrow EZ-IO system provides intraosseous, or in the bone, access for the delivery of medications and fluids when traditional vascular access is difficult or impossible. Sales of the Arrow EZ-IO system to our hospital customers are included in our Vascular North America segment results, while, as noted below, sales of the product for use in pre-hospital emergency settings are included in our Anesthesia North America segment results.
- Arrow Peripherally Inserted Central Catheters (PICCs): Arrow PICCs are soft, flexible catheters that are inserted in the upper arm and advanced into a vein that carries blood to the heart in order to administer various types of intravenous medications and therapies. Arrow PICCs have a pressure injectable option that can withstand the higher pressures required to inject contrast media for CT scans.
- Arrow Jugular Axillo-subclavian Central Catheters (JACCs): Arrow JACCs are designed to be inserted in the neck or shoulder area and provide an alternative to traditional CVCs and PICCs for acute care. Arrow JACCs may be used for short or long-term periods to treat patients who may have poor peripheral circulation.
- Arrow Midline Catheters: Arrow Midlines are made of a flexible polyurethane material and are inserted in the upper arm. Midlines are appropriate when patients face difficult intravenous catheter insertions or therapy will last no longer than one to four weeks.
- Arrow Vascular Positioning Systems (VPS): We offer two distinct catheter tip positioning systems that are designed to facilitate precise placement of catheters within the heart. The first is our VPS G4 Vascular Positioning System, indicated as an alternative to chest x-ray confirmation for CVC tip placement confirmation in adult patients. The VPS G4 analyzes multiple metrics, in real time, to help clinicians navigate through the circulatory system and identify the correct catheter tip placement in the heart. We also offer the Arrow VPS Rhythm™ System, which provides electrocardiogram (ECG)-based tip confirmation in a highly portable, lightweight and versatile design. ECG technology facilitates catheter tip placement and confirmation within the superior vena-cava-cavatorial junction in the heart, and can be used with a broad range of catheter types. When paired with our VPS TipTracker stylet for insertion of PICCs, the Arrow VPS Rhythm System provides real-time visual navigation by tracing the catheter pathway with a blue line on a color screen.
- Arrow Arterial Catheterization Kits: Our Arrow arterial catheterization kits facilitate arterial pressure monitoring and blood withdrawal for glucose, blood-gas and electrolyte measurement in a wide variety of critical care and intensive care settings.
- Arrow Multi-Lumen Access Catheters (MAC): The Arrow MAC combines the access of a sheath introducer with the high-flow lumens of a central line. The MAC's hemostasis valve allows for easy access for additional devices, such as a thermodilution catheter or ARROW MAC Companion Catheter, adding up to three additional lumens.
- Arrow Percutaneous Sheath Introducers: Our Arrow percutaneous sheath introducers are used to insert cardiovascular and other catheterization devices into the vascular system during critical care procedures.
- Arrow Endurance Extended Dwell Peripheral Catheter System: The Arrow Endurance enables the provision of continuous intravenous therapy for the entire length of stay. It permits access to the patient’s peripheral vascular system to sample blood, monitor blood pressure, or administer fluids.

The large majority of our CVCs are treated with solutions based on our ARROWg+ard or ARROWg+ard Blue Plus antimicrobial technology, which have been shown to reduce the risk of catheter related bloodstream infection. Our technology, available on our PICCs, JACCs and Midlines, provides antimicrobial and antithrombogenic protection on inner and outer catheter surfaces as well as the entire fluid pathway of the catheter. It has been shown to be effective in reducing microbial colonization and thrombus accumulation on catheter surfaces.

Many of our vascular access catheters are available in Maximal Barrier Precautions trays, which are designed to assist healthcare providers in complying with clinical guidelines for reducing catheter-related bloodstream infections. These

trays are available for CVCs, PICCs and multi-access catheters and include a full body drape, coated or non-coated catheters and other accessories. In addition, our ErgoPACK system offers clinicians a broad range of tray

configurations with components packaged in the tray in the order in which they will be required during the procedure, and incorporates features designed to promote ease of use and patient and provider safety.

Interventional North America: Our Interventional North America segment consists of products used by interventional cardiologists, interventional radiologists, vascular surgeons and vein practices. It is comprised of the North American component of our Vascular Solutions business, which we acquired in February 2017, and our legacy Teleflex interventional access and cardiac care businesses. Additionally, in 2018, we expanded our product portfolio with the acquisitions of Essential Medical, Inc. and certain assets of QT Vascular LTD to include the following products:

- The Chocolate XD Percutaneous Transluminal Coronary Angioplasty (PTCA) Balloon: The Chocolate XD PTCA Balloon is a non-drug coated angioplasty balloon catheter used in the preparation and treatment of coronary lesions.
- Glider PTCA Balloon Catheter: The Glider PTCA Balloon Catheter is an angioplasty balloon catheter designed to cross through tight lesions or stent struts during complex coronary procedures.
- Manta Vascular Closure Device: The Manta Vascular Closure Device is used for closure of large bore arteriotomies at femoral arterial access sites after cardiac catheterization.

Vascular Solutions product portfolio

Our Vascular Solutions portfolio consists of clinically advanced devices for treating coronary and peripheral vascular disease and includes the following:

- GuideLiner guide extension catheters: Our GuideLiner family is designed to increase guide catheter support and stability to allow deep-seating of the guide catheter for distal device delivery and selective delivery of contrast. The device can also be utilized in assisting complex cardiac catheter interventions.

- TrapLiner catheters: Our TrapLiner catheter is intended for use in conjunction with guide catheters to access discrete regions of the coronary and/or peripheral vasculature, to facilitate placement of interventional devices and to facilitate the exchange of interventional devices while maintaining the position of the guidewire within the vasculature. The TrapLiner catheter is similar in design to the GuideLiner guide extension catheter, with the added feature of an integrated balloon for trapping a standard 0.014” guidewire within a guide catheter. The TrapLiner catheter can be used as an alternative method to the trapping technique that requires the use of a percutaneous transluminal coronary angioplasty (PTCA) balloon to exchange an existing over-the-wire catheter while maintaining guidewire position. The technique of guidewire trapping for catheter exchange is most commonly performed in complex interventional procedures.

- Turnpike catheters: These catheters may be used to facilitate placement and exchange of guidewires and to deliver diagnostic and therapeutic agents to discrete regions of the coronary and peripheral vasculature.

- Micro-introducers: These products are used to gain percutaneous access to the vasculature for performing arterial and venous catheterization procedures.

- TwinPass Torque: The TwinPass Torque is designed for procedures that call for the delivery of two interventional guidewires from a single catheter in clinical situations where catheter delivery and turning control are important.

- Guidewires: Our Spectre Guidewire is a dual-core design guidewire that provides enhanced deliverability in coronary and peripheral interventions. Raider Guidewire is a specialty wire with a unique tip designed to gain access to small vessels.

Interventional access product portfolio

Our interventional access products are used in a wide range of applications, including dialysis, oncology and critical care therapies. Our interventional access portfolio also includes Arrow branded products, such as diagnostic and drainage kits, embolectomy balloons, and reinforced percutaneous sheath introducers. Our interventional access products include the following:

- Arrow OnControl Powered Bone Marrow / Bone Access System: The Arrow OnControl powered bone access system is used to perform bone marrow biopsies and aspirations and access bone lesions for hematology and in ontological

diagnostic procedures.

- Arrow Trerotola Percutaneous Thrombectomy Device (PTD): The Arrow Trerotola PTD is used for declotting of dialysis grafts and fistulas, respectively indirect and direct connections between an artery and a vein for hemodialysis access.

- Arrow Chronic Hemodialysis Catheters: The Arrow chronic hemodialysis catheters include both antegrade and retrograde insertion options for split, step and symmetrical tip configurations.

- ARROW-Clark VectorFlow Hemodialysis Catheter: The Arrow-Clark VectorFlow catheter is a symmetrical tip tunneled hemodialysis catheter designed to reduce loss of lock solution (which is used on catheters to reduce the risk of thrombosis), give sustained high flows and reduce the risk of thrombus accumulation due to platelet activation. Additionally, the specially designed catheter tip enables placement flexibility with minimal impact on recirculation.

- Arrow Polysite Low Profile Hybrid Ports: The Arrow Polysite Low Profile Hybrid Port is used for long-term access to the central venous system and to facilitate repeated vascular access. It is available in multiple standard French sizes. The hybrid design provides a strong titanium reservoir and lightweight plastic body delivering the strength and the comfort needed for long-term treatment in patients of all sizes.

Cardiac care product portfolio

Products in the cardiac care portfolio include diagnostic catheters, intra-aortic balloon catheters and capital equipment. Diagnostic catheters include thermodilution and wedge pressure catheters. Our Berman and Reverse Berman catheters are used during the x-ray examination of blood vessels and our temporary pacing catheters are often used in common interventional procedures such as transcatheter aortic valve replacement, or TAVR. We also manufacture sheaths for femoral and trans-radial aortic access used in diagnostic and therapeutic procedures. Our capital equipment offering includes our intra-aortic balloon pump, or IABP. When combined with our intra aortic balloon catheter, our IABPs are used to augment oxygen delivery to the cardiac muscle and reduce the oxygen demand after cardiac surgery, heart attack or interventional procedures. We recently launched the Autocat 3 Optimus, our third generation IABP. This device helps a weakened heart pump blood and can deliver IABP therapy to a broad range of patients, even those with severe arrhythmias.

Anesthesia North America: Our Anesthesia North America segment is comprised of our North American pain management and airway management products and other products that, like our airway management products, provide pre-hospital emergency applications.

Pain management products

Our pain management products, which are designed for use in a broad range of surgical and obstetric procedures, consist principally of the following:

- Arrow Epidural Catheters, Needles and Kits: We offer a broad range of Arrow epidural products, including the Arrow FlexTip Plus epidural catheter, to facilitate epidural analgesia. Epidural analgesia may be used separately for pain management, as an adjunct to general anesthesia, as a sole technique for surgical anesthesia and for post-operative pain management.

- Arrow Peripheral Nerve Block (PNB) Catheters, Pumps, Needles and Kits: Our portfolio of Arrow PNB products, which includes the Arrow Stimucath and FlexBlock catheters, are designed to be used by anesthesiologists to provide localized pain relief by injecting anesthetics to deliberately interrupt the signals traveling along a nerve. Nerve blocks are used in a variety of different procedures, including orthopedics.

- AutoFuser Disposable Pain Pumps: Our AutoFuser Disposable Pain Pumps are designed for general infusion use, which includes regional anesthesia and pain management. Routes of administration include percutaneous, subcutaneous and epidural, and into the intra-operative (soft tissue/body cavity) sites. The AutoFuser offers multiple

reservoir sizes and configurations to meet a variety of clinical demands.

Airway management products

Our airway management products and related devices, which are designed for use in both pre-hospital emergency and hospital settings, consist principally of the following:

- LMA Airways: Our LMA laryngeal masks are used by anesthesiologists and emergency responders to establish an airway to channel anesthesia gas or oxygen to a patient's lungs during surgery or trauma. The LMA Gastro Airway is the first single-use laryngeal mask with a gastric channel. Designed for use in upper endoscopy procedures, this device offers an increased level of airway management for clinicians. The LMA Gastro Airway also includes our Cuff Pilot technology, which enables clinicians to confirm that the inserted cuff is properly inflated and to monitor pressure levels.

- LMA Atomization: Our LMA atomization portfolio includes products designed to facilitate atomized delivery of certain medications. Included in the portfolio is our LMA MAD Nasal, an intranasal mucosal atomization device that is designed to provide a safe and painless way to deliver medications approved for intranasal delivery to a patient's blood stream without an intravenous line or needle.

- RUSCH Endotracheal Tubes and Laryngoscopes: We offer a broad portfolio of products to facilitate and support endotracheal intubation to administer oxygen and anesthetic gases in multiple settings (surgery, critical care and emergency settings). We also provide a broad range of products for laryngoscopy, a procedure that is primarily used to obtain a view of the airway to facilitate tracheal intubation during general anesthesia or cardiopulmonary resuscitation ("CPR"). Among these products is the Rusch DispoLED Laryngoscope Handle and Green Rusch Lite Blade, a single-use system designed to help facilities comply with standards designed to reduce the potential for patient cross-contamination associated with reusable devices during intubation.

Pre-hospital emergency products

As noted above, our airway management products can be used in pre-hospital emergency settings. We offer other products designed for use in pre-hospital emergency settings, including the Arrow EZ-IO System, which is described in the Vascular North America segment summary above. The Arrow EZ-IO System offers a method for vascular access that can be administered quickly and effectively in emergency situations.

Surgical North America: Our surgical products are designed to provide surgeons with a comprehensive range of devices for use in a variety of surgical procedures. Our portfolio consists of single-use and reusable products, including the following:

- Weck Ligation Systems: Our Weck Ligation Systems feature the Weck Metal Ligating Clips and Hem-o-lok Polymer Ligating Clips. Weck Metal Ligating Clips are intended for use in procedures involving vessels or anatomic structures and are sold in various sizes, types and materials. Our Hem-o-lok Polymer Ligating Clips are intended for use in procedures involving ligation of vessels or tissue structures and are sold in various sizes in a manual and automatic format.

- Weck EFx Fascial Closure Systems: Our Weck fascial closure systems are used in laparoscopic surgical procedures and are intended to facilitate placement of sutures used to repair laparoscopic defects and minimize complications and costs associated with port-site herniation. We offer a full portfolio of fascial closure devices, which provides a wide range of clinical options.

- Percutaneous Surgical Systems: Our MiniLap surgical instruments are designed to be inserted percutaneously (through the skin) to enable surgeons to perform laparoscopic surgery without the need for an insertion trocar. The MiniLap family of surgical instruments consists of a ThumbGrip option with a 2.3mm shaft or a pistol design option, called MiniGrip, with a 2.4mm shaft. In addition, we have developed the Percuvance percutaneous surgical system,

which features a 2.9mm device shaft with 5 mm operating tips. The Percuvance system is used to penetrate soft tissue to access certain areas of the abdomen and to grasp, hold and manipulate tissue, and, like our MiniLap surgical instruments, enables surgeons to access the abdominal cavity without the need for access ports.

Our other branded surgical products include our Weck Vista bladeless access ports, Deknatel sutures, Pleur-evac chest drainage system and our Pilling and Kmedic surgical instruments.

Europe, the Middle East and Africa (“EMEA”): Our EMEA segment designs, manufactures and distributes medical devices primarily used in critical care, surgical applications and cardiac care and generally serves two end markets: hospitals/ healthcare providers, and home health. The products offered by our EMEA segment are most widely used in acute care settings for a range of diagnostic and therapeutic procedures and in general and specialty surgical applications, such as urology.

Asia: Our Asia segment, like our EMEA segment, designs, manufactures and distributes medical devices primarily used in critical care, surgical applications and cardiac care and generally serves hospitals and healthcare providers. The products offered by our Asia segment are most widely used in acute care settings for a range of diagnostic and therapeutic procedures and in general and specialty surgical applications.

Original Equipment Manufacturer and Development Services ("OEM"): Our OEM segment designs, manufactures and supplies devices and instruments for other medical device manufacturers. Our OEM division, which includes the TFX OEM and Deknatel OEM brands, provides custom-engineered extrusions, diagnostic and interventional catheters, balloons and balloon catheters, sheath/dilator sets (introducers) and kits, sutures, performance fibers, and bioresorbable resins and fibers. We offer an extensive portfolio of integrated capabilities, including engineering, material selection, regulatory affairs, prototyping, testing and validation, manufacturing, assembly and packing.

Other businesses: Our other operating segments do not meet the threshold for separate disclosure under applicable accounting guidance and are therefore included in the “all other” line item in tabular presentations of segment information. Products offered by these operating segments include single-use respiratory, urology and interventional urology products. We also have an operating segment encompassing our Latin American business.

Respiratory/urology North America

In 2015, we combined our respiratory and urology businesses. Our respiratory products are used in a variety of care settings and include oxygen therapy products, aerosol therapy products, spirometry products, and ventilation management products. Our Hudson RCI brand has been a prominent name in respiratory care for over 65 years.

Our urology product portfolio provides bladder management for patients in the hospital and individuals in the home care markets. The product portfolio consists principally of a wide range of catheters (including Foley, intermittent, external and suprapubic), urine collectors, catheterization accessories and products for operative endourology marketed under the Rusch brand name.

Interventional urology North America

As a result of our acquisition of NeoTract in 2017, we now offer the UroLift System, a minimally invasive technology for treating lower urinary tract symptoms due to benign prostatic hyperplasia, or BPH. The UroLift System involves the placement of permanent implants, typically through a transurethral outpatient procedure, that hold the prostate lobes apart to relieve compression on the urethra without cutting, heating or removing prostate tissue.

Latin America

Our Latin America business generally engages in the same type of operations, and serves the same type of end markets, as the EMEA and Asia segments.

OUR MARKETS

We generally serve three end-markets: hospitals and healthcare providers, medical device manufacturers and home care. These markets are affected by a number of factors, including demographics, utilization and reimbursement patterns. The following charts depict the percentage of net revenues for the years ended December 31, 2018, 2017 and 2016 derived from each of our end markets.

GOVERNMENT REGULATION

We are subject to comprehensive government regulation both within and outside the U.S. relating to the development, manufacture, sale and distribution of our products.

Regulation of Medical Devices in the United States

All of our medical devices manufactured or sold in the United States are subject to the Federal Food, Drug, and Cosmetic Act (“FDC Act”), and its implementing regulations, which are enforced by the FDA. The FDA and, in some cases, other government agencies administer requirements for the design, testing, safety, effectiveness, manufacturing, labeling, storage, record keeping, clearance, approval, advertising and promotion, distribution, post-market surveillance, import and export of our medical devices.

Unless an exemption or pre-amendment grandfather status applies, each medical device that we market must first receive either clearance as a Class I or Class II device (by submitting a premarket notification (“510(k)”) or approval as a Class III device (by filing a premarket approval application (“PMA”)) from the FDA pursuant to the FDC Act. To obtain 510(k) clearance, a manufacturer must demonstrate that the proposed device is substantially equivalent to a legally marketed device (a 510(k)-cleared device, pre-amendment device for which FDA has not called for PMAs or a device with a de novo authorization), referred to as the "predicate device." Substantial equivalence is established by the applicant showing that the proposed device has the same intended use as the predicate device, and it either has the same technological characteristics or has been shown to be equally safe and effective and does not raise different questions of safety and effectiveness as compared to the predicate device. The FDA’s 510(k) clearance process usually takes from four to nine months, but it can last longer. A device that is not eligible for the 510(k) process because there is no predicate device may be reviewed through the de novo process (the process for granting marketing authorization when no substantially equivalent device exists) if the FDA agrees it is a low to moderate risk device. A device not eligible for 510(k) clearance or de novo authorization is categorized as Class III and must follow the PMA approval pathway, which requires proof of the safety and effectiveness of the device to the FDA’s satisfaction. The process of obtaining PMA approval is much more costly, lengthy and uncertain than the 510(k) or de novo process. It generally takes from one to three years or even longer. Our portfolio of existing products and pipeline of potential new products consist primarily of Class I and Class II devices that require 510(k) clearance, although a few are 510(k)-exempt. In addition, modifications made to devices after they receive clearance or approval may require a new 510(k) clearance or approval of a PMA or PMA supplement. We cannot be sure that 510(k) clearance or PMA approval will be obtained in a timely matter if at all for any device that we propose to market.

A clinical trial is almost always required to support a PMA application and is sometimes required for a 510(k) clearance or a de novo authorization. The sponsor of a clinical study must comply with and conduct the study in accordance with the applicable federal regulations, including FDA’s investigational device exemption (“IDE”) requirements, and good clinical practice (“GCP”). Clinical trials must also be approved by an institutional review board ("IRB"), which is an appropriately constituted group that has been formally designated to review biomedical research involving human subjects and which has the authority to approve, require modifications in, or disapprove research to

protect the rights, safety, and welfare of the human research subject. The FDA may order the temporary, or permanent, discontinuation of a clinical trial at any time, or impose other sanctions, if it believes that the clinical trial either is not being conducted in accordance with FDA requirements or presents an unacceptable risk to the clinical trial patients. An IRB may also require the clinical trial at the site to be halted for failure to comply with the IRB's requirements, or may impose other conditions.

A device placed on the market must comply with numerous regulatory requirements. Those regulatory requirements include the following:

- device listing and establishment registration;
- adherence to the Quality System Regulation ("QSR") which requires stringent design, testing, control, documentation, complaint handling and other quality assurance procedures;
- labeling requirements;
- FDA prohibitions against the promotion of off-label uses or indications;
- adverse event and malfunction reporting;
- post-approval restrictions or conditions, potentially including post-approval clinical trials or other required testing;
- post-market surveillance requirements;
- the FDA's recall authority, whereby it can require or ask for the recall of products from the market; and
- voluntary corrections or removals reporting and documentation.

The FDA has issued final regulations regarding the Unique Device Identification ("UDI") System, which requires manufacturers to mark certain medical devices with unique identifiers. While the FDA expects that the UDI System will help track products during recalls and improve patient safety, it has required us to make changes to our manufacturing and labeling, which could increase our costs. The UDI System is being implemented in stages based on device risk, with the first requirements having taken effect in September 2014 and the last taking effect in September 2022.

Certain of our medical devices are sold in convenience kits that include a drug component, such as lidocaine. These types of kits are generally regulated as combination products within the Center for Devices and Radiological Health ("CDRH") under the device regulations because the device provides the primary mode of action of the kit. Although the kit as a whole is regulated as a medical device, it may be subject to certain drug requirements such as current good manufacturing practices ("cGMPs") to the extent applicable to the drug-component repackaging activities and subject to inspection to verify compliance with cGMPs as well as other regulatory requirements.

Our manufacturing facilities, as well as those of certain of our suppliers, are subject to periodic and for-cause inspections to verify compliance with the QSR as well as other regulatory requirements. Such inspections are performed through the new Medical Device Single Audit Program (MDSAP) and other specified audits by regulatory authorities. If the FDA were to find that we or certain of our suppliers have failed to comply with applicable regulations, it could institute a wide variety of enforcement actions, ranging from issuance of a warning or untitled letter to more severe sanctions, such as product recalls or seizures, civil penalties, consent decrees, injunctions, criminal prosecution, operating restrictions, partial suspension or total shutdown of production, refusal to permit importation or exportation, refusal to grant, or delays in granting, clearances or approvals or withdrawal or suspension of existing clearances or approvals. The FDA also has the authority under certain circumstances to request repair, replacement or refund of the cost of any medical device manufactured or distributed by us. Any of these actions could have an adverse effect on our business. Manufacturing certification requirements and audits through the MDSAP program also applies.

Regulation of Medical Devices Outside of the United States

Medical device laws also are in effect in many of the markets outside of the United States in which we do business. These laws range from comprehensive device approval requirements for some or all of our products to requests for product data or certifications. Inspection of and controls over manufacturing, as well as monitoring of device-related adverse events, are components of most of these regulatory systems. Manufacturing certification requirements and audits through the MDSAP program or other regulatory authority inspections also apply. In addition, the European Union ("EU") has adopted the EU Medical Device Regulation (the "EU MDR"), which imposes stricter requirements for the marketing and sale of medical devices (as compared to the predecessor Medical Device Directive), including in the area of clinical evaluation requirements, quality systems and post-market surveillance. Manufacturers of currently marketed medical devices will have until May 2020 to meet the requirements of the EU MDR. Failure to meet these requirements could adversely impact our business in the EU and other regions that tie their product registrations to the EU requirements.

Healthcare Laws

We are subject to various federal, state and local laws in the United States targeting fraud and abuse in the healthcare industry. These laws prohibit us from, among other things, soliciting, offering, receiving or paying any remuneration to induce the referral or use of any item or service reimbursable under Medicare, Medicaid or other federally or state financed healthcare programs. Violations of these laws are punishable by imprisonment, criminal fines, civil monetary penalties and exclusion from participation in federal healthcare programs. In addition, we are subject to federal and state false claims laws in the United States that prohibit the submission of false payment claims under Medicare, Medicaid or other federally or state funded programs. Certain marketing practices, such as off-label promotion, and violations of federal anti-kickback laws may also constitute violations of these laws.

We are also subject to various federal and state reporting and disclosure requirements related to the healthcare industry. Rules issued by the Centers for Medicare & Medicaid Services ("CMS") require us to collect and report information on payments or transfers of value to physicians and teaching hospitals, as well as investment interests held by physicians and their immediate family members. Effective January 2022, we will also be required to collect and report information on payments or transfers of value to physician assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and certified nurse-midwives. The reported data is available to the public on the CMS website. Failure to submit required information may result in civil monetary penalties. In addition, several states now require medical device companies to report expenses relating to the marketing and promotion of device products and to report gifts and payments to individual physicians in these states. Other states prohibit various other marketing-related activities. The federal government and certain other states require the posting of information relating to clinical studies and their outcomes. The shifting commercial compliance environment and the need to build and maintain robust and expandable systems to comply with the different compliance and/or reporting requirements among a number of jurisdictions increases the possibility that a healthcare company may violate one or more of the requirements, resulting in increased compliance costs that could adversely impact our results of operations.

Other Regulatory Requirements

We are also subject to the United States Foreign Corrupt Practices Act and similar anti-bribery laws applicable in jurisdictions outside the United State that generally prohibit companies and their intermediaries from improperly offering or paying anything of value to non-United States government officials for the purpose of obtaining or retaining business. Because of the predominance of government-sponsored healthcare systems around the world, most of our customer relationships outside of the United States are with government entities and are therefore subject to such anti-bribery laws. Our policies mandate compliance with these anti-bribery laws. We operate in many parts of the world that have experienced government corruption to some degree, and in certain circumstances strict compliance with anti-bribery laws may conflict with local customs and practices. In the sale, delivery and servicing of our medical devices and software outside of the United States, we must also comply with various export control and trade embargo laws and regulations, including those administered by the Department of Treasury's Office of Foreign Assets Control ("OFAC") and the Department of Commerce's Bureau of Industry and Security ("BIS") which may require licenses or other authorizations for transactions relating to certain countries and/or with certain individuals identified by the United States government. Despite our global trade and compliance program, our internal control policies and

procedures may not always protect us from reckless or criminal acts committed by our employees, distributors or other agents. Violations of these requirements are punishable by criminal or civil sanctions, including substantial fines and imprisonment.

COMPETITION

The medical device industry is highly competitive. We compete with many companies, ranging from small start-up enterprises to companies that are larger and more established than us and have access to significantly greater financial resources. Furthermore, extensive product research and development and rapid technological advances characterize the market in which we compete. We must continue to develop and acquire new products and technologies for our businesses to remain competitive. We believe that we compete primarily on the basis of clinical superiority and innovative features that enhance patient benefit, product reliability, performance, customer and sales support, and cost-effectiveness. Our major competitors include Medtronic plc, Becton, Dickinson and Company and Boston Scientific Corporation.

SALES AND MARKETING

Our product sales are made directly to hospitals, healthcare providers, distributors and to original equipment manufacturers of medical devices through our own sales forces, independent representatives and independent distributor networks.

BACKLOG

Most of our products are sold to hospitals or healthcare providers on orders calling for delivery within a few days or weeks, with longer order times for products sold to medical device manufacturers. Therefore, our backlog of orders is not indicative of revenues to be anticipated in any future 12-month period.

PATENTS AND TRADEMARKS

We own a portfolio of patents, patents pending and trademarks. We also license various patents and trademarks. Patents for individual products extend for varying periods based upon the date of patent filing or grant and the legal term of patents in the various countries where patent protection is obtained. Trademark rights may potentially extend for longer periods of time and are dependent upon national laws and use of the marks. All product names throughout this document are trademarks owned by, or licensed to, us or our subsidiaries. Although these have been of value and are expected to continue to be of value in the future, we do not consider any single patent or trademark, except for the Teleflex and Arrow brands, to be essential to the operation of our business.

SUPPLIERS AND MATERIALS

Materials used in the manufacture of our products are purchased from a large number of suppliers in diverse geographic locations. We are not dependent on any single supplier for a substantial amount of the materials used or components supplied for our overall operations. Most of the materials and components we use are available from multiple sources, and where practical, we attempt to identify alternative suppliers. However, our ability to establish alternate sources of supply may be delayed due to FDA and other regulatory authority requirements regarding the manufacture of our products. Volatility in commodity prices, particularly with respect to aluminum, steel and plastic resins, can have a significant impact on the cost of producing certain of our products. We may not be able to successfully pass cost increases through to all of our customers, particularly original equipment manufacturers.

RESEARCH AND DEVELOPMENT

We are engaged in both internal and external research and development. Our research and development efforts support our strategic objectives to provide innovative new, safe and effective products that enhance clinical value by reducing infections, improving patient and clinician safety, enhancing patient outcomes and enabling less invasive procedures. We also acquire or license products and technologies that are consistent with our strategic objectives and enhance our ability to provide a full range of product and service options to our customers.

SEASONALITY

Portions of our revenues are subject to seasonal fluctuations. Incidence of flu and other disease patterns as well as the frequency of elective medical procedures affect revenues related to single-use products. Historically, we have experienced higher sales in the fourth quarter as a result of these factors.

EMPLOYEES

We employed approximately 15,200 full-time and temporary employees at December 31, 2018. Of these employees, approximately 3,800 were employed in the United States and 11,400 in countries other than the United States. Approximately 11% of our employees in the United States and in other countries were covered by union contracts or collective-bargaining arrangements. We believe we have good relationships with our employees.

ENVIRONMENTAL

We are subject to various environmental laws and regulations both within and outside the United States. Our operations, like those of other medical device companies, involve the use of substances regulated under environmental laws, primarily in manufacturing and sterilization processes. While we continue to devote resources to compliance with existing environmental laws and regulations, we cannot ensure that our costs of complying with current or future environmental protection, health and safety laws and regulations will not exceed our estimates or will not have a material adverse effect on our business, financial condition, results of operations and cash flows. Further, we cannot ensure that we will not be subject to environmental claims for personal injury or cleanup in the future based on our past, present or future business activities.

INVESTOR INFORMATION

We are subject to the reporting requirements of the Securities Exchange Act of 1934, as amended (the “Exchange Act”). Therefore, we file reports, proxy statements and other information with the Securities and Exchange Commission (SEC). The SEC maintains a website (http://www.sec.gov) that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

You can access financial and other information about us in the Investors section of our website, which can be accessed at www.teleflex.com. We make available through our website, free of charge, copies of our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed with or furnished to the SEC under Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after electronically filing or furnishing such material to the SEC. The information on our website is not part of this Annual Report on Form 10-K. The reference to our website address is intended to be an inactive textual reference only.

We are a Delaware corporation incorporated in 1943. Our executive offices are located at 550 East Swedesford Road, Suite 400, Wayne, PA 19087.

EXECUTIVE OFFICERS

The names and ages of our executive officers and the positions and offices held by each such officer are as follows:

Name	Age	Positions and Offices with Company
Liam J. Kelly	52	President and Chief Executive Officer
Thomas E. Powell	57	Executive Vice President and Chief Financial Officer
Karen T. Boylan	47	Vice President, Global Strategic Projects
Cameron P. Hicks	54	Vice President, Global Human Resources
James J. Leyden	52	Vice President, General Counsel and Secretary

Mr. Kelly has been our President and Chief Executive Officer since January 2018. From May 2016 to December 31, 2017, Mr. Kelly served as our President and Chief Operating Officer. From April 2015 to April 2016, he served as Executive Vice President and Chief Operating Officer. From April 2014 to April 2015, Mr. Kelly served as Executive Vice President and President, Americas. From June 2012 to April 2014 Mr. Kelly served as Executive Vice President and President, International. He also has held several positions with regard to our EMEA segment, including President from June 2011 to June 2012, Executive Vice President from November 2009 to June 2011, and Vice President of Marketing from April 2009 to November 2009. Prior to joining Teleflex, Mr. Kelly held various senior level positions with Hill-Rom Holdings, Inc., a medical device company, from October 2002 to April 2009, serving as its Vice President of International Marketing and R&D from August 2006 to February 2009.

Mr. Powell has been our Executive Vice President and Chief Financial Officer since February 2013. From March 2012 to February 2013, Mr. Powell was Senior Vice President and Chief Financial Officer. He joined Teleflex in August 2011 as Senior Vice President, Global Finance. Prior to joining Teleflex, Mr. Powell served as Chief Financial Officer and Treasurer of Tomotherapy Incorporated, a medical device company, from June 2009 until June 2011. In 2008, he served as Chief Financial Officer of Textura Corporation, a software provider. From April 2001 until January 2008, Mr. Powell was employed by Midway Games, Inc., a software provider, serving as its Executive Vice President, Chief Financial Officer and Treasurer from September 2001 until January 2008. Mr. Powell has also held leadership positions with Dade Behring, Inc. (now Siemens Healthcare Diagnostics), PepsiCo, Bain & Company, Tenneco Inc. and Arthur Andersen & Company.

Ms. Boylan became our Vice President, Global Strategic Projects in January 2019. She previously served as our Vice President, Global RA/QA from August 2014 until December 2018. Ms. Boylan joined Teleflex in January 2013 as Vice President, International RA/QA. Prior to joining Teleflex, Ms. Boylan served as QA Vice President, Corporate Quality Systems for Boston Scientific Corporation, a developer, manufacturer and marketer of medical devices, from April 1996 to December 2012.

Mr. Hicks has been our Vice President, Global Human Resources since April 2013. Prior to joining Teleflex, Mr. Hicks served as Executive Vice President of Human Resources & Organizational Effectiveness for Harlan Laboratories, Inc., a private global provider of pre-clinical and non-clinical research services, from July 2010 to March 2013. From April 1990 to January 2010, Mr. Hicks held various leadership roles with MDS Inc., a provider of products and services for the development of drugs and the diagnosis and treatment of disease, including Senior Vice President of Human Resources for MDS' global Pharma Services division from November 2000 to January 2010.

Mr. Leyden has been our Vice President, General Counsel and Secretary since February 2014. He previously held the positions of Acting General Counsel from November 2013 to February 2014, Deputy General Counsel from February 2013 to November 2013 and Associate General Counsel from December 2004 to February 2013. Prior to joining Teleflex, Mr. Leyden served as general counsel of InfraSource Services, Inc., a utility infrastructure construction company, from April 2004 to December 2004. From February 2002 to April 2004, he served as Associate General Counsel of Aramark Corporation, a provider of food, facility and uniform services.

Our officers are elected annually by our board of directors. Each officer serves at the discretion of the board.

ITEM 1A. RISK FACTORS

In addition to the other information set forth in this Annual Report on Form 10-K, you should carefully consider the following factors which could have a material adverse effect on our business, financial condition, results of operations or stock price. The risks below are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial may also adversely affect our business, financial condition, results of operations or stock price.

We face strong competition. Our failure to successfully develop and market new products could adversely affect our business.

The medical device industry is highly competitive. We compete with many domestic and foreign medical device companies ranging from small start-up enterprises that might sell only a single or limited number of competitive products or compete only in a specific market segment, to companies that are larger and more established than us, have a broad range of competitive products, participate in numerous markets and have access to significantly greater financial and marketing resources than we do.

In addition, the medical device industry is characterized by extensive product research and development and rapid technological advances. The future success of our business will depend, in part, on our ability to design and manufacture new competitive products and enhance existing products. Our product development efforts may require us to make substantial investments. There can be no assurance that we will be able to successfully develop new products, enhance existing products or achieve market acceptance of our products, due to, among other things, our inability to:

- identify viable new products;
- maintain sufficient liquidity to fund our investments in research and development and product acquisitions;

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- obtain adequate intellectual property protection;
- gain market acceptance of new products; or
- successfully obtain regulatory approvals.

In addition, our competitors currently may be developing, or may develop in the future, products that provide better features, clinical outcomes or economic value than those that we currently offer or subsequently develop. Our failure to successfully develop and market new products or enhance existing products could have a material adverse effect on our business, financial condition and results of operations.

Our customers depend on third party coverage and reimbursements, and the failure of healthcare programs to provide sufficient coverage and reimbursement for our medical products could adversely affect us.

The ability of our customers to obtain coverage and reimbursement for our products is important to our business. Demand for many of our existing and new medical products is, and will continue to be, affected by the extent to which government healthcare programs and private health insurers reimburse our customers for patients' medical expenses in the countries where we do business. Even when we develop or acquire a promising new product, demand for the product may be limited unless reimbursement approval is obtained from private and government third party payors. Internationally, healthcare reimbursement systems vary significantly. In some countries, medical centers are constrained by fixed budgets, regardless of the volume and nature of patient treatment. Other countries require application for, and approval of, government or third party reimbursement. Without both favorable coverage determinations by, and the financial support of, government and third party insurers, the market for many of our medical products would be adversely affected. In this regard, we cannot be sure that third party payors will maintain the current level of coverage and reimbursement to our customers for use of our existing products. Adverse coverage determinations, including reductions in the amount of reimbursement, could harm our business by discouraging customers' selection of, and reducing the prices they are willing to pay for, our products.

In addition, as a result of their purchasing power, third party payors have implemented and are continuing to implement cost cutting measures such as seeking discounts, price reductions or other incentives from medical products suppliers and imposing limitations on coverage and reimbursement for medical technologies and procedures. These trends could compel us to reduce prices for our products and could cause a decrease in the size of the market or a potential increase in competition that could negatively affect our business, financial condition and results of operations.

We may not be successful in achieving expected operating efficiencies and sustaining or improving operating expense reductions, and may experience business disruptions associated with restructuring, facility consolidations, realignment, cost reduction and other strategic initiatives.

Over the past several years we have implemented a number of restructuring, realignment and cost reduction initiatives, including facility consolidations, organizational realignments and reductions in our workforce, and we may engage in similar efforts in the future. While we have realized some efficiencies from these initiatives, we may not realize the benefits of these or future initiatives to the extent we anticipated. Further, such benefits may be realized later than expected, and the ongoing difficulties in implementing these measures may be greater than anticipated, which could cause us to incur additional costs or result in business disruptions. In addition, if these measures are not successful or sustainable, we may be compelled to undertake additional restructuring, realignment and cost reduction efforts, which could result in significant additional charges. Moreover, if our restructuring, realignment and cost reduction efforts prove ineffective, our ability to achieve our strategic and business plan goals may be adversely affected.

In addition, as part of our efforts to increase operating efficiencies, we plan to upgrade the existing enterprise resource planning, or ERP, system used by our EMEA segment to our global ERP system in 2019. In connection with this upgrade, we could experience business disruptions, which could adversely affect commercial activities such as our ability to receive and process orders and deliver products, negatively impact customer relationships and divert the attention of management away from daily operations. In addition, any delays in the implementation of this initiative could cause us to incur additional unexpected costs. Should we experience such difficulties, our business, cash flows and results of operations could be adversely affected.

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A significant portion of our United States revenues is derived from sales to distributors, and “destocking” activity by these distributors can adversely affect our revenues and results of operations.

A significant portion of our revenues in the United States is derived from sales to distributors, who, in turn, sell our products to hospitals and other health care institutions. From time to time, these distributors may decide to reduce their levels of inventory with regard to certain of our products, a practice we refer to as “destocking.” A distributor's decision to reduce inventory levels with respect to our products may be based on a number of factors, such as distributor expectations regarding demand for a particular product, distributor buying decisions (including decisions to purchase competing products), changes in distributor policies regarding the maintenance of inventory levels, economic conditions and other factors. For example, during the third quarter of 2016, we experienced a decline in purchases by our United States distributors that adversely affected our revenues and results of operations. We believe the reduction resulted from the distributors' expectations of a less severe 2016-2017 flu season, which resulted in reduced levels of purchasing with respect to certain of our products that are used for treatment of hospitalized patients suffering from the flu. Following such instances of reduced purchases, distributors may revert to previous purchasing levels; nevertheless, we cannot assure that distributors will, in fact, increase purchases of our products in this manner. A decline in the level of product purchases by our United States distributors in the future could have a material adverse effect on our revenues and results of operations during a reporting period, and an extended decline in such product purchases could have a longer term material adverse effect.

We are subject to extensive government regulation, which may require us to incur significant expenses to ensure compliance. Our failure to comply with those regulations could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Our products are classified as medical devices and are subject to extensive regulation in the United States by the FDA and by comparable government agencies in other countries. The regulations govern, among other things, the development, design, clearance, approval, manufacturing, labeling, importing and exporting and sale and marketing of many of our products. Moreover, these regulations are subject to future change.

In the United States, before we can market a new medical device, or a new use of, or claim for, or significant modification to, an existing product, we generally must first receive either 510(k) clearance or de novo authorization or approval of a premarket approval application, or PMA, from the FDA. Similarly, most major markets for medical devices outside the United States also require clearance, approval or compliance with certain standards before a product can be commercially marketed. In the European Union, a new Medical Device Regulation was published in 2017 that, when it enters into full force in 2020, will include significant additional pre- and post-market requirements. The process of obtaining regulatory clearances and approvals to market a medical device, particularly from the FDA and certain foreign government authorities, can be costly and time consuming, and clearances and approvals might not be granted for new products on a timely basis, if at all. In addition, once a device has been cleared or approved, a new clearance or approval may be required before the device may be modified or its labeling changed. Furthermore, the FDA or a foreign government authority may make its review and clearance or approval process more rigorous, which could require us to generate additional clinical or other data, and expend more time and effort, in obtaining future product clearances or approvals. The regulatory clearance and approval process may result in, among other things, delayed realization of product revenues, substantial additional costs or limitations on indicated uses of products, any one of which could have a material adverse effect on our financial condition and results of operations. Even after a product has received marketing approval or clearance, such product approval or clearance can be withdrawn or limited due to unforeseen problems with the device or issues relating to its application.

Failure to comply with applicable regulations could lead to adverse effects on our business, which could include:

- partial suspension or total shutdown of manufacturing;
- product shortages;
- delays in product manufacturing;
- warning or untitled letters;
- fines or civil penalties;
- delays in or restrictions on obtaining new regulatory clearances or approvals;

- withdrawal or suspension of required clearances, approvals or licenses;
- product seizures or recalls;

- injunctions;
- criminal prosecution;
- advisories or other field actions;
- operating restrictions; and
- prohibitions against exporting of products to, or importing products from, countries outside the United States.

We could be required to expend significant financial and human resources to remediate failures to comply with applicable regulations and quality assurance guidelines. In addition, civil and criminal penalties, including exclusion under Medicaid or Medicare, could result from regulatory violations. Any one or more of these events could have a material adverse effect on our business, financial condition and results of operations.

Medical devices are cleared or approved for one or more specific intended uses and performance claims must be adequately substantiated. Promoting a device for an off-label use or making misleading or unsubstantiated claims could result in government enforcement action.

Furthermore, our facilities are subject to periodic inspection by the FDA and other federal, state and foreign government authorities, which require manufacturers of medical devices to adhere to certain regulations, including the FDA's Quality System Regulation, which requires, among other things, periodic audits, design controls, quality control testing and documentation procedures, as well as complaint evaluations and investigation. In addition, any facilities assembling convenience kits that include drug components and are registered as drug repackaging establishments are also subject to current good manufacturing practices requirements for drugs. The FDA also requires the reporting of certain adverse events and product malfunctions and may require the reporting of recalls or other field safety corrective actions. Issues identified through such inspections and reports may result in FDA enforcement action through any of the actions discussed above. Moreover, issues identified through such inspections and reports may require significant resources to resolve.

We are subject to healthcare fraud and abuse laws, regulation and enforcement; our failure to comply with those laws could have a material adverse effect on our results of operations and financial condition.

We are subject to healthcare fraud and abuse regulation and enforcement by the federal government and the governments of those states and foreign countries in which we conduct our business. The laws that may affect our ability to operate include:

- the federal healthcare anti-kickback statute, which, among other things, prohibits persons from knowingly and willfully offering or paying remuneration to induce either the referral of an individual for, or the purchase, order or recommendation of, any good or service for which payment may be made under federal healthcare programs such as Medicare and Medicaid, or soliciting payment for such referrals, purchases, orders and recommendations;
- federal false claims laws which, among other things, prohibit individuals or entities from knowingly presenting, or causing to be presented, false or fraudulent claims for payment from the federal government, including Medicare, Medicaid or other third-party payors;
- the federal Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), which prohibits schemes to defraud any healthcare benefit program and false statements relating to healthcare matters; and
- state law equivalents of each of the above federal laws, such as anti-kickback and false claims laws which may apply to items or services reimbursed by any third-party payor, including commercial insurers.

If our operations are found to be in violation of any of these laws or any other government regulations, we may be subject to penalties, including civil and criminal penalties, damages, fines, the curtailment or restructuring of our operations, the exclusion from participation in federal and state healthcare programs and imprisonment of personnel, any of which could adversely affect our ability to operate our business and our financial results. The risk of our being found to have violated these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations.

Further, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act (collectively, the "Affordable Care Act"), imposed annual reporting and disclosure requirements on device manufacturers for any "transfer of value" made or distributed to physicians or teaching hospitals. Effective January 2022, we will also be required to collect and report information on payments or transfers of value to physician

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assistants, nurse practitioners, clinical nurse specialists, certified registered nurse anesthetists and certified nurse-midwives. The reported information is made publicly available in a searchable format. In addition, device manufacturers are required to report and disclose any investment interests held by physicians and their immediate family members during the preceding calendar year. Failure to submit required information may result in civil monetary penalties for each payment, transfer of value or ownership or investment interests not reported in an annual submission, up to an aggregate of $150,000 per year (and up to an aggregate of $1 million per year for "knowing failures").

In addition, there has been a recent trend of increased federal and state regulation of payments made to healthcare providers. Some states, such as California, Connecticut, Nevada and Massachusetts, mandate implementation of compliance programs that include the tracking and reporting of gifts, compensation for consulting and other services, and other remuneration to healthcare providers. The shifting commercial compliance environment and the need to build and maintain robust and expandable systems to comply with the different compliance and/or reporting requirements among a number of jurisdictions increases the possibility that we may inadvertently violate one or more of the requirements, resulting in increased compliance costs that could adversely impact our results of operations.

We may incur material losses and costs as a result of product liability and warranty claims, as well as product recalls, any of which may adversely affect our results of operations and financial condition. Furthermore, our reputation as a medical device company may be damaged if one or more of our products are, or are alleged to be, defective.

Our businesses expose us to potential product liability risks that are inherent in the design, manufacture and marketing of our products. In particular, our medical device products are often used in surgical and intensive care settings for procedures involving seriously ill patients. In addition, many of our products are designed to be implanted in the human body for varying periods of time. Product defects or inadequate disclosure of product-related risks with respect to products we manufacture or sell could result in patient injury or death. In addition, in connection with the divestitures of our former non-medical businesses, we agreed to retain certain liabilities related to those businesses, which include, among other things, liability for products manufactured prior to the date on which we completed the sale of the business. Product liability and warranty claims often involve very large or indeterminate amounts, including punitive damages. The magnitude of potential losses from product liability lawsuits may remain unknown for substantial periods of time, and the related legal defense costs may be significant. We could experience material warranty or product liability losses in the future and incur significant costs to defend these claims.

In addition, if any of our products are, or are alleged to be, defective, we may voluntarily participate, or be required by regulatory authorities to participate, in a recall of that product. In the event of a recall, we may lose sales and be exposed to individual or class-action litigation claims. Moreover, negative publicity regarding a quality or safety issue, whether accurate or inaccurate, could harm our reputation, decrease demand for our products, lead to product withdrawals or impair our ability to successfully launch and market our products in the future. Product liability, warranty and recall costs may have a material adverse effect on our business, financial condition, results of operations and cash flows.

The ongoing volatility in the domestic and global financial markets, combined with a continuation of constrained global credit markets could adversely impact our results of operations, financial condition and liquidity.

We are subject to risks arising from adverse changes in general domestic and global economic conditions. The economic slowdown and disruption of credit markets that occurred several years ago led to recessionary conditions and depressed levels of consumer and commercial spending, resulting in reductions, delays or cancellations of purchases of our products and services. Despite improvements in recent years, particularly in the United States, economic conditions continue to cause disruption in some financial markets, resulting in, among other things, diminished liquidity and credit availability. We cannot predict the duration or extent of any economic recovery or the extent to which our customers will return to more typical spending behaviors. The continuation in a number of markets of weak economic growth, constricted credit, public sector austerity measures in response to public budget deficits and foreign currency volatility, particularly with respect to the euro, could have a material adverse effect on our results of operations, financial condition and liquidity.

Additionally, our customers, particularly in Italy, Spain, Portugal and Greece, have extended or delayed payments for products and services already provided, which has increased our focus on collectability with respect to our accounts

receivable from these customers. To date, we have not experienced an inordinate amount of payment defaults by our customers, and we have sufficient lending commitments in place to enable us to fund our foreseeable additional

operating needs. However, the ongoing uncertainty in the European financial markets, combined with a continuation of constrained European credit markets creates a risk that some of our European customers and suppliers may be unable to access liquidity. As of December 31, 2018 and 2017, our aggregate net current and long term trade accounts receivable in Italy, Spain, Portugal and Greece were $39.0 million and $49.1 million, respectively. In 2018, 2017 and 2016, net revenues from these countries were approximately 6%, 6% and 7% of total net revenues, respectively, and average days that accounts receivable from these countries were outstanding were 121, 154 and 182 days, respectively. Although we maintain allowances for doubtful accounts to cover the estimated losses which may occur when customers cannot make their required payments, we cannot assure that the loss rate will not increase in the future given the volatility in the worldwide economy. If our allowance for doubtful accounts is insufficient to address receivables we ultimately determine are uncollectible, we would be required to incur additional charges, which could materially adversely affect our results of operations. Moreover, our inability to collect outstanding receivables could adversely affect our financial condition and cash flow from operations.

In addition, adverse economic and financial market conditions may result in future impairment charges with respect to our goodwill and other intangible assets, which would not directly affect our liquidity but could have a material adverse effect on our reported financial results.

Our strategic initiatives, including acquisitions, may not produce the intended growth in revenue and operating income, which could have a material adverse effect on our operating results.

Our strategic initiatives include making significant investments designed to achieve revenue growth and to enable us to meet or exceed margin improvement targets. If we do not achieve the expected benefits from these investments or otherwise fail to execute on our strategic initiatives, we may not achieve the growth improvement we are targeting and our results of operations may be adversely affected.

In addition, as part of our strategy for growth, we have made, and may continue to make, acquisitions and divestitures and enter into strategic alliances such as joint ventures and joint development agreements. However, we may not be able to identify suitable acquisition candidates, complete acquisitions or integrate acquisitions successfully, and our joint ventures or strategic alliances may not prove to be successful. In this regard, acquisitions involve numerous risks, including difficulties in the integration of acquired operations, technologies, services and products and the diversion of management's attention from other business concerns. Moreover, the products and technologies that we acquire may not be successful or may require us to devote significantly greater development, marketing and other resources, as well as significantly greater investments, than we anticipated. We could also experience negative effects on our results of operations and financial condition from acquisition-related charges, amortization of intangible assets, asset impairment charges and other matters that could arise in connection with the acquisition of a company or business, including matters related to internal control over financial reporting and regulatory compliance, as well as the short-term effects of increased costs on results of operations. Although our management will endeavor to evaluate the risks inherent in any particular transaction, there can be no assurance that we will identify all such risks or the magnitude of the risks. In addition, prior acquisitions have resulted, and future acquisitions could result, in the incurrence of substantial additional indebtedness and expenditures. Future acquisitions may also result in potentially dilutive issuances of equity securities. There can be no assurance that difficulties encountered in connection with acquisitions will not have a material adverse effect on our business, financial condition and results of operations.

In connection with certain of our completed acquisitions, we have agreed to pay consideration that is contingent upon the achievement of specified objectives, such as receipt of regulatory approval, commercialization of a product or achievement of sales targets. As of the acquisition date, we record a contingent liability representing the estimated fair value of the contingent consideration we expect to pay. On a quarterly basis, we reassess these obligations and, in the event our estimate of the fair value of the contingent consideration changes, we record increases or decreases in the fair value as an adjustment to operating earnings, which could have a material impact on our results of operations. As of December 31, 2018, we accrued $304.2 million of contingent consideration, most of which related to our acquisition of NeoTract. In addition, actual payments may differ materially from the amount of the contingent liability , which could have a material impact on our results of operations, cash flows and liquidity. For information regarding assumptions related to our contingent consideration liabilities, see "Critical Accounting Policies and Estimates" under

Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations included in this Annual Report on Form 10-K. For additional information regarding our acquisitions, see Note 10 to the consolidated financial statements included in this Annual Report on Form 10-K.

Health care reform may have a material adverse effect on our industry and our business.

Political, economic and regulatory developments have effected fundamental changes in the healthcare industry. The Affordable Care Act substantially changed the way health care is financed by both government and private insurers. It also encourages improvements in the quality of health care products and services and significantly impacts the United States pharmaceutical and medical device industries. Among other things, the Affordable Care Act:

- established a 2.3% excise tax on sales of medical devices with respect to any entity that manufactures or imports specified medical devices offered for sale in the United States, although this tax was suspended for 2016 and 2017 as a result of the enactment of the Consolidated Appropriations Act of 2016 and has been further suspended for 2018 and 2019 as a result of the enactment of the Consolidated Appropriations Act of 2018;
- established a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research;
- implemented payment system reforms, including a national pilot program to encourage hospitals, physicians and other providers to improve the coordination, quality and efficiency of certain health care services through bundled payment models; and
- created an independent payment advisory board that will submit recommendations to reduce Medicare spending if projected Medicare spending exceeds a specified growth rate.

While, as noted above, the excise tax has been suspended through 2019, we may again be subject to the excise tax in 2020 unless the suspension is extended further. We cannot predict at this time the full impact of the Affordable Care Act or other healthcare reform measures that may be adopted in the future on our financial condition, results of operations and cash flows. In this regard, several legislative initiatives to repeal and replace the Affordable Care Act were proposed, but not adopted in 2017. However, United States tax legislation adopted in December 2017 and commonly referred to as the Tax Cuts and Jobs Act ("TCJA") eliminated the individual mandate under the Affordable Care Act, which has resulted in increased uncertainty regarding insurance premium prices for participants in insurance exchanges under the act, and may have other effects. Moreover, on December 14, 2008, the United States District Court for the Northern District of Texas ruled that the individual mandate provision of the Affordable Care Act is unconstitutional and the remainder of the act is invalid, although the Court stayed its ruling pending appeal. The nature and effect of any modification or repeal of, or legislative substitution for, the Affordable Care Act, or any court decision regarding the act's validity, is uncertain, and we cannot predict the effect that any of these events would have on the longer-term viability of the act, or on our financial condition, results of operations or cash flows.

We are subject to risks associated with our non-United States operations.

We have significant manufacturing and distribution facilities, research and development facilities, sales personnel and customer support operations in a number of countries outside the United States, including Belgium, the Czech Republic, Germany, Ireland, Malaysia and Mexico. In addition, a significant portion of our non-United States revenues are derived from sales to third party distributors. As of December 31, 2018, 75% of our full-time and temporary employees were employed in countries outside of the United States, and approximately 40% of our net property, plant and equipment was located outside the United States. In addition, for the years ended December 31, 2018, 2017 and 2016 approximately 41%, 42% and 46%, respectively, of our net revenues (based on the Teleflex entity generating the sale) were derived from operations outside the United States.

Our international operations are subject to risks inherent in doing business outside the United States, including:

- exchange controls, currency restrictions and fluctuations in currency values;
- trade protection measures, tariffs and other duties, especially in light of trade disputes between the United States and several foreign countries, including China;
- potentially costly and burdensome import or export requirements;
- laws and business practices that favor local companies;
- changes in foreign medical reimbursement policies and procedures;
- subsidies or increased access to capital for firms that currently are or may emerge as competitors in countries in which we have operations;
- substantial foreign tax liabilities, including potentially negative consequences resulting from changes in tax laws;

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- restrictions and taxes related to the repatriation of foreign earnings;
- differing labor regulations;
- additional United States and foreign government controls or regulations;
- the impact of the United Kingdom's pending departure from the European Union, commonly referred to as "Brexit";
- difficulties in the protection of intellectual property; and
- unsettled political and economic conditions and possible terrorist attacks against American interests.

In addition, the United States Foreign Corrupt Practices Act (the “FCPA”) prohibits companies and their intermediaries from making improper payments to non-United States officials for the purpose of obtaining or retaining business. Similar anti-bribery laws are in effect in several foreign jurisdictions. The FCPA also imposes accounting standards and requirements on publicly traded United States corporations and their foreign affiliates, which, among other things, are intended to prevent the diversion of corporate funds to the payment of bribes and other improper payments to government officials, and to prevent the establishment of “off the books” slush funds from which such improper payments can be made. Because of the predominance of government-sponsored health care systems around the world, many of our customer relationships outside of the United States are with government entities and are therefore subject to such anti-bribery laws. Our policies mandate compliance with these anti-bribery laws. However, we operate in many parts of the world that have experienced government corruption to some degree. Despite meaningful measures that we undertake to facilitate lawful conduct, which include training and compliance programs and internal control policies and procedures, we may not always prevent reckless or criminal acts by our employees, distributors or other agents. In addition, we may be exposed to liability due to pre-acquisition conduct of employees, distributors or other agents of businesses or operations we acquire. Violations of anti-bribery laws, or allegations of such violations, could disrupt our operations, involve significant management distraction and have a material adverse effect on our business, financial condition, results of operations and cash flows. We also could be subject to severe penalties and other adverse consequences, including criminal and civil penalties, disgorgement, substantial expenditures related to further enhancements to our procedures, policies and controls, personnel changes and other remedial actions, as well as harm to our reputation.

Furthermore, we are subject to the export controls and economic embargo rules and regulations of the United States, including the Export Administration Regulations and trade sanctions against embargoed countries, which are administered by the Office of Foreign Assets Control within the Department of the Treasury, as well as other laws and regulations administered by the Department of Commerce. These regulations limit our ability to market, sell, distribute or otherwise transfer our products or technology to prohibited countries or persons. While we train our employees and contractually obligate our distributors to comply with these regulations, we cannot assure that a violation will not occur, whether knowingly or inadvertently. Failure to comply with these rules and regulations may result in substantial civil and criminal penalties, including fines and the disgorgement of profits, the imposition of a court-appointed monitor, the denial of export privileges and debarment from participation in United States government contracts, any of which could have a material adverse effect on our international operations or on our business, results of operations, financial condition and cash flows.

Foreign currency exchange rate, commodity price and interest rate fluctuations may adversely affect our results.

We are exposed to a variety of market risks, including the effects of changes in foreign currency exchange rates, commodity prices and interest rates. Products manufactured in, and sold into, foreign markets represent a significant portion of our operations. Our consolidated financial statements reflect translation of financial statements denominated in non-United States currencies to United States dollars, our reporting currency, as well as the foreign currency exchange gains and losses resulting from the remeasurement of assets and liabilities and from transactions denominated in currencies other than the primary currency of the country in which the entity operates, which we refer to as "non-functional currencies." A strengthening or weakening of the United States dollar in relation to the foreign currencies of the countries in which we sell or manufacture our products, such as the euro, will affect our United States dollar-reported revenue and income. Although we have entered into forward contracts with several major financial institutions to hedge a portion of our monetary assets and liabilities and projected cash flows denominated in non-functional currencies in order to reduce the effects of currency rate fluctuations, changes in the relative values of currencies may, in some instances, have a significant effect on our results of operations.

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Many of our products have significant plastic resin content. We also use quantities of other commodities, such as aluminum and steel. Increases in the prices of these commodities could increase the costs of our products and services. We may not be able to pass on these costs to our customers, particularly with respect to those products we sell under group purchase agreements, which could have a material adverse effect on our results of operations and cash flows.
Increases in interest rates may adversely affect the financial health of our customers and suppliers, thereby adversely affecting their ability to buy our products and supply the components or raw materials we need. In addition, our borrowing costs have been adversely affected by recent interest rate increases, and could be further affected if interest rates continue to increase. Any of these events could have a material adverse effect on our financial condition, results of operations and cash flows.
Under our cross-currency swap agreements, a meaningful decline in the U.S. dollar to euro exchange rate could have a material adverse effect on our cash flows.
On October 4, 2018, we entered into cross-currency swap agreements with six different financial institutions to hedge against the effect of variability in the U.S. dollar to euro exchange rate. Under the terms of the swap agreements, we notionally exchanged $500.0 million at an annual interest rate of 4.625% for €433.9 million at an annual interest rate of 1.942%. The swap agreements, which expire on October 4, 2023, require an exchange of the notional amounts between us and the counterparties upon expiration or earlier termination of the agreements. If, at the expiration or earlier termination of the swap agreements, the U.S. dollar to euro exchange rate has declined from the rate in effect on October 4, 2018, we are required to pay the counterparties an amount equal to the excess of the U.S. dollar value of €433.9 million over $500.0 million (we and the counterparties have agreed to a net settlement with regard to the exchange of the notional amounts at the date of expiration or earlier termination of the agreements). In the event of a significant decline in the U.S. dollar to euro exchange rate, our payment obligations to the counterparties could have a material adverse effect on our cash flows. In this regard, if, at the expiration or earlier termination of the swap agreements, the U.S. dollar to euro currency exchange rate has declined by 10% from the rate in effect at October 4, 2018 (at that date, the exchange rate was 1.15 U.S. dollar per euro), we would be required to pay approximately $50 million to the counterparties in respect of the notional settlement. To the extent we enter into additional cross-currency swap agreements, a decline in the relevant exchange rates could further adversely affect our cash flows.
Fluctuations in our effective tax rate and changes to tax laws may adversely affect us.
As a global company, we are subject to taxation in numerous countries, states and other jurisdictions. Our effective tax rate is derived from a combination of applicable tax rates in the various countries, states and other jurisdictions in which we operate. In preparing our financial statements, we estimate the amount of tax that will become payable in each of these jurisdictions. Our effective tax rate may, however, differ from the estimated amount due to numerous factors, including a change in the mix of our profitability from country to country and changes in tax laws (including the impact of the enactment of the TCJA). Any of these factors could cause us to experience an effective tax rate significantly different from previous periods or our current expectations, which could have an adverse effect on our business, financial condition and results of operations and cash flows.
An interruption in our manufacturing or distribution operations or our supply of raw materials may adversely affect our business.
Many of our key products are manufactured at or distributed from single locations, and the availability of alternate facilities is limited. If operations at one or more of our facilities is suspended due to natural disasters or other events, we may not be able to timely manufacture or distribute one or more of our products at previous levels or at all. Furthermore, our ability to establish replacement facilities or to substitute suppliers may be delayed due to regulations and requirements of the FDA and other regulatory authorities regarding the manufacture of our products. In addition, in the event of delays or cancellations in shipments of raw materials by our suppliers, we may not be able to timely manufacture or supply the affected products at previous levels or at all. The manufacture of our products is highly exacting and complex, due in part to strict regulatory requirements. Problems in the manufacturing process, including equipment malfunction, failure to follow specific protocols and procedures, defective raw materials and environmental factors, could lead to delays in product releases, product shortages, unanticipated costs, lost revenues and damage to our reputation. A failure to identify and address manufacturing problems prior to the release of products to our customers may also result in quality or safety issues. A reduction or interruption in manufacturing or distribution, or

our inability to secure suitable alternative sources of raw materials or components, could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Our ability to attract, train, develop and retain key employees is important to our success.

Our success depends, in part, on our ability to continue to retain key personnel, including our executive officers and other members of our senior management team. Our success also depends, in part, on our ability to attract, train, develop and retain other key employees, including research and development, sales, marketing and operations personnel. We may experience difficulties in retaining executives and other employees due to many factors, including:

- the intense competition for skilled personnel in our industry;
- fluctuations in global economic and industry conditions;
- changes in our organizational structure;
- our restructuring initiatives;
- competitors' hiring practices; and
- the effectiveness of our compensation programs.

Our inability to attract, train, develop and retain such personnel could have an adverse effect on our business, results of operations, financial condition and cash flows.

Our failure to maintain strong relationships with physicians and other health care professionals could adversely affect us.

We depend on our ability to maintain strong working relationships with physicians and other healthcare professionals in connection with research and development for some of our products. We rely on these professionals to provide us with considerable knowledge and advice regarding the development and use of these products. Physicians assist us as researchers, product consultants, inventors and public speakers. If we fail to maintain our working relationships with physicians and, as a result, no longer have the benefit of their knowledge and advice, our products may not be developed in a manner that is responsive to the needs and expectations of the professionals who use and support our products, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our technology is important to our success, and our failure to protect our intellectual property rights could put us at a competitive disadvantage.

We rely on the patent, trademark, copyright and trade secret laws of the United States and other countries to protect our proprietary rights. Although we own numerous United States and foreign patents and have submitted numerous patent applications, we cannot be assured that any pending patent applications will issue, or that any patents, issued or pending, will provide us with any competitive advantage or will not be challenged, invalidated or circumvented by third parties. In addition, we rely on confidentiality and non-disclosure agreements with employees and take other measures to protect our know-how and trade secrets. The steps we have taken may not prevent unauthorized use of our technology by competitors or other persons who may copy or otherwise obtain and use these products or technology, particularly in foreign countries where the laws may not protect our proprietary rights to the same extent as in the United States. We cannot assure that current and former employees, contractors and other parties will not breach their confidentiality agreements with us, misappropriate proprietary information, copy or otherwise obtain and use our information and proprietary technology without authorization or otherwise infringe on our intellectual property rights. Our inability to protect our proprietary technology could adversely affect our business, financial condition, results of operations and cash flows. Moreover, there can be no assurance that others will not independently develop know-how and trade secrets comparable to ours or develop better technology than our own, which could reduce or eliminate any competitive advantage we have developed.

Our products or processes may infringe the intellectual property rights of others, which may cause us to pay unexpected litigation costs or damages or prevent us from selling our products.

We cannot be certain that our products do not and will not infringe issued patents or other intellectual property rights of third parties. We may be subject to legal proceedings and claims in the ordinary course of our business, including claims of alleged infringement of the intellectual property rights of third parties. Any such claims, whether or not meritorious, could result in litigation and divert the efforts of our personnel. If we are found liable for infringement, we may be compelled to enter into licensing agreements (which may not be available on acceptable terms or at all)

or to pay damages or cease making or selling certain products. We may need to redesign some of our products or processes to avoid future infringement liability. Any of the foregoing events could be detrimental to our business.

Other pending and future litigation may involve significant costs and adversely affect our business.

We are party to various lawsuits and claims arising in the normal course of business involving, among other things, contracts, intellectual property, import and export regulations, and employment and environmental matters. The defense of these lawsuits may divert our management's attention, and may involve significant legal expenses. In addition, we may be required to pay damage awards or settlements, or become subject to injunctions or other equitable remedies, that could have a material adverse effect on our financial condition and results of operations. While we do not believe that any litigation in which we are currently engaged would have such an adverse effect, the outcome of litigation, including regulatory matters, is often difficult to predict, and we cannot assure that the outcome of pending or future litigation will not have a material adverse effect on our business, financial condition, results of operations or cash flows.

Our substantial indebtedness could adversely affect our business, financial condition or results of operations.

As of December 31, 2018, we had total consolidated indebtedness of $2.2 billion.

Our substantial level of indebtedness increases the risk that we may be unable to generate cash sufficient to satisfy our debt obligations. It could also have significant effects on our business. For example, it could:

- increase our vulnerability to general adverse economic and industry conditions;
- require us to dedicate a substantial portion of our cash flow from operations to payments on our indebtedness, thereby reducing the availability of our cash flow to fund capital expenditures, research and development efforts and other general corporate expenditures;
- limit our ability to borrow additional funds for general corporate purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we operate;
- restrict us from pursuing business opportunities; and
- place us at a disadvantage compared to competitors that have less indebtedness.

If we do not generate sufficient cash flow from operations or if future borrowings are not available to us in an amount sufficient to pay our indebtedness when due or to fund our other liquidity needs, we may be forced to:

- refinance all or a portion of our indebtedness;
- sell assets;
- reduce or delay capital expenditures; or
- seek to raise additional capital.

We may not be able to effect any of these actions on commercially reasonable terms or at all. Our ability to refinance our indebtedness will depend on our financial condition at the time, the restrictions in the instruments governing our outstanding indebtedness and other factors, including market conditions.

Our inability to generate sufficient cash flow to satisfy our debt service obligations, or to refinance or restructure our obligations on commercially reasonable terms or at all, could have a material adverse effect on our business, financial condition and results of operations.

Our debt agreements impose restrictions on our business, which could prevent us from pursuing business opportunities and taking other desirable corporate actions, and may adversely affect our ability to respond to changes in our business and manage our operations.

Our senior credit agreement and the indentures governing our 5.25% senior notes due 2024 (the "2024 Notes"), our 4.875% senior notes due 2026 (the "2026 Notes") and our 4.625% senior notes due 2027 (the "2027 Notes" and, together with the 2024 Notes, the "Senior Notes") contain covenants that, among other things, impose significant restrictions on our business. The restrictions that these covenants place on us and our restricted subsidiaries collectively include limitations on our and their ability to, among other things:

- incur additional indebtedness or issue preferred stock or otherwise disqualified stock;
- create liens;
- pay dividends, make investments or make other restricted payments;
- sell assets;
- merge, consolidate, sell or otherwise dispose of all or substantially all of our assets; and
- enter into transactions with our affiliates.

In addition, our senior credit agreement also contains financial covenants, including covenants requiring maintenance of a consolidated leverage ratio, a secured leverage ratio and a consolidated interest coverage ratio, calculated in accordance with the terms of the senior credit agreement. A breach of any covenants under any one or more of our debt agreements could result in a default, which if not cured or waived, could result in the acceleration of all of our debt. In addition, any debt agreements we enter into in the future may further limit our ability to enter into certain types of transactions.

We may issue additional shares of our common stock or instruments convertible into our common stock, which could lower the price of our common stock.

We are not restricted from issuing additional shares of our common stock or other instruments convertible into our common stock. As of December 31, 2018, we had outstanding approximately 46.0 million shares of our common stock, options to purchase approximately 1.5 million shares of our common stock (of which approximately 1.1 million were vested as of that date), restricted stock units covering approximately 0.2 million shares of our common stock (which are expected to vest over the next three years), performance stock units covering a maximum of 22,290 shares of our common stock (which may vest in early 2021, depending on our performance with regard to specified financial measures and market performance of our common stock compared to designated public companies) and approximately 1,767 shares of our common stock to be distributed from our deferred compensation plan. As of December 31, 2018, 3.6 million shares of our common stock are reserved for issuance upon the exercise of stock options. We cannot predict the size of future issuances or the effect, if any, that they may have on the market price for our common stock.

If we issue additional shares of our common stock or instruments convertible into our common stock, such issuances may materially and adversely affect the price of our common stock. Furthermore, our issuance of shares following the exercise of some or all of the outstanding stock options, as well as the vesting of restricted stock units and some or all of the performance stock units will dilute the ownership interests of existing stockholders, and the issuance and sale in the public market of such shares of our common stock could adversely affect prevailing market prices of our common stock.

Disruption of critical information systems or material breaches in the security of our systems may adversely affect our business and customer relationships.

We rely on information technology systems to process, transmit, and store electronic information in our day-to-day operations. We also rely on our technology infrastructure, among other functions, to enable us to interact with customers and suppliers, fulfill orders, generate invoices, collect and make payments, ship products, provide support to customers, fulfill contractual obligations and otherwise perform business functions. Our internal information technology systems, as well as those systems maintained by third-party providers, may be subjected to computer viruses or other malicious codes, unauthorized access attempts, and cyber-attacks, any of which could result in data leaks or otherwise compromise our confidential or proprietary information and disrupt our operations. Cyber-attacks are becoming more sophisticated and frequent, and in some cases have caused significant harm. Although we have taken numerous measures to protect our information systems and enhance data security, we cannot assure that these measures will prevent security breaches that could have a significant impact on our business, reputation and financial results. If we fail to monitor, maintain or protect our information technology systems and data integrity effectively or fail to anticipate, plan for or manage significant disruptions to these systems, we could, among other things, lose customers, have difficulty preventing fraud, have disputes with customers, physicians and other health care professionals, be subject to regulatory sanctions or penalties, incur expenses, lose revenues or suffer other adverse consequences. Any of these events could have a material adverse effect on our business, results of operations, financial condition or cash flows.

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Regulations related to conflict minerals have caused us to incur additional costs and may adversely affect our business.

In 2012, the SEC promulgated rules under the Dodd-Frank Wall Street Reform and Consumer Protection Act regarding disclosure of the use of tin, tantalum, tungsten and gold, known as "conflict minerals," included in components of products either manufactured by public companies or for which public companies have contracted to manufacture. These rules require that we undertake due diligence efforts to determine whether such minerals originated from the Democratic Republic of Congo (the “DRC”) or an adjoining country and, if so, whether such minerals helped finance armed conflict in the DRC or an adjoining country. In accordance with applicable regulations, we have filed conflict minerals reports annually, beginning in 2014. As discussed in these reports, we have determined that certain of our products contain the specified minerals, and we have undertaken, and continue to undertake, efforts to identify where such minerals originated. We have incurred, and expect to continue to incur, costs associated with complying with these disclosure requirements, including costs related to determining the sources of the specified minerals used in our products. These rules could adversely affect the sourcing, supply and pricing of materials used in our products. Our customers may require that our products be free of conflict minerals, and our revenues and margins may be adversely affected if we are unable to provide assurances to our customers that our products are “DRC conflict free” (generally, the product does not contain conflict minerals originating in the DRC or an adjoining country that directly or indirectly finance or benefit specified armed groups) due to, among other things, our inability to procure conflict free minerals at a reasonable price, or at all. Moreover, we may be adversely affected if we are unable to pass through any increased costs associated with meeting customer demands that we provide products that are DRC conflict free. We also may face reputational challenges if our due diligence efforts do not enable us to verify the origins of all conflict minerals or to determine that any conflict minerals used in products we manufacture or in products manufactured by others for us are DRC conflict-free.

Our operations expose us to the risk of material environmental and health and safety liabilities.

We are subject to numerous foreign, federal, state and local environmental protection and health and safety laws governing, among other things:

- the generation, storage, use and transportation of hazardous materials;
- emissions or discharges of substances into the environment; and
- the health and safety of our employees.

These laws and regulations are complex, change frequently and have tended to become more stringent over time. We cannot provide assurance that our costs of complying with current or future environmental protection and health and safety laws, or our liabilities arising from past or future releases of, or exposures to, hazardous substances, which may include claims for personal injury or cleanup, will not exceed our estimates or will not adversely affect our financial condition and results of operations.

Our workforce covered by collective bargaining and similar agreements could cause interruptions in our provision of products and services.

As of December 31, 2018, approximately 11% of our employees in the United States and in other countries were covered by union contracts or collective bargaining arrangements. It is likely that a portion of our workforce will remain covered by collective bargaining and similar agreements for the foreseeable future. Strikes or work stoppages could occur that would adversely impact our relationships with our customers and our ability to conduct our business.

We may not pay dividends on our common stock in the future.

Holders of our common stock are entitled to receive dividends only as our board of directors may declare out of funds legally available for such payments. The declaration and payment of future dividends to holders of our common stock will be at the discretion of our board of directors and will depend upon many factors, including our financial condition, earnings, requirements under covenants in our debt instruments, legal requirements and other factors as our board of directors deems relevant. We cannot assure that our cash dividend will not be reduced, or eliminated, in the future.

Certain provisions of our corporate governing documents, Delaware law and our senior notes could discourage, delay, or prevent a merger or acquisition.

Provisions of our certificate of incorporation and bylaws could impede a merger, takeover or other business combination involving us or discourage a potential acquirer from making a tender offer for our common stock. For example, our certificate of incorporation authorizes our board of directors to determine the number of shares in a series, the consideration, dividend rights, liquidation preferences, terms of redemption, conversion or exchange rights and voting rights, if any, of unissued series of preferred stock, without any vote or action by our stockholders. Thus, our board of directors can authorize and issue shares of preferred stock with voting or conversion rights that could adversely affect the voting or other rights of holders of our common stock. We are also subject to Section 203 of the Delaware General Corporation Law, which imposes restrictions on mergers and other business combinations between us and any holder of 15% or more of our common stock. These provisions could have the effect of delaying or deterring a third party from acquiring us even if an acquisition might be in the best interest of our stockholders, and accordingly could reduce the market price of our common stock.

Certain provisions in the indentures governing the Senior Notes could make it more difficult or more expensive for a third party to acquire us. If an acquisition event constitutes a “change of control,” as defined in the indentures governing the Senior Notes, holders of such notes will have the right to require us to purchase their notes in cash (in the case of the 2027 Notes, the right will apply if the change in control is coupled with a ratings downgrade). Our obligations under the Senior Notes could increase the cost of acquiring us or otherwise discourage a third party from acquiring us or removing incumbent management, and accordingly could cause a reduction in the market price of our common stock.

ITEM 1B. UNRESOLVED STAFF COMMENTS

Not applicable.

ITEM 2. PROPERTIES

We own or lease approximately 90 properties consisting of plants, engineering and research centers, distribution warehouses, offices and other facilities. We believe that the properties are maintained in good operating condition and are suitable for their intended use. In general, our facilities meet current operating requirements for the activities currently conducted within the facilities.

Our major facilities (those with 50,000 or greater square feet) at December 31, 2018 are as follows:

Location	Square Footage	Owned or Leased
Olive Branch, MS	627,000	Leased
Kamunting, Malaysia	286,000	Owned
Nuevo Laredo, Mexico	277,000	Leased
Asheboro, NC	204,000	Owned
Reading, PA	166,000	Owned
Tongeren, Belgium	163,000	Leased
Morrisville, NC	162,000	Leased
Chihuahua, Mexico	153,000	Owned
Maple Grove, MN	129,000	Owned
Zdar Nad Sazauou, Czech Republic	108,000	Owned
Chihuahua, Mexico	100,000	Leased
Tecate, Mexico	102,000	Leased
Hradec Kralove, Czech Republic	92,000	Owned
Chelmsford, MA	91,000	Leased
Kulim, Malaysia	90,000	Owned
Kernen, Germany	86,000	Leased
Arlington Heights, IL	86,000	Leased
Wayne, PA	84,000	Leased
Jaffrey, NH	81,000	Owned
Kamunting, Malaysia	77,000	Leased
Chihuahua, Mexico	68,000	Leased
Chihuahua, Mexico	63,000	Owned
Limerick, Ireland	59,000	Owned
Mansfield, MA	57,000	Leased
Bad Liebenzell, Germany	53,000	Leased

Operations in each of our business segments are conducted at locations both in and outside of the United States. Of the facilities listed above, with the exception of Jaffrey, NH, Mansfield, MA, and Limerick, Ireland, which are used solely for the OEM segment, our facilities generally serve more than one business segment and are often used for multiple purposes, such as administrative/sales, manufacturing and warehousing/distribution.

In addition to the properties listed above, we own or lease approximately 670,000 square feet of additional warehousing, manufacturing and office space in the North America, South America, Europe, Asia and Africa.

ITEM 3. LEGAL PROCEEDINGS

We are party to various lawsuits and claims arising in the normal course of business. These lawsuits and claims include actions involving product liability and product warranty, intellectual property, contracts, employment and environmental matters. As of December 31, 2018 and 2017, we accrued liabilities of $0.6 million and $3.8 million respectively, in connection with these matters, representing our best estimate of the cost within the range of estimated possible loss that will be incurred to resolve these matters. Based on information currently available, advice of counsel, established reserves and other resources, we do not believe that any such actions are likely to be, individually or in the aggregate, material to our business, financial condition, results of operations or cash flows. However, in the event of unexpected further developments, it is possible that the ultimate resolution of these matters, or other similar matters, if unfavorable, may be materially adverse to our business, financial condition, results of operations or cash flows. See Note 16 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is listed on the New York Stock Exchange under the symbol "TFX." As of February 19, 2019, we had 473 holders of record of our common stock. A substantially greater number of holders of our common stock are beneficial owners whose shares are held by brokers and other financial institutions for the accounts of beneficial owners.

Stock Performance Graph

The following graph provides a comparison of five year cumulative total stockholder returns of Teleflex common stock, the Standard & Poor's (S&P) 500 Stock Index and the S&P 500 Healthcare Equipment & Supply Index. The annual changes for the five-year period shown on the graph are based on the assumption that $100 had been invested in Teleflex common stock and each index on December 31, 2013 and that all dividends were reinvested.

MARKET PERFORMANCE

Company / Index	2013	2014	2015	2016	2017	2018
Teleflex Incorporated	100	124	143	177	275	288
S&P 500 Index	100	114	115	129	157	150
S&P 500 Healthcare Equipment & Supply Index	100	126	134	142	186	213

ITEM 6. SELECTED FINANCIAL DATA

	2018[1]	2017[1]	2016[1]	2015[1]	2014[1]
	(Dollars in thousands, except per share)				
Statement of Income Data:					
Net revenues	$2,448,383	$2,146,303	$1,868,027	$1,809,690	$1,839,832
Income from continuing operations before interest, loss on extinguishment of debt and taxes	$321,704	$372,279	$319,453	$315,891	$284,862
Income from continuing operations	$196,432	$155,263	$237,651	$236,808	$191,460
Amounts attributable to common shareholders for income from continuing operations	$196,432	$155,263	$237,187	$235,958	$190,388
Per Share Data:					
Income from continuing operations — basic	$4.30	$3.45	$5.47	$5.68	$4.60
Income from continuing operations — diluted	$4.20	$3.33	$4.98	$4.91	$4.10
Cash dividends	$1.36	$1.36	$1.36	$1.36	$1.36
Balance Sheet Data:					
Total assets	$6,277,991	$6,181,492	$3,891,213	$3,871,774	$3,912,431
Long-term borrowings	$2,072,200	$2,162,927	$850,252	$641,850	$693,720
Shareholders' equity	$2,539,978	$2,430,531	$2,137,517	$2,009,272	$1,911,309
Statement of Cash Flows Data:					
Net cash provided by operating activities from continuing operations	$435,086	$426,301	$410,590	$303,446	$290,241
Net cash used in investing activities from continuing operations	$(196,394)	$(1,832,855)	$(56,974)	$(154,848)	$(108,137)
Net cash (used in) provided by financing activities from continuing operations	$(206,433)	$1,141,259	$(118,692)	$(85,583)	$(287,703)
Supplemental Data:					
Free cash flow[2]	$354,291	$355,398	$357,455	$241,998	$222,670

Certain financial information is presented on a rounded basis, which may cause minor differences.

(1) Amounts include the impact of businesses acquired during the period, commencing on the respective acquisition dates. See Note 4 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

(2) Free cash flow is calculated by subtracting capital expenditures from cash provided by operating activities from continuing operations. Free cash flow is a non-GAAP financial measure. This financial measure is used in addition to and in conjunction with results presented in accordance with generally accepted accounting principles in the United States, or GAAP, and should not be considered a substitute for net cash provided by operating activities from continuing operations, the most comparable GAAP financial measure. Management believes that free cash flow is a useful measure to investors because it facilitates an assessment of funds available to satisfy current and future obligations, pay dividends and fund acquisitions. We also use this financial measure for internal managerial purposes and to evaluate period-to-period comparisons. Free cash flow is not a measure of cash available for discretionary expenditures since we have certain non-discretionary obligations, such as debt service, that are not deducted from the measure. We strongly encourage investors to review our financial statements and publicly-filed reports in their entirety and not to rely on any single financial measure. The following is a reconciliation of free cash flow to the most comparable GAAP measure.

	2018	2017	2016	2015	2014
	(Dollars in thousands)				
Net cash provided by operating activities from continuing operations	$435,086	$426,301	$410,590	$303,446	$290,241
Less: Capital expenditures	80,795	70,903	53,135	61,448	67,571

Free cash flow	$354,291	$355,398	$357,455	$241,998	$222,670

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Overview

We are a global provider of medical technology products focused on enhancing clinical benefits, improving patient and provider safety and reducing total procedural costs. We primarily design, develop, manufacture and supply single-use medical devices used by hospitals and healthcare providers for common diagnostic and therapeutic procedures in critical care and surgical applications. We market and sell our products worldwide through a combination of our direct sales force and distributors. Because our products are used in numerous markets and for a variety of procedures, we are not dependent upon any one end-market or procedure. We are focused on achieving consistent, sustainable and profitable growth by increasing our market share and improving our operating efficiencies. We evaluate our portfolio of products and businesses on an ongoing basis to ensure alignment with our overall objectives. Based on our evaluation, we may identify opportunities to expand our margins through strategic divestitures of existing businesses and product lines that do not meet our objectives. In addition, we may seek to optimize utilization of our facilities through restructuring initiatives designed to further reduce our cost base and enhance our competitive position. Finally, we may continue to explore opportunities to expand the size of our business and improve our margins through a combination of acquisitions and distributor to direct sales conversions, which generally involve our elimination of a distributor from the sales channel, either by acquiring the distributor or terminating the distributor relationship (in some instances, particularly in Asia, the conversions involve our acquisition or termination of a master distributor and the continued sale of our products through sub-distributors). Our distributor to direct sales conversions are designed to facilitate improved product pricing and more direct access to the end users of our products within the sales channel.

In May 2018 and February 2019, we initiated restructuring plans primarily involving the relocation of certain manufacturing operations to existing lower-cost locations and related workforce reductions (the "2018 Footprint realignment plan" and the “2019 Footprint realignment plan," respectively). The 2018 Footprint realignment plan, which also involves the outsourcing of certain European distribution operations, and the 2019 Footprint realignment plan are expected to be substantially completed during 2024 and 2022, respectively. For additional information on both of these plans and a discussion of our other ongoing restructuring programs, see "Restructuring and impairment charges" under “Results of Operations” below.

We have continued to expand our presence within the medical device industry through strategic acquisitions. During 2018, we completed several acquisitions of businesses that complement our interventional and surgical product portfolios. The total fair value of the consideration transferred in connection with these acquisitions was $172.3 million, which included initial payments of $117.6 million and contingent consideration having an estimated fair value of $54.7 million. The contingent consideration liability represents the estimated fair value of the Company's obligations to make additional payments if certain sales and regulatory goals are met.

During the year ended December 31, 2018, we also completed several distributor to direct sales conversions. The aggregate consideration we transferred in connection with these transactions was $4.9 million.

In October 2017, we completed the acquisition of NeoTract, Inc. ("NeoTract"), a medical device company that developed and commercialized the UroLift System, a minimally invasive medical device for treating lower urinary tract symptoms due to benign prostatic hyperplasia, or BPH. We made initial payments of $725.6 million in cash less a favorable working capital adjustment of $1.4 million and agreed to pay up to an additional $300 million in the aggregate contingent if we achieve specified net sales goals through the end of 2020. We made an additional payment of $75 million during 2018 as a result of the achievement of a sales goal for the period from January 1, 2018 to April 30, 2018. In February 2017, we completed the acquisition of Vascular Solutions, Inc. (“Vascular Solutions”), a medical device company that developed and marketed clinical products for use in minimally invasive coronary and peripheral vascular procedures, for an aggregate purchase price of $975.5 million. In addition, during the year ended December 31, 2017, we completed acquisitions related to our anesthesia and respiratory product portfolios and distributor to direct sales conversions. The total fair value of the consideration related to these acquisitions was $80.1 million.

U.S. Tax Legislation

U.S. tax legislation commonly referred to as the Tax Cuts and Jobs Act (the “TCJA”) was enacted on December 22, 2017. The legislation significantly changes United States (or "U.S.") tax law by, among other things, reducing the U.S. corporate income tax rate from a maximum of 35% to 21%; implementing a territorial tax system, generally

providing for, among other things, a dividends received deduction on the foreign source portion of dividends received from a foreign corporation if specified conditions are met; and imposing a one-time repatriation tax on undistributed post-1986 earnings and profits of foreign subsidiaries, which will be deemed repatriated for purposes of the tax.
On December 22, 2017, the SEC staff issued Staff Accounting Bulletin No. 118 (“SAB 118”) to address the application of U.S. GAAP in situations where a company does not have the necessary information available, prepared, or analyzed (including computations) in reasonable detail to complete the accounting for certain income tax effects of the TCJA. SAB 118 states that in these circumstances, if the Company can determine a reasonable estimate for the income tax effects, the SEC staff would not object if the company includes in its financial statements the reasonable estimate it has determined (and the SEC staff also expressed its belief that it would not be appropriate for a company to exclude a reasonable estimate from its financial statements to the extent a reasonable estimate has been determined). We included a provisional $107.9 million net tax expense related to the deemed repatriated earnings and the revaluation of deferred tax assets and liabilities in our consolidated financial statements for the year ended December 31, 2017.
During 2018, we made adjustments to the provisional amounts for taxes on deemed repatriated earnings and the revaluation of deferred tax assets and liabilities due to additional analysis, changes in interpretations and in our assumptions, and the issuance of additional regulatory guidance. As prescribed under SAB 118, these adjustments were identified and recorded as discrete adjustments in the period in which such changes were made. During 2018, we recognized a net $2.3 million discrete tax benefit as a result of adjustments to the provisional tax impacts of the TCJA included in our consolidated financial statements for the year ended December 31, 2017. These adjustments included a $0.2 million reduction in the provisional tax on deemed repatriated earnings and a $2.1 million tax benefit from changes in our revaluation of deferred tax assets and liabilities. We completed our accounting for these impacts during the fourth quarter 2018.
Health Care Reform
In 2010, the Patient Protection and Affordable Care Act (as amended, the "Affordable Care Act") was signed into law. The legislation is far-reaching and is intended to expand access to health insurance coverage and improve the quality and reduce the costs of healthcare. For medical device companies such as Teleflex, the expansion of medical insurance coverage should lead to greater utilization of the products we manufacture, but the provisions of the legislation designed to contain the cost of healthcare could negatively affect pricing of our products and encourage patient outcome driven results. The overall impact of the Affordable Care Act on our business is yet to be determined, mainly due to uncertainties around future customer behaviors, which we believe will be affected by reimbursement factors such as insurance coverage, statistics, patient outcomes and patient satisfaction. [Several legislative initiatives to repeal the Affordable Care Act and adopt a form of replacement legislation were proposed, but not adopted, in 2017. However, the TCJA eliminated the individual mandate under the Affordable Care Act, which generally required most Americans to maintain a minimum level of health insurance coverage.] As a result, the level of insurance premium prices for participants in insurance exchanges under the Affordable Care Act is subject to increased uncertainty. Moreover, on December 14, 2018, the United States District Court for the Northern District of Texas ruled that the individual mandate provision of the Affordable Care Act is unconstitutional and the remainder of the act is invalid, although the Court stayed its ruling pending appeal. The nature and effect of any modification or repeal of, or legislative substitution for, the Affordable Care Act, any court decision regarding the act's validity and, generally, the longer-term viability of the act, is uncertain.
The Affordable Care Act imposed a 2.3% excise tax on sales of medical devices, beginning in 2013. Although the excise tax has been suspended through 2019, its status remains unclear for subsequent years.
Global Economic Conditions

Global economic conditions in the past decade have had an adverse impact on market activities due to, among other things, failure of financial institutions, falling asset values, diminished liquidity, reduced demand for products and services and significant fluctuations in foreign currency exchange rates. In response, we adjusted production levels and engaged in new restructuring activities. We continue to review and evaluate our manufacturing, warehousing and distribution processes to maximize efficiencies through the elimination of redundancies in our operations and the

consolidation of facilities. Although, on a consolidated basis, the consequences of economic conditions, other than fluctuations in foreign currency exchange rates, have not had a significant adverse impact on our financial position, results of operations or liquidity, healthcare policies and practice trends vary by country, and the impact of the global economic downturn was felt to varying degrees in each of our regional markets over the last several years. While there generally has been some improvement in economic conditions recently, the degree of improvement has been uneven among our regional markets, and the continuation of economic trends of uncertain economic growth, constricted credit,

public sector austerity measures in response to public budget deficits and foreign currency volatility, particularly with respect to the euro, could have a material adverse effect on our results of operations and our liquidity.

In recent years, hospitals in some regions of the United States experienced a decline in admissions, a weaker payor mix, and a reduction in elective procedures. Consequently, hospitals took actions to reduce their costs, including limiting their capital spending. Despite recent improvements in the economic environment, challenges persist, particularly in some European countries, as discussed below. Approximately 95% of our net revenues come from single-use products primarily used in critical care and surgical applications, and our sales volume could be negatively impacted if hospital admission rates or payor mix change. Conversely, our sales volume could increase due to the greater number of insured individuals as a result of the Affordable Care Act, which has had the effect of facilitating medical insurance coverage for many persons who previously were not covered, although, as noted above, the Affordable Care Act may be subject to repeal, a final court determination of invalidity, further modification or replacement; therefore, the longer-term viability of the act is uncertain.

A number of European countries continue to contend with considerable government debt, annual deficits and high levels of unemployment. Despite some indications of a more positive economic outlook in Europe, the prospects for continued growth are uncertain, and the healthcare sector remains weak. In particular, budgetary restraints among European countries have led to cost control measures, such as delays in approvals for elective surgeries.The public healthcare systems in certain countries in Western Europe, most notably Greece, Spain, Portugal and Italy, have experienced significantly reduced liquidity due to recessionary conditions, which continues to result in delays in payments to us by customers in these countries. Moreover, the impact of ongoing uncertainty regarding the impact of the departure of the United Kingdom from the European Union and political developments in European nations could have a profound economic effect in Europe and elsewhere.

In Asia, we believe the economic outlook for the healthcare sector generally is positive. However, a deceleration of growth in the Chinese economy and recent US-China trade tensions have increased uncertainties within Asia. In addition, we continue to confront government-implemented price management and reimbursement controls, particularly in China and India. There also has been an increase in government initiatives to help local manufacturers access a bigger share of the local market. Moreover, many countries in the region have become more proactive with respect to regulatory requirements, and as a result, we expect longer, costlier and more complicated regulatory approval processes in these countries.

In Latin America, some highly regulated economies such as Argentina, Brazil, and Venezuela have experienced unusually high inflation rates and weakening currencies. This has impacted the budgets of the public healthcare systems resulting in delays in the importation of medical devices. Although Latin America does not represent a significant portion of our business, our operations in this region may be adversely affected by these factors.

Results of Operations

As used in this discussion, "new products" are products for which commercial sales have commenced within the past 36 months, and “existing products” are products for which commercial sales commenced more than 36 months ago. Discussion of results of operations items that reference the effect of one or more acquired businesses (except as noted below with respect to acquired distributors) generally reflects the impact of the acquisitions within the first 12 months following the date of the acquisition. In addition to increases and decreases in the per unit selling prices of our products to our customers, our discussion of the impact of product price increases and decreases also reflects the impact on the pricing of our products resulting from any elimination of distributors, either through acquisition or termination of the distributor, from the sales channel.

Certain financial information is presented on a rounded basis, which may cause minor differences.

Revenues

	2018	2017	2016
	(Dollars in millions)		
Net Revenues	$2,448.4	$2,146.3	$1,868.0

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Comparison of 2018 and 2017

Net revenues for the year ended December 31, 2018 increased 14.1%, or $302.1 million, compared to the prior year. The increase is primarily attributable to net revenues of $165.1 million generated by acquired businesses, primarily NeoTract, a $60.4 million increase in sales volumes of existing products and, to a lesser extent, an increase in new product sales and favorable fluctuations in foreign currency exchange rates.

Comparison of 2017 and 2016

Net revenues for the year ended December 31, 2017 increased 14.9%, or $278.3 million, compared to the prior year. The increase is primarily attributable to net revenues of $205.8 million generated by acquired businesses, primarily Vascular Solutions and NeoTract and, to a lesser extent, an increase in new product sales.

Gross profit

	2018	2017	2016
	(Dollars in millions)		
Gross profit	$1,384.4	$1,171.8	$996.2
Percentage of revenues	56.5 %	54.6 %	53.3 %

Comparison of 2018 and 2017

For the year ended December 31, 2018, gross margin increased 190 basis points, or 3.5%, compared to the prior year. The increase in gross margin reflects the favorable impact of gross profit generated by acquired businesses, primarily NeoTract, and the impact of favorable fluctuations in foreign currency exchange rates. Moreover, gross margin for the year ended December 31, 2017 reflected the adverse impact of the step-up in carrying value of inventory recognized in connection with the Vascular Solutions acquisition.

Comparison of 2017 and 2016

For the year ended December 31, 2017, gross margin increased 130 basis points, or 2.4%, compared to the prior year. The increase in gross margin is primarily attributable to gross margin generated by acquired businesses, a more favorable mix of products sold, cost improvement initiatives, including the 2016 and 2014 footprint realignment plans described below and the impact of price increases. These increases were partially offset by the unfavorable $10.4 million impact of the step-up in carrying value of inventory recognized in connection with the Vascular Solutions acquisition that adversely affected cost of goods sold upon sale of such inventory during 2017, as well as higher logistics and distributions costs.

Selling, general and administrative

	2018	2017	2016
	(Dollars in millions)		
Selling, general and administrative	$878.7	$700.0	$563.3
Percentage of revenues	35.9 %	32.6 %	30.2 %

Comparison of 2018 and 2017

Selling, general and administrative expenses increased $178.7 million during the year ended December 31, 2018 compared to the prior year. The increase is primarily attributable to expenses incurred by our acquired businesses (primarily NeoTract, which we acquired in October 2017), which consisted of a $49.4 million increase in contingent consideration expense resulting from a change in the estimated fair value of our contingent consideration liabilities, a $48.2 million increase in amortization expense and a $56.7 million increase in other operating expenses. The increases were partially offset by a decrease in transaction and other non recurring expenses.

Comparison of 2017 and 2016

Selling, general and administrative expenses increased $136.7 million during the year ended December 31, 2017 compared to the prior year. The increase is primarily attributable to $108.3 million in expenses related to acquired businesses and distributor to direct sales conversions, the unfavorable impact of increases in the fair value of contingent consideration liabilities and unfavorable fluctuations in foreign currency exchange rates.

Research and development

	2018	2017	2016
	(Dollars in millions)		
Research and development	$106.2	$84.8	$58.6
Percentage of revenues	4.3 %	3.9 %	3.1 %

Comparison of 2018 and 2017

The increase in research and development expenses for the year ended December 31, 2018 is primarily attributable to expenses incurred in connection with our interventional urology, anesthesia and interventional product portfolios.

Comparison of 2017 and 2016

The increase in research and development expenses for the year ended December 31, 2017 is primarily attributable to expenses incurred by acquired businesses, primarily Vascular Solutions, and to a lesser extent, NeoTract. Additionally, 2017 research and development expenses reflect increased spending on new product development with respect to several of our segments.

Restructuring and impairment charges

2019 Footprint realignment plan

In February 2019, we initiated a restructuring plan primarily involving the relocation of certain manufacturing operations to existing lower-cost locations and related workforce reductions (the “2019 Footprint realignment plan"). These actions are expected to be substantially completed during 2022.

We estimate that we will incur aggregate pre-tax restructuring and restructuring related charges in connection with the 2019 Footprint realignment plan of $56 million to $70 million, of which, we expect $21 million to $26 million to be incurred in 2019 and most of the balance is expected to be incurred prior to the end of 2021. We estimate that $53 million to $66 million of these charges will result in cash outlays, of which, $8 million to $9 million is expected to be made in 2019 and most of the balance is expected to be made by the end of 2021. Additionally, we expect to incur $29 million to $35 million in aggregate capital expenditures under the plan, of which, $18 million to $22 million is expected to be incurred during 2019 and most of the balance is expected to be incurred by the end of 2021.

We expect to begin realizing plan-related savings in 2021 and expect to achieve annual pre-tax savings of $12 million to $14 million once the plan is fully implemented.

Anticipated charges and pre-tax savings related to restructuring programs and other similar cost savings initiatives

In addition to the 2019 Footprint realignment plan, we have ongoing restructuring programs related to (i) the integration of Vascular Solutions into Teleflex; (ii) the centralization of certain administrative functions in our EMEA segment; (iii) the consolidation of our manufacturing operations (referred to as our 2018, 2016 and 2014 Footprint realignment plans); and (iv) other restructuring programs designed to improve operating efficiencies and reduce costs. See Note 5 to the condensed consolidated financial statements included in this report. In addition, we have similar ongoing activities to relocate certain manufacturing operations within our OEM segment ("the OEM initiative") that do not meet the criteria for a restructuring program under applicable accounting guidance, but the activities should result in cost savings (we expect only minimal costs to be incurred). With respect to our restructuring programs and OEM initiative, the table below summarizes (1) the estimated total charges that will be incurred and the estimated annual pre-tax savings once the programs are completed; (2) the charges incurred and estimated annual pre-tax savings realized through December 31, 2018; and (3) the estimated charges to be incurred and the estimated incremental annual pre-tax savings to be realized for these programs and OEM initiative through December 31, 2018 and from January 1, 2019 through their respective anticipated completion dates. As used in the table, "pre-tax savings" include (1) anticipated cost savings with respect to our historical expense items and (2) anticipated efficiencies to be realized with respect to costs that otherwise would have resulted from business acquisitions.

Estimated charges and pre-tax savings are subject to change based on, among other things, the nature and timing of restructuring activities and similar activities, changes in the scope of restructuring programs and the OEM initiative, unanticipated expenditures and other developments, the effect of additional acquisitions or dispositions, failure to realize anticipated savings from a supply contract related to a component included in certain kits sold by our Vascular

North America and Anesthesia North America segments, and other factors that were not reflected in the assumptions made by management in previously estimating restructuring and restructuring related charges and estimated pre-tax savings. Moreover, estimated pre-tax savings constituting efficiencies with respect to increased costs that otherwise would have resulted from business acquisitions involve, among other things, assumptions regarding the cost structure and integration of businesses that previously were not administered by our management, which are subject to a particularly high degree of risk and uncertainty. It is likely that estimates of charges and pre-tax savings will change from time to time, and the table below reflects changes from amounts previously estimated. In addition, the table below does not include estimated charges and pre-tax savings related to completed programs.

Pre-tax savings can also be affected by increases or decreases in sales volumes generated by the businesses impacted by the consolidation of manufacturing operations; such variations in revenues can increase or decrease pre-tax savings generated by the consolidation of manufacturing operations. For example, an increase in sales volumes generated by the impacted businesses, although likely increasing manufacturing costs, may generate additional savings with respect to costs that otherwise would have been incurred if the manufacturing operations were not consolidated.

	Restructuring programs and other similar cost saving initiatives		
	Estimated Total	Through December 31, 2018	Estimated Remaining from January 1, 2019 through December 31, 2026
	(Dollars in millions)		
Restructuring charges	$131 - $150	$102	$29 - $48
Restructuring related charges [1]	140 - 171	58	82 - 113
Total charges	$271 - $321	$160	$111 - $161
OEM initiative pre-tax savings	$6 - $7	$1	$5 - $6
Pre-tax savings [2]	118 - 130	68	50 - 62
Total pre-tax savings	$124 - $137	$69	$55 - $68

(1) Restructuring related charges represent costs that are directly related to the programs and principally constitute costs to transfer manufacturing operations to the new locations, project management costs and accelerated depreciation, as well as a charge associated with our exit from facilities that is expected to be imposed by the taxing authority in the affected jurisdiction. Most of these changes (other than the tax charge) are expected to be recognized in cost of goods sold.

(2) Approximately 70% of the pre-tax savings are expected to result in reductions to cost of goods sold. As previously disclosed, during 2016, in connection with our execution of the 2014 Footprint realignment plan, we implemented changes to medication delivery devices included in certain of our kits, which are expected to result in increased product costs (and therefore reduce the annual savings we anticipated at the inception of the program). However, we also expect to achieve improved pricing on these kits that will offset the increased costs, resulting in estimated annual increased revenues of $3 million to $4 million, which is not reflected in the table above. Since 2017, we have realized an aggregate benefit of $2.4 million resulting from this incremental pricing. More recently, during the fourth quarter of 2017, we entered into an agreement with an alternate provider for the development and supply of a component to be included in certain kits sold by our Vascular North America and Anesthesia North America operating segments. The agreement will result in increased development costs but is expected to reduce the cost of the component supply, once the supply becomes commercially available, as compared to the costs incurred with respect to our current suppliers. Therefore, we anticipate a net savings from the agreement, which is reflected in the table above. See “2014 Manufacturing Footprint Realignment Plan” below for additional information.

The following discussion provides additional details with respect to our restructuring programs for which we incurred restructuring charges in 2018:

2018 Footprint realignment plan

On May 1, 2018, we initiated a restructuring plan involving the relocation of certain European manufacturing operations to existing lower-cost locations, the outsourcing of certain European distribution operations and related

workforce reductions. These actions commenced in the second quarter 2018 and are expected to be substantially completed by the end of 2024.

We estimate that we will incur aggregate pre-tax restructuring and restructuring related charges in connection with the 2018 Footprint realignment plan of $102 million to $133 million, of which, we estimate that $99 million to $127 million of these charges will result in future cash outlays. Additionally, we expect to incur $19 million to $23 million in aggregate capital expenditures under the plan, most of which we expect to be incurred by the end of 2021.

We began realizing plan-related savings in 2018 and expect to achieve annual pre-tax savings of $25 million to $30 million once the plan is fully implemented.

2016 Footprint realignment plan

In 2016, we initiated a restructuring plan involving the relocation of certain manufacturing operations, the relocation and outsourcing of certain distribution operations and a related workforce reduction at certain of our facilities (the "2016 Footprint realignment plan"). These actions commenced in the first quarter 2016 and were substantially completed by the end of 2018.

2014 Footprint realignment plan

In April 2014, we initiated a restructuring plan (the "2014 Footprint realignment plan") involving the consolidation of operations and a related reduction in workforce at certain facilities, and the relocation of manufacturing operations from certain higher-cost locations to existing lower-cost locations. We estimate that we will incur aggregate pre-tax charges in connection with the 2014 Footprint realignment plan of approximately $47 million to $52 million. Additionally, we estimate that we will achieve annual pre-tax savings of $26 million to $29 million and we expect the plan will be substantially complete by the end of 2021.

2017 Vascular Solutions integration and EMEA restructuring programs

During the first quarter 2017, the Company committed to restructuring programs related to the integration of Vascular Solutions into Teleflex and to the centralization of certain administrative functions in Europe. Both programs were substantially completed during 2018 and as a result, the Company expects future restructuring expenses associated with the program, if any, to be nominal.

The following table provides information regarding restructuring charges we have incurred with respect to each of our restructuring programs, as well as impairment charges, for the years ended December 31, 2018, 2017, and 2016. The restructuring charges listed in the table primarily consist of termination benefits.

	2018	2017	2016
	(Dollars in millions)		
2018 Footprint realignment plan	$55.0	$—	$—
2017 Vascular Solutions integration program	0.6	5.5	—
2017 EMEA restructuring program	0.7	5.2	—
2016 Footprint realignment plan	2.9	2.1	12.5
2014 Footprint realignment plan	0.8	0.7	0.1
Other restructuring programs[(1)]	0.1	1.3	3.2
Impairment charges [(2)]	19.1	—	43.4
Total	$79.2	$14.8	$59.2

(1) Other restructuring programs include the Other 2016 restructuring programs (in 2017 and 2016) and the 2017 Pyng Integration program (in 2018 2017). We committed to the 2017 Pyng Integration program during the second quarter 2017, following our acquisition of Pyng Medical Corp in April 2017. Each of these programs were substantially completed as of December 31, 2018.

(2) Impairment charges recognized in 2018 included $17.2 million related to certain intellectual property and other assets associated with products that were eliminated from our interventional product portfolio. Impairment charges recognized in 2016 included $41.0 million related to a discontinued intellectual property research and development (IPR&D) project and two properties that were sold during the first quarter 2017.

Interest expense

	2018	2017	2016
	(Dollars in millions)		
Interest expense	$103.0	$82.5	$54.9
Average interest rate on debt during the year	4.25 %	3.70 %	3.80 %

Comparison of 2018 and 2017

The increase in interest expense for the year ended December 31, 2018 compared to the prior year was primarily due to an increase in average debt outstanding resulting from additional borrowings under our principal credit facility, as well as the November 2017 issuance of our 4.625% Senior Notes due 2027 ("2027 Notes"). The increase in interest expense was also the result of a higher average interest rate on our debt.

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Comparison of 2017 and 2016

The increase in interest expense for the year ended December 31, 2017 compared to the prior year was primarily due to an increase in average debt outstanding, mainly attributable to borrowings under our senior credit agreement (the "Credit Agreement") that were utilized to fund the Vascular Solutions and NeoTract acquisitions, offset by a slight decline in the average interest rate on debt.

Loss on extinguishment of debt

	2018	2017	2016
			(Dollars in millions)
Loss on extinguishment of debt	$—	$5.6	$19.3

For the years ended December 31, 2017 and 2016, the loss on the extinguishment of debt was related to our repurchases or the conversion of portions of the $400 million principal amount of our 3.875% convertible senior subordinated notes (the "Convertible Notes") that were issued in 2010 and matured in August 2017.

Gain on sale of assets

	2018	2017	2016
			(Dollars in millions)
Gain on sale of assets	$1.4	$—	$4.4

During the year ended December 31, 2018 and 2016, we recognized a gain on the sale of a land parcel and on the sale of buildings, respectively.

Taxes on income from continuing operations

	2018	2017	2016
Effective income tax rate	10.6%	45.5%	3.3%

We generate substantial earnings from our international operations. Most of the international jurisdictions in which we file tax returns historically have had statutory tax rates that are lower than the United States statutory tax rate; as a result, our consolidated effective income tax rate for 2017 (excluding the impact of the TCJA) and earlier years has been substantially below the United States statutory tax rate. The principal international jurisdictions in which the statutory tax rate in 2017 and earlier years is lower than the United States statutory tax rate and from which we derive substantial earnings include Ireland, Bermuda, Luxembourg, Germany and Italy.

Despite the TCJA's reduction of the United States corporate income tax rate, we continue to have a consolidated effective income tax rate that is below the newly enacted statutory tax rate due to the lower tax rates applicable to our foreign operations in many of the relevant international jurisdictions. The principal international jurisdictions in which the statutory tax rate in 2018 is lower than the United States statutory tax rate and from which we derive substantial earnings include Ireland and Bermuda. However, changes to either the currently enacted United States tax rates or international statutory tax rates could affect our effective income tax rate in the future.

Comparison of 2018 and 2017

The effective income tax rate for 2018 was 10.6% compared to 45.5% for 2017. Taxes on income from continuing operations in 2018 were $23.2 million compared to $129.6 million in 2017. The effective income tax rate for 2018 was impacted by the reduction of the United States corporate income tax rate from a maximum of 35% to 21% as a result of the TCJA. Additionally, the effective tax rate for 2018 was impacted by a net excess tax benefit related to share-based compensation and a tax cost associated with a non-deductible contingent consideration expense recognized in connection with an increase in the fair value of the NeoTract contingent consideration liability. See Note 14 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

Comparison of 2017 and 2016

The effective income tax rate in 2017 was 45.5% compared to 3.3% in 2016. Taxes on income from continuing operations in 2017 were $129.6 million compared to $8.1 million in 2016. The effective income tax rate for 2017 was impacted by a net tax expense of $107.9 million resulting from the enactment of the TCJA. The $107.9 million net tax

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expense reflects a tax expense of $154.0 million for the deemed repatriation of undistributed foreign earnings, partially offset by a $46.1 million tax benefit resulting from the reassessment and revaluation of the net deferred tax liabilities. Additionally, the effective tax rate for 2017 was impacted by a net excess tax benefit related to share-based compensation and a benefit resulting from the expiration of various statutes of limitation.

Segment Results

Segment Net Revenues

	Year Ended December 31			% Increase/(Decrease)	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	(Dollars in millions)				
Vascular North America	$329.5	$313.6	$295.2	5.1	6.2
Interventional North America	261.6	220.6	82.4	18.6	167.6
Anesthesia North America	205.1	198.0	198.8	3.6	(0.4)
Surgical North America	166.3	175.2	172.2	(5.1)	1.7
EMEA	603.8	552.7	510.9	9.2	8.2
Asia	286.9	269.2	249.4	6.6	7.9
OEM	206.0	183.0	161.0	12.6	13.7
All other	389.2	234.0	198.1	66.4	18.1
Segment Net Revenues	$2,448.4	$2,146.3	$1,868.0	14.1	14.9

Segment Operating Profit

	Year Ended December 31,			% Increase/(Decrease)	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	(Dollars in millions)				
Vascular North America	$98.5	$77.0	$77.1	27.9	(0.1)
Interventional North America	62.3	26.0	13.3	139.7	95.8
Anesthesia North America	61.2	62.9	55.6	(2.8)	13.2
Surgical North America	62.9	63.9	56.6	(1.6)	12.9
EMEA	106.1	92.4	84.4	14.8	9.5
Asia	78.1	75.6	75.7	3.3	(0.2)
OEM	50.3	41.6	33.6	21.0	23.6
All other	(29.1)	11.2	26.5	(360.7)	(57.9)
Segment Operating Profit[1]	$490.3	$450.6	$422.8	8.8	6.6

(1) See Note 17 to the consolidated financial statements included in this Annual Report on Form 10-K for a reconciliation of segment operating profit to our consolidated income from continuing operations before interest, loss on extinguishment of debt and taxes.

Comparison of 2018 and 2017

Vascular North America

Vascular North America net revenues for the year ended December 31, 2018 increased $15.9 million, or 5.1%, compared to the prior year. The increase is primarily attributable to an $8.0 million increase in sales volumes of existing products, a $5.6 million increase in new product sales and, to a lesser extent, price increases.

Vascular North America operating profit for the year ended December 31, 2018 increased $21.5 million, or 27.9%, compared to the prior year. The increase is primarily attributable to an increase in gross profit resulting from higher sales and lower manufacturing costs as well as lower operating expenses.

Interventional North America

Interventional North America net revenues for the year ended December 31, 2018 increased $41.0 million, or 18.6%, compared to the prior year. The increase is primarily attributable to net revenues of $20.6 million generated by

acquired businesses (primarily Vascular Solutions) as well as increases in new product sales and in sales volumes of existing products.

Interventional North America operating profit for the year ended December 31, 2018 increased $36.3 million, or 139.7%, compared to the prior year. The increase is primarily attributable to gross profit generated by acquired businesses (primarily Vascular Solutions). In addition, for the year ended December 31, 2017, Interventional North America gross profit reflected the adverse effect of the step-up in carrying value of inventory recognized in connection with the Vascular Solutions acquisition.

Anesthesia North America

Anesthesia North America net revenues for the year ended December 31, 2018 increased $7.1 million, or 3.6%, compared to the prior year. The increase is primarily attributable to a $5.9 million increase in new product sales as well as an increase in sales volumes of existing products partially offset by price decreases.

Anesthesia North America operating profit for the year ended December 31, 2018 decreased $1.7 million, or 2.8%, compared to the prior year despite an increase in gross profit resulting from higher sales and lower manufacturing costs due to higher research and development expenses. Additionally, in 2017, we recognized a $6.4 million gain due to a favorable ruling in a lawsuit involving an insurance provider.

Surgical North America

Surgical North America net revenues for the year ended December 31, 2018 decreased $8.9 million, or 5.1%, compared to the prior year. The decrease is due to a $10.2 million decline in sales volumes of existing products partially offset by an increase in new product sales.

Surgical North America operating profit for the year ended December 31, 2018 decreased $1.0 million, or 1.6%, compared to the prior year. The decrease was primarily attributable to a decrease in gross profit resulting from lower sales largely offset by lower operating expenses, including a reduction in expenses resulting from a decrease in the estimated fair value of our contingent consideration liabilities.

EMEA

EMEA net revenues for the year ended December 31, 2018 increased $51.1 million, or 9.2%, compared to the prior year. The increase is primarily attributable to favorable fluctuations in foreign currency exchange rates of $24.5 million as well as price increases of $13.8 million.

EMEA operating profit for the year ended December 31, 2018 increased $13.7 million, or 14.8%, compared to the prior year. The increase is primarily attributable to an increase in gross profit reflecting higher sales and favorable fluctuations in foreign currency exchange rates. The increases in gross profit were partially offset by higher operating costs, including selling and amortization expenses.

Asia

Asia net revenues for the year ended December 31, 2018 increased $17.7 million, or 6.6%, compared to the prior year. The increase was primarily attributable to a $9.3 million increase in sales volumes of existing products, a $6.0 million increase in new product sales and net revenues generated by acquired businesses.

Asia operating profit for the year ended December 31, 2018 increased $2.5 million, or 3.3%, compared to the prior year. The increase was primarily attributable to an increase in gross profit resulting from higher sales as well as favorable fluctuations in foreign currency exchange rates, partially offset by unfavorable product mix and higher operating costs.

OEM

OEM net revenues for the year ended December 31, 2018 increased $23.0 million, or 12.6%, compared to the prior year. The increase is primarily attributable to a $16.5 million increase in sales volumes of existing products and an acceleration in the timing of revenue recognition in accordance with newly-adopted accounting guidance.

OEM operating profit for the year ended December 31, 2018 increased $8.7 million, or 21.0%, compared to the prior year. The increase is primarily attributable to an increase in gross profit resulting from higher sales partially offset by higher manufacturing costs.

All other

Net revenues for our other businesses for the year ended December 31, 2018 increased $155.2 million, or 66.4%, compared to the prior year. The increase is primarily attributable to net revenues generated by acquired businesses (principally NeoTract).

Operating profit for our other businesses for the year ended December 31, 2018 decreased $40.3 million, or 360.7%, compared to the prior year. The decrease is primarily attributable to expense resulting from an increase in the estimated fair value of our contingent consideration liabilities and amortization expense, both of which are primarily related to NeoTract, partially offset by gross profit generated by NeoTract.

Comparison of 2017 and 2016

Vascular North America

Vascular North America net revenues for the year ended December 31, 2017 increased $18.4 million, or 6.2%, compared to the prior year. The increase is primarily attributable to a $7.9 million net increase in sales volumes of existing products, a $6.7 million increase in new product sales and price increases.

Vascular North America operating profit for the year ended December 31, 2017 decreased $0.1 million, or 0.1%, compared to the prior year. The decrease is primarily attributable to higher general and administrative expenses, as well as higher research and development expenses. In addition, operating profit in 2016 reflected a benefit resulting from the reversal of contingent consideration liabilities. The decreases were partially offset by an increase in gross profit resulting from an increase in sales, lower manufacturing costs and increases in prices and new product sales.

Interventional North America

Interventional North America net revenues for the year ended December 31, 2017 increased $138.2 million, or 167.6%, compared to the prior year. The increase is primarily attributable to net revenues of $127.9 million generated by Vascular Solutions.

Interventional North America operating profit for the year ended December 31, 2017 increased $12.7 million, or 95.8%, compared to the prior year. The increase is primarily attributable to gross profit generated by Vascular Solutions, which was partially offset by higher operating expenses, including expenses incurred in connection with the acquisition and ongoing operations of Vascular Solutions.

Anesthesia North America

Anesthesia North America net revenues for the year ended December 31, 2017 decreased $0.8 million, or 0.4%, compared to the prior year. The decrease is primarily attributable to a $10.1 million decrease in sales volumes of existing products partially offset by net revenues generated by an acquired business and an increase in new product sales.

Anesthesia North America operating profit for the year ended December 31, 2017 increased $7.3 million, or 13.2%, compared to the prior year. The increase is primarily attributable to a gain of $6.4 million resulting from a favorable ruling in a lawsuit involving an insurance provider.

Surgical North America

Surgical North America net revenues for the year ended December 31, 2017 increased $3.0 million, or 1.7%, compared to the prior year. The increase is primarily attributable to a $3.0 million increase in new product sales and price increases of $2.6 million, partially offset by a $2.8 million decrease in sales volumes of existing products.

Surgical North America operating profit for the year ended December 31, 2017 increased $7.3 million, or 12.9%, compared to the prior year. The increase is primarily attributable to an increase in gross profit resulting from lower manufacturing costs and increases in prices and new product sales, partially offset by sales volume decreases. The increase in operating profit is also attributable to lower expense associated with the revaluation of contingent consideration liabilities.

EMEA

EMEA net revenues for the year ended December 31, 2017 increased $41.8 million, or 8.2%, compared to the prior year. The increase is primarily attributable to net revenues of $20.5 million generated by acquired businesses

(primarily Vascular Solutions), favorable fluctuations in foreign currency exchange rates and an increase in new product sales.

EMEA operating profit for the year ended December 31, 2017 increased $8.0 million, or 9.5%, compared to the prior year. The increase is primarily attributable to gross profit generated by acquired businesses, primarily Vascular Solutions, as well as an increase in gross profit resulting from higher sales. These increases were partially offset by the impact of unfavorable fluctuations in foreign currency exchange rates and higher operating expenses, primarily resulting from costs incurred by Vascular Solutions.

Asia

Asia net revenues for the year ended December 31, 2017 increased $19.8 million, or 7.9%, compared to the prior year. The increase was primarily attributable to net revenues of $7.5 million generated by acquired businesses (primarily Vascular Solutions), as well as increases in sales volumes of existing products, new product sales and price increases. We experienced a decline in sales of certain product lines in China during 2017 as a result of a distributor to direct sales conversion, as we implemented a new structure to support product sales. However, this decline was more than offset by a net increase in sales volumes in the remainder of the Asia segment.

Asia operating profit for the year ended December 31, 2017 decreased $0.1 million, or 0.2%, compared to the prior year. The decrease was primarily attributable to higher selling, general and administrative expenses, including those incurred in connection with the distributor to direct sales conversion and related arbitration in China that was settled in February 2018, costs incurred by Vascular Solutions and unfavorable fluctuations in foreign currency exchange rates. The decreases were partially offset by an increase in gross profit generated by acquired businesses (primarily Vascular Solutions) as well as an increase in gross profit resulting from price increases.

OEM

OEM net revenues for the year ended December 31, 2017 increased $22.0 million, or 13.7%, compared to the prior year. The increase is primarily attributable to a $10.4 million increase in sales volumes of existing products, net revenues of $7.7 million generated by an acquired business and to a lesser extent an increase in new product sales.

OEM operating profit for the year ended December 31, 2017 increased $8.0 million, or 23.6%, compared to the prior year. The increase is primarily attributable to an increase in gross profit resulting from higher sales and gross profit generated by an acquired business. This increase was partially offset by higher operating expenses including those incurred by the acquired business as well as selling expenses.

All other

Net revenues for the other businesses for the year ended December 31, 2017 increased $35.9 million, or 18.1%, compared to the prior year. The increase is primarily attributable to net revenues of $37.1 million generated by NeoTract.

Operating profit for the other businesses for the year ended December 31, 2017 decreased $15.3 million, or 57.9%, compared to the prior year. The decrease is primarily attributable to higher operating expenses resulting from the NeoTract acquisition, including transaction fees and related expenses, which were partially offset by gross profit generated by the NeoTract acquisition.

Liquidity and Capital Resources

We assess our liquidity in terms of our ability to generate cash to fund our operating, investing and financing activities. Our principal source of liquidity is operating cash flows. In addition to operating cash flows, other significant factors that affect our overall management of liquidity include: capital expenditures, acquisitions, pension funding, dividends, taxes, scheduled principal and interest payments with respect to outstanding indebtedness, adequacy of available bank lines of credit and access to capital markets.

We believe our cash flow from operations, available cash and cash equivalents and borrowings under our revolving credit facility (which is provided for under the Credit Agreement) and accounts receivable securitization facility will enable us to fund our operating requirements, capital expenditures and debt obligations for the next 12 months and the foreseeable future.

Of our $357.2 million of cash and cash equivalents at December 31, 2018, $299.2 million was held at non-United States subsidiaries. We manage our worldwide cash requirements by monitoring the funds available among our subsidiaries and determining the extent to which we can access those funds on a cost effective basis.

The TCJA significantly changes U.S. tax law by, among other things, imposing a one-time repatriation tax on undistributed post-1986 earnings and profits of foreign subsidiaries. Previously, we were not taxed on foreign earnings deemed to be permanently invested overseas. Under the TCJA, we will have to pay $153.8 million over eight years for the deemed repatriation of foreign earnings, regardless of whether such earnings are actually repatriated, of which, we paid $12.6 million during 2018. See Note 14 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information. As a result of the repatriation tax provisions of the TCJA, we anticipate that, generally, we will be able to access cash located at our foreign subsidiaries without incurring any additional U.S. federal income tax liabilities. We are not aware of any other restrictions on repatriation of these funds and, subject to cash payment of additional foreign withholding taxes, these funds could be repatriated, if necessary.

We have not experienced significant payment defaults by our customers and we have sufficient lending commitments in place to enable us to fund our anticipated operating needs. However, as discussed above in "Global Economic Conditions", although there have been recent improvements in certain countries, global financial markets remain volatile and the global credit markets are constrained, which creates risk that our customers and suppliers may be unable to access liquidity. Consequently, we continue to monitor our credit risk, particularly with respect to customers in Greece, Italy, Portugal and Spain, as well as consider other risk mitigation strategies. In December 2018, we sold $12.7 million of receivables payable from publicly funded hospitals in Italy and Portugal for $12.6 million.

As of December 31, 2018 and 2017, our net trade accounts receivable from publicly funded hospitals in Greece, Italy, Portugal and Spain were $13.6 million and $24.7 million, respectively. For the years ended December 31, 2018, 2017 and 2016, net revenues from customers in these countries were approximately 6%, 6% and 7%, respectively, of our total net revenues, and average days that current and long-term trade accounts receivable with respect to these customers were outstanding were 121, 154 and 182 days, respectively. As of December 31, 2018 and 2017, net current and long-term trade accounts receivable from these countries were approximately 11% and 15%, respectively, of our consolidated net current and long-term trade accounts receivable. If economic conditions in these countries deteriorate, we may experience significant credit losses related to the public hospital systems in these countries. Moreover, if global economic conditions generally deteriorate, we may experience further delays in customer payments, reductions in our customers' purchases and higher credit losses, which could have a material adverse effect on our results of operations and cash flows in 2019 and future years. See "Critical Accounting Policies and Estimates" below for additional information regarding the critical accounting estimates related to our accounts receivable.

On October 4, 2018, we executed cross-currency swap agreements with six financial institution counterparties to hedge against the effect of variability in the U.S. dollar to euro exchange rate. Under the terms of the swap agreements, we notionally exchanged $500 million at an interest rate of 4.625% for €433.9 million at an interest rate of 1.942%. The swap agreements, which expire on October 4, 2023, are designated as net investment hedges and require an exchange of the notional amounts upon expiration or the earlier termination of the agreements. We and the counterparties have agreed to effect the exchange through a net settlement. As a result, we may be required to pay (or be entitled to receive) an amount equal to the difference, on the expiration or earlier termination date, between the U.S. dollar equivalent of the €433.9 million notional amount and the $500 million notional amount. If, at the expiration or earlier termination of the swap agreements, the U.S. dollar to euro currency exchange rate has declined by 10% from the rate in effect on October 4, 2018 (at that date, the exchange rate was 1.15 U.S. dollar per euro), we would be required to pay to the counterparties an aggregate of approximately $50 million in respect of the notional settlement. The swap agreements entail risk that the counterparties will not fulfill their obligations under the agreements. However, we believe the risk is reduced because we have entered into separate agreements with six different counterparties, all of whom are large, well-established financial institutions. Based on the U.S. dollar to euro currency exchange rate in effect on October 4, 2018, and assuming exchange rates remain constant throughout the five year term of the swap agreements, we would realize a reduction in annual cash interest paid of $13.4 million.

We may at any time, from time to time, repurchase our outstanding debt securities in open market purchases, via tender offers or in privately negotiated transactions, exchange transactions or otherwise, at such price or prices as we

deem appropriate. Such purchases or exchanges, if any, will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors and may be commenced or suspended at any time.
See "Financing Arrangements" below as well as Note 9 to the consolidated financial statements included in this Annual Report on Form 10-K for further information related to our borrowings.

Cash Flows

The following table provides a summary of our cash flows for the periods presented:

	Year Ended December 31,		
	2018	2017	2016
	(Dollars in millions)		
Cash flows from continuing operations provided by (used in):			
Operating activities	$435.1	$426.3	$410.6
Investing activities	(196.4)	(1,832.9)	(57.0)
Financing activities	(206.4)	1,141.3	(118.7)
Cash flows used in discontinued operations	2.3	(6.4)	(2.1)
Effect of exchange rate changes on cash and cash equivalents	(11.0)	61.5	(27.4)
Increase (decrease) in cash and cash equivalents	$23.6	$(210.2)	$205.4

Comparison of 2018 and 2017

Cash Flow from Operating Activities

Net cash provided by operating activities from continuing operations was $435.1 million during 2018 and $426.3 million during 2017. The $8.8 million increase is attributable to favorable operating results partially offset by higher income tax payments in 2018 as compared to 2017 and a net unfavorable impact of changes in working capital. The net unfavorable impact from changes in working capital was due a net increase in inventories and a net increase in accounts receivable, partially offset by an increase in accounts payable, accrued expenses and other liabilities.

The increase in inventories for 2018 was $37.2 million compared to an increase of $22.4 million for 2017. The net increase in inventories is attributable to higher inventory purchases associated with ongoing business growth, primarily within our Interventional Urology business. The increase in accounts receivable for 2018 was $23.4 million compared to an increase of $11.0 million for 2017. The net increase in accounts receivable is attributable to higher net revenues during 2018 and a decrease in receivables outstanding sold during 2018 as compared to 2017. In December 2018, we sold $12.7 million of receivables outstanding with publicly funded hospitals in Italy and Portugal compared to 2017 when we sold $16.1 million of outstanding receivables related to public hospitals in Italy. The increase in accounts payable, accrued expenses and other liabilities for 2018 was $63.4 million compared to an increase of $39.0 million for 2017. The increase is attributable to increased restructuring activity primarily related to the 2018 Footprint realignment plan partially offset by lower payroll related accruals.

Cash Flow from Investing Activities

Net cash used in investing activities from continuing operations was $196.4 million during 2018, which includes a cash outflow for payments related to the acquisition of businesses and intangible assets of $121.0 million and capital expenditures of $80.8 million.

Cash Flow from Financing Activities

Net cash used for financing activities from continuing operations was $206.4 million during 2018, which includes borrowing repayments of $128.5 million, contingent consideration payments of $73.2 million and dividend payments of $62.2 million, partially offset by proceeds from new borrowings of $35.0 million and share based compensation and related tax benefits of $22.7 million.

Comparison of 2017 and 2016

Cash Flow from Operating Activities

Net cash provided by operating activities from continuing operations was $426.3 million during 2017 and $410.6 million during 2016. The $15.7 million increase is attributable to favorable operating results partially offset by a net cash outflow for income taxes resulting primarily from a tax refund received in 2016. Excluding income taxes, the net

impact of the working capital changes was consistent in 2017 as compared to 2016; an increase in inventories was

offset by an increase in accounts payable and accrued expenses, and to a lesser extent, a net decrease in prepaid expenses and other current assets. The increase in inventories for the year ended December 31, 2017 was $22.4 million compared to a decrease of $6.4 million for the year ended December 31, 2016. The increase is attributable to inventory purchases to achieve desired safety stock levels as well as inventory from a former Chinese distributor that was returned to us during 2017 in connection with the settlement of an arbitration proceeding between the distributor and us. The net increase in accounts payable and accrued expenses was $39.0 million for the year ended December 31, 2017 as compared to an increase of $15.4 million for the year ended December 31, 2016; the increase is primarily attributable to an increase in payroll and benefit related accruals.

Cash Flow from Investing Activities

Net cash used in investing activities from continuing operations was $1.8 billion during 2017, primarily resulting from $1.8 billion in payments for businesses acquired, principally Vascular Solutions and NeoTract; and capital expenditures of $70.9 million, which were partially offset by proceeds of $6.3 million from the sale of two properties, one of which was a building that had been previously classified as held for sale.

Cash Flow from Financing Activities

Net cash provided by financing activities from continuing operations was $1.1 billion during 2017, primarily resulting from a net increase in borrowings of $1.2 billion. Our borrowings under the Credit Agreement included $1.0 billion to finance the Vascular Solutions acquisition, together with related fees and expenses, and $725 million to finance the NeoTract acquisition. In addition, we sold $500 million in principal amount of our 4.625% senior notes due 2027 (the "2027 Notes"). These increases were partially offset by our repayments of 1.1 billion of borrowings under the Credit Agreement. Additionally, we had a $136.1 million reduction in borrowings under the Convertible Notes resulting from exchange transactions, and payment upon maturity of all remaining Convertible Notes outstanding.

Net cash provided by financing activities from continuing operations was also impacted by dividend payments of $61.2 million and debt issuance and amendment fees of $26.7 million, which included fees paid in connection with our entry into the Credit Agreement, the issuance of the 2027 Notes and a bridge facility and backstop commitment that was put in place to assist with the financing of the Vascular Solutions acquisition, but was never utilized because the required financing was provided under the Credit Agreement.

Financing Arrangements

The following table provides our net debt to total capital ratio:

	2018	2017
	(Dollars in millions)	
Net debt includes:		
Current borrowings	$86.6	$86.6
Long-term borrowings	2,072.2	2,162.9
Unamortized debt issuance costs	17.7	20.5
Total debt	2,176.5	2,270.0
Less: Cash and cash equivalents	357.2	333.6
Net debt	1,819.3	1,936.4
Total capital includes:		
Net debt	1,819.3	1,936.4
Shareholders’ equity	2,540.0	2,430.5
Total capital	$4,359.3	$4,366.9
Percent of net debt to total capital	41.7 %	44.3 %

Fixed rate debt comprised 52.8% and 50.7% of total debt at December 31, 2018 and 2017, respectively. The increase in fixed rate borrowings as a percentage of total borrowings as of December 31, 2018 compared to the fixed rate borrowings as of December 31, 2017 is due a decrease in outstanding borrowings under our senior credit facility resulting from debt repayments.

Senior credit facility

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On January 20, 2017, we amended and restated our then-existing senior credit agreement by entering into an amended and restated credit agreement (the “Credit Agreement”). The Credit Agreement provides for a five-year revolving credit facility of $1.0 billion and a term loan facility of $750.0 million. The term loan facility and borrowings under the revolving credit facility were used to finance the acquisitions of Vascular Solutions and, subsequently, NeoTract, as described above. The obligations under the Credit Agreement are guaranteed (subject to certain exceptions and limitations) by substantially all of our material domestic subsidiaries and are secured by a lien on substantially all of our and each guarantor's owned assets. The revolving credit facility and the term loan facility will mature on January 20, 2022 and February 17, 2022, respectively. At December 31, 2018, we had $293.0 million in borrowings outstanding and approximately $2.1 million in outstanding standby letters of credit under our $1.0 billion revolving credit facility.

The Credit Agreement contains customary representations and warranties and covenants that, among other things and subject to certain exceptions, place limitations on our ability, and the ability of our subsidiaries, to incur additional indebtedness, create additional liens, enter into a merger, consolidation or amalgamation, dispose of certain assets, make certain investments or acquisitions, pay dividends or make other restricted payments, enter into swap agreements or enter into transactions with affiliates. Additionally, the Credit Agreement contains financial covenants that require us to maintain a consolidated total leverage ratio (generally, Consolidated Total Funded Indebtedness, as defined in the Credit Agreement, on the determination date to Consolidated EBITDA, as defined in the Credit Agreement, for the four most recent fiscal quarters ending on or preceding the date of determination) of not more than 4.50 to 1, a consolidated senior secured leverage ratio (generally, Consolidated Senior Secured Funded Indebtedness, as defined in the Credit Agreement, on the date of determination to Consolidated EBITDA for the four most recent fiscal quarters ending on or preceding the date of determination) of not more than 3.50 to 1 and a consolidated interest coverage ratio (generally, Consolidated EBITDA for the four most recent quarters ending on or preceding the date of determination to Consolidated Interest Expense, as defined in the Credit Agreement, paid in cash for such period) of not less than 3.50 to 1. As of December 31, 2018, we were in compliance with the covenants of our Senior credit facility.

See Note 9 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information regarding the Credit Agreement.

2024, 2026 and 2027 Senior Notes

As of December 31, 2018, the outstanding principal amount of our 5.25% senior notes due 2024 (the "2024 Notes"), our 4.875% senior notes due 2026 (the "2026 Notes") and the 2027 Notes (collectively, the "Senior Notes") was $250.0, $400.0 million and $500.0 million, respectively. The indentures governing the 2024 Notes and 2026 Notes contain covenants that, among other things and subject to certain exceptions, limit or restrict our ability, and the ability of our subsidiaries, to incur additional debt or issue preferred stock or other disqualified stock, create liens, merge, consolidate, or dispose of certain assets pay dividends, make investments or make other restricted payments, or enter into transactions with our affiliates. The indenture governing the 2027 Notes contains covenants that, among other things and subject to certain exceptions, limit or restrict our ability, and the ability of our subsidiaries, to create liens; consolidate, merge or dispose of certain assets; and enter into sale leaseback transactions. The obligations under the Senior Notes are fully and unconditionally guaranteed, jointly and severally, by each of our existing and future 100% owned domestic subsidiaries that are a guarantor or other obligor under the Credit Agreement and by certain of our other 100% owned domestic subsidiaries. As of December 31, 2018, we were in compliance with all of the terms of our Senior Notes.

Accounts receivable securitization

We have an accounts receivable securitization facility under which we sell an undivided interest in domestic accounts receivable for consideration of up to $50.0 million to a commercial paper conduit. As of December 31, 2018, and 2017 we borrowed the maximum amount available of $50.0 million under this facility. This facility is utilized to provide increased flexibility in funding short term working capital requirements. The agreement governing the accounts receivable securitization facility contains certain covenants and termination events. An occurrence of an

event of default or a termination event under this facility may give rise to the right of our counterparty to terminate this facility. As of December 31, 2018, we were in compliance with the covenants and none of the termination events had occurred.

For additional information regarding our indebtedness, see Note 9 to the consolidated financial statements included in this Annual Report on Form 10-K.

Contractual Obligations

Contractual obligations at December 31, 2018 are as follows:

	Total	Payments due by period			
		Less than 1 year	1-3 years	3-5 years	More than 5 years
		(Dollars in thousands)			
Total borrowings	$2,176,500	$86,625	$121,875	$818,000	$1,150,000
Interest obligations[(1)]	552,078	100,805	193,220	115,303	142,750
Operating lease obligations	148,160	25,294	44,635	36,863	41,368
Purchase and other obligations[(2)]	214,365	211,515	2,850	—	—
Tax on deemed repatriation of foreign earnings [(3)]	141,150	12,274	24,548	35,287	69,041
Pension and other postretirement benefits	51,571	5,597	11,073	11,080	23,821
Total contractual obligations	$3,283,824	$442,110	$398,201	$1,016,533	$1,426,980

(1) Interest payments on floating rate debt are based on the interest rate in effect on December 31, 2018.

(2) Purchase and other obligations are defined as unconditional commitments to purchase goods or services that are legally binding and that specify all significant terms, including: quantities to be purchased; price provisions; and the approximate timing of the transaction. The amounts include commitments for inventory purchases and capital expenditures (which, at the time we entered into the commitments, did not exceed our projected requirements in the normal course of business) and penalties due upon cancellation of cancellable agreements; the amounts exclude operating lease obligations, which are addressed elsewhere in the table.

(3) As permitted by the TCJA, we have elected to pay the tax in annual installments over eight years.

We recorded a noncurrent liability for uncertain tax positions of $10.7 million and $12.3 million as of December 31, 2018 and 2017, respectively. Due to uncertainties regarding the ultimate resolution of ongoing or future tax examinations, we are not able to reasonably estimate the amount of any income tax payments that will be required to settle uncertain income tax positions or the periods in which any such payments will be made; as a result, these amounts are excluded from the contractual obligations table above.

We recorded contingent consideration liabilities of $304.2 million and $272.1 million as of December 31, 2018 and 2017, respectively, of which $136.9 million and $74.2 million, respectively, were recorded as the current portion of contingent consideration. We expect most of the current portion to be paid during the first quarter 2019 as result of the achievement of certain sales and regulatory goals. Due to uncertainty regarding the timing and amount of future payments related to these liabilities, these amounts are excluded from the contractual obligations table above.

See Note 11, Note 14, and Note 15 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from the amounts derived from those estimates and assumptions.

We have identified the following as critical accounting estimates, which are defined as those that are reflective of significant judgments and uncertainties, are the most pervasive and important to the presentation of our financial condition and results of operations and could potentially result in materially different results under different assumptions and conditions. The following discussion should be considered in conjunction with the description of our accounting policies in Note 1 to the consolidated financial statements in this Annual Report on Form 10-K.

Allowance for Doubtful Accounts

In the ordinary course of business, we grant non-interest bearing trade credit to our customers on normal credit terms. In an effort to reduce our credit risk, we (i) establish credit limits for all of our customer relationships, (ii) perform

ongoing credit evaluations of our customers' financial condition, (iii) monitor the payment history and aging of our customers' receivables, and (iv) monitor open orders against an individual customer's outstanding receivable balance. An allowance for doubtful accounts is maintained for trade accounts receivable based on the expected collectability of accounts receivable, after considering the Company's historical collection experience, the length of time an account is outstanding, the financial position of the customer and information provided by credit rating services. The adequacy of this allowance is reviewed each reporting period and adjusted as necessary. Our allowance for doubtful accounts was $9.3 million and $10.3 million at December 31, 2018 and 2017, respectively, which constituted 2.4% and 2.8% of gross trade accounts receivable at December 31, 2018 and 2017, respectively.

In light of the volatility in global economic markets in recent years, we have procedures in place within countries where we have collectability concerns to facilitate customer-by-customer risk assessment when estimating the allowance for doubtful accounts. These procedures include monthly credit control committee meetings, at which customer credit risks are identified after review of, among other things, accounts that exceed specified credit limits, payment delinquencies and other customer issues. In addition, with respect to government customers, we evaluate receivables for potential collection risks associated with any limitations on the availability of government funding and reimbursement practices. To reduce risk exposures with respect to certain of our non-government customers, we have instituted procedures that include reducing credit limits and requiring that payments accompany orders. Some of our customers, particularly in Greece, Italy, Spain and Portugal, have extended or delayed payments for products and services already provided, resulting in collectability concerns regarding our accounts receivable from these customers. If the financial condition of these customers or the healthcare systems in these countries deteriorate to the extent that the ability of an increasing number of customers to make payments is uncertain, additional allowances may be required in future periods.

Although we maintain allowances for doubtful accounts to cover the estimated losses which may occur when customers cannot make their required payments, we cannot be assured that the allowances will be sufficient to cover future losses given the volatility in the worldwide economy and the possibility that other, unanticipated events may adversely affect collectability of the accounts. If our allowance for doubtful accounts is insufficient to address receivables we ultimately determine are uncollectible, we would be required to incur additional charges, which could materially adversely affect our results of operations. Moreover, our inability to collect outstanding receivables could adversely affect our financial condition and cash flow from operations.

Distributor Rebates

We offer rebates to certain distributors and record a reserve with respect to the estimated amount of the rebates as a reduction of revenues at the time of sale. In estimating rebates, we consider the lag time between the point of sale and the payment of the distributor's rebate claim, distributor-specific trend analyses, contractual commitments, including stated rebate rates, historical experience and other relevant information. When necessary, we adjust the reserves, with a corresponding adjustment to revenue, to reflect differences between estimated and actual experience. Historical adjustments to recorded reserves have not been significant and we do not expect significant revisions to the estimated rebates in the future. The reserve for estimated rebates was $18.1 million and $12.2 million at December 31, 2018 and 2017, respectively. We expect to pay amounts subject to the reserve as of December 31, 2018 within 90 days subsequent to year-end.

Inventory Utilization

Inventories are valued at the lower of cost or net realizable value. We maintain a reserve for excess and obsolete inventory that reduces the carrying value of our inventories to reflect the diminution of value resulting from product obsolescence, damage or other issues affecting marketability. The reduction in carrying value is equal to the difference between the cost of the inventory and its estimated net realizable value. Factors utilized in the determination of estimated net realizable value and whether a reserve is required include (i) current sales data and historical return rates, (ii) estimates of future demand, (iii) competitive pricing pressures, (iv) new product introductions, (v) product

expiration dates, and (vi) component and packaging obsolescence.

The adequacy of the reserve is reviewed each reporting period and adjusted as necessary. We regularly compare inventory quantities on hand against historical usage or forecasts related to specific items in order to evaluate obsolescence and excessive quantities. In assessing historical usage, we also qualitatively assess business trends to evaluate the reasonableness of using historical information in estimating future usage.

Our inventory reserve was $34.9 million and $35.6 million at December 31, 2018 and 2017, respectively, which represents 7.5% and 8.3% of gross inventories at those respective dates.

Long-Lived Assets

We assess the remaining useful life and recoverability of long-lived assets whenever events or circumstances indicate the carrying value of an asset may not be recoverable. For example, such an assessment may be initiated if, as a result of a change in expectations, we believe it is more likely than not that the asset will be sold or disposed of significantly before the end of its useful life or if an adverse change occurs in the business employing the asset. Significant judgments in this area involve determining whether such events or circumstances have occurred and determining the appropriate asset group requiring evaluation. The recoverability evaluation is based on various analyses, including undiscounted cash flow projections, which involve significant management judgment. Any impairment loss, if indicated, equals the amount by which the carrying amount of the asset exceeds the estimated fair value of the asset.
Goodwill and Other Intangible Assets

Intangible assets include indefinite-lived assets (such as goodwill, certain trade names and in-process research and development ("IPR&D")), as well as finite-lived intangibles (such as trade names that do not have indefinite lives, customer relationships, intellectual property, distribution rights and non-competition agreements) and are, generally, obtained through acquisition. Intangible assets acquired in a business combination are measured at fair value and we allocate any excess purchase price over the fair value of the net tangible and intangible assets acquired in a business combination to goodwill.

The costs of finite-lived intangibles are amortized to expense over their estimated useful life. Determining the useful life of an intangible asset requires considerable judgment as different types of intangible assets typically will have different useful lives. Goodwill and other indefinite-lived intangible assets are not amortized; we test these assets annually for impairment during the fourth quarter, using the first day of the quarter as the measurement date, or earlier upon the occurrence of certain events or substantive changes in circumstances that indicate an impairment may have occurred. Such conditions may include an economic downturn in a geographic market or a change in the assessment of future operations. Our impairment testing for goodwill is performed separately from our impairment testing of indefinite-lived intangibles.
Considerable management judgment is necessary in making the assumptions used in the estimated fair value of intangible assets acquired in a business combination and in the goodwill and other indefinite-lived intangible asset impairment analyses, including evaluating the impact of operating and macroeconomic conditions and estimating future cash flows. Assumptions we use in our acquisition date fair value estimates and in our impairment evaluations include the discount rate and forecasted growth rates, which are consistent with our internal projections and operating plans, when applicable. We believe these assumptions and estimates are comparable to those that would be used by other marketplace participants.
Goodwill

Goodwill impairment assessments are performed at a reporting unit level. For purposes of this assessment, a reporting unit is an operating segment, or a business one level below that operating segment. We have ten reporting units. In applying the goodwill impairment test, we may assess qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying value. Qualitative factors may include, but are not limited to, macroeconomic conditions, industry conditions, the competitive environment, changes in the market for our products and services, regulatory and political developments, and entity specific factors such as strategies and financial performance. If, after completing the qualitative assessment, we determine it is more likely than not that the fair value of a reporting unit is less than its carrying value, we proceed to a two-step quantitative impairment test, described below. Alternatively, we may test goodwill for impairment through the two-step quantitative impairment test without conducting the qualitative analysis. Under guidance issued by the Financial Accounting Standards Board,

the quantitative goodwill impairment test will be simplified, effective for fiscal years beginning after December 15, 2019, subject to optional early adoption. See Note 2 to the consolidated financial statements in this Annual Report on Form 10-K for additional information.

The first step of the two-step impairment test is to compare the fair value of a reporting unit to the carrying value. In performing the first step, we calculate the fair value of the reporting unit using equal weighting of two methods; one

which estimates the discounted cash flows of the reporting unit based on projected earnings in the future (the Income Approach) and one which is based on sales of similar businesses to those of the reporting unit in actual transactions (the Market Approach). If the fair value of the reporting unit exceeds the carrying value, there is no impairment. If the reporting unit carrying value exceeds the fair value, we recognize an impairment loss based on the amount by which the carrying value of goodwill exceeds its implied fair value, which we determine in the second step of the two-step test. The implied fair value of goodwill is determined by deducting the fair value of a reporting unit's identifiable assets and liabilities from the fair value of the reporting unit as a whole, as if that reporting unit had just been acquired and the fair value of the individual assets acquired and liabilities assumed were being determined initially.
Determining fair value requires the exercise of significant judgment. The more significant judgments and assumptions used in the Income Approach include (1) the amount and timing of expected future cash flows, which are based primarily on our estimates of future sales, operating income, industry trends and the regulatory environment of the individual reporting units, (2) the expected long-term growth rates for each of our reporting units, which approximate the expected long-term growth rate of the global economy and of the medical device industry, and (3) discount rates that are used to discount future cash flows to their present values, which are based on an assessment of the risk inherent in the future cash flows of the respective reporting units along with various market based inputs. The more significant judgments and assumptions used in the Market Approach include (1) determination of appropriate revenue and EBITDA multiples used to estimate a reporting unit’s fair value and (2) the selection of appropriate comparable companies to be used for purposes of determining those multiples. There were no changes to the underlying methods used in 2018 as compared to the valuations of our reporting units in the past several years.
Our expected future growth rates estimated for purposes of the goodwill impairment test are based on our estimates of future sales, operating income and cash flow and are consistent with our internal budgets and business plans, which reflect a modest amount of core revenue growth coupled with the successful launch of new products each year; the effect of these growth indicators more than offset volume losses from products that are expected to reach the end of their life cycle. Changes in assumptions underlying the Income Approach could cause a reporting unit's carrying value to exceed its fair value. While we believe our assumed growth rates of sales and cash flows are reasonable, the possibility remains that the revenue growth of a reporting unit may not be as high as expected, and, as a result, the estimated fair value of that reporting unit may decline. In this regard, if our strategy and new products are not successful and we do not achieve anticipated core revenue growth in the future with respect to a reporting unit, the goodwill in the reporting unit may become impaired and, in such case, we may incur material impairment charges. Moreover, changes in revenue and EBITDA multiples in actual transactions from those historically present could result in an assessment that a reporting unit’s carrying value exceeds its fair value, in which case we also may incur material impairment charges.
No impairment was recorded as a result of the annual goodwill impairment testing performed during the fourth quarter 2018.
Other Intangible Assets

Intangible assets are assets acquired that lack physical substance and that meet the specified criteria for recognition apart from goodwill. Management tests indefinite-lived intangible assets for impairment annually, and more frequently if events or changes in circumstances indicate that an impairment may have occurred. Similar to the goodwill impairment test process, we may assess qualitative factors to determine whether it is more likely than not that the fair value of an indefinite-lived intangible asset is less than its carrying value. If, after completing the qualitative assessment, we determine it is more likely than not that the fair value of the indefinite-lived intangible asset is greater than its carrying amount, the asset is not impaired. If we conclude it is more likely than not that the fair value of the indefinite-lived intangible asset is less than the carrying value, we then proceed to a quantitative impairment test, which consists of a comparison of the fair value of the intangible asset to its carrying amount. Alternatively, we may elect to forgo the qualitative analysis and test the indefinite-lived intangible asset for impairment through the quantitative impairment test.
In connection with intangible assets acquired in a business combination and the quantitative impairment tests, since quoted market prices are seldom available for intangible assets, we utilize several present value techniques to estimate

fair value. The fair value of trade names and IPR&D is estimated by the use of a relief from royalty method, a form of income approach that values an intangible asset by estimating the royalties saved through the ownership of an asset. Under this method, an owner of an intangible asset determines the arm's length royalty that likely would have been charged if the owner had to license the asset from a third party. The value of the hypothetical royalty, which is based on the estimated royalty rate applied against forecasted sales, is tax-effected and discounted to present value using a discount rate commensurate with the relative risk of achieving the cash flow attributable to the asset.

Management must estimate the volume of sales, hypothetical royalty rate, discount rate, and terminal growth rate to estimate the hypothetical royalty associated with the asset. Discount rate assumptions are based on an assessment of the risk inherent in the future cash flows generated from the intangible asset. Assumptions about royalty rates are based on the rates at which similar intangible assets are being licensed in the marketplace.

During the year ended December 31, 2018, we recognized a $16.9 million pre-tax ($8.6 million after tax) impairment charge related to the abandonment of certain intellectual property intangible assets. There were no impairment charges recorded for the year ended December 31, 2017. For the year ended December 31, 2016, we recognized a pre-tax IPR&D impairment charge of $41.0 million. See "Restructuring and impairment charges" within "Result of Operations" above as well as Note 5 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information on these charges.

Pensions and Other Postretirement Benefits

We provide a range of benefits to eligible employees and retired employees, including under plans that provide pension and postretirement healthcare benefits. Several statistical and other factors that are designed to project future events are used in calculating the expense and liability related to these plans. These factors include actuarial assumptions about discount rates, expected rates of return on plan assets, compensation increases, turnover rates and healthcare cost trend rates. We review the actuarial assumptions on an annual basis and make modifications to the assumptions based on current rates and trends when appropriate.

Significant differences in our actual experience or significant changes in our assumptions may materially affect our pension and other postretirement obligations and our future expense. The following table shows the sensitivity of plan expenses and benefit obligations to changes in the weighted average assumptions:

	Assumed Discount Rate		Expected Return on Plan Assets	Assumed Healthcare Trend Rate	
	50 Basis Point Increase	50 Basis Point Decrease	50 Basis Point Change	1.0% Increase	1.0% Decrease
	(Dollars in millions)				
Net periodic pension and postretirement healthcare expense	$0.2	$(0.3)	$ 1.9	$0.1	$ (0.1)
Projected benefit obligation	$19.7	$(17.0)	N/A	$2.4	$ (2.2)

For additional information on assumptions pertaining to pension and other postretirement benefit plans, refer to Note 15 to the consolidated financial statements included in this Annual Report on Form 10-K.

Share-based Compensation

We estimate the fair value of share-based awards on the date of grant and recognize as expense the value of the portion of the award that is ultimately expected to vest over the requisite service periods. Share-based compensation expense related to stock options is measured using a Black-Scholes option pricing model that takes into account subjective and complex assumptions with respect to expected life of options, volatility, risk-free interest rate and expected dividend yield. The expected life of options granted represents the period of time that options are expected to be outstanding, which is derived from the vesting period of the award, as well as historical exercise behavior. Expected volatility is based on a blend of historical volatility and implied volatility derived from publicly traded options to purchase our common stock, which we believe is more reflective of market conditions and a better indicator of expected volatility than solely using historical volatility. The risk-free interest rate is the implied yield currently available on United States Treasury zero-coupon issues with a remaining term equal to the expected life of the option.

Share-based compensation expense related to non-vested restricted stock units is measured based on the market price of the underlying stock on the grant date discounted for the risk free interest rate and the present value of expected dividends over the vesting period. Share based compensation expense for 2018, 2017 and 2016 was $22.4 million, $19.4 million and $16.9 million, respectively.

Contingent Consideration Liabilities

In connection with an acquisition, we may be required to pay future consideration that is contingent upon the achievement of specified objectives, such as receipt of regulatory approval, commercialization of a product or achievement of sales targets. As of the acquisition date, we record a contingent liability representing the estimated fair value of the contingent consideration we expect to pay. We determined the fair value of the contingent consideration liability related to the NeoTract acquisition and to our acquisition, in October 2018, of Essential Medical, Inc., which

represented most of our contingent consideration liabilities at December 31, 2018, using a Monte Carlo valuation approach, which simulates future revenues during the earn out-period using management's best estimates. (See Note 4 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information regarding these acquisitions.) We determined the fair value of our other contingent consideration liabilities using a probability-weighted discounted cash flow analysis. Significant judgment is required in determining the assumptions used to calculate the fair value of the contingent consideration. Increases in projected revenues and probabilities of payment may result in significantly higher fair value measurements; decreases in these items may have the opposite effect. Increases in discount rates in the periods prior to payment may result in significantly lower fair value measurements; decreases may have the opposite effect. See Note 11 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

We remeasure our contingent consideration liabilities each reporting period and recognize the change in the liabilities' fair value within selling, general and administrative expenses in our consolidated statement of income. As of December 31, 2018 and 2017, we accrued $304.2 million and $272.1 million of contingent consideration, respectively.

Income Taxes

Our annual provision for income taxes and determination of the deferred tax assets and liabilities require management to assess uncertainties, make judgments regarding outcomes and utilize estimates. The difficulties inherent in such assessments, judgments and estimates are particularly challenging because we conduct a broad range of operations around the world, subjecting us to complex tax regulations in numerous international jurisdictions. As a result, we are at times subject to tax audits, disputes with tax authorities and potential litigation, the outcome of which is uncertain. In connection with its estimates of our tax assets and liabilities, management must, among other things, make judgments about the outcome of these uncertain matters.

Deferred tax assets and liabilities are measured and recorded using currently enacted tax rates that are expected to apply to taxable income in the years in which differences between the financial statement carrying amounts of existing assets and liabilities and their tax bases are recovered or settled. The likelihood of a material change in our expected realization of these assets is dependent on future taxable income, our ability to use foreign tax credit carryforwards and carrybacks, final United States and foreign tax settlements, changes in tax law, and the effectiveness of our tax planning strategies in the various relevant jurisdictions. While management believes that its judgments and interpretations regarding income taxes are appropriate, significant differences in actual experience may require future adjustments to our tax assets and liabilities, which could be material.

In assessing the realizability of our deferred tax assets, we evaluate positive and negative evidence and use judgments regarding past and future events, including results of operations and available tax planning strategies that could be implemented to realize the deferred tax assets. Based on this assessment, we determine when it is more likely than not that all or some portion of our deferred tax assets may not be realized, in which case we apply a valuation allowance to offset the amount of such deferred tax assets. To the extent facts and circumstances change in the future, adjustments to the valuation allowances may be required. The valuation allowance for deferred tax assets of $144.0 million and $104.8 million at December 31, 2018 and 2017, respectively, relates principally to the uncertainty of the utilization of tax loss and credit carryforwards in various jurisdictions.

Significant judgment is required in determining income tax provisions and in evaluating tax positions. We establish additional provisions for income taxes when, despite the belief that tax positions are supportable, there remain certain positions that do not meet the minimum probability threshold, which is a tax position that is more likely than not to be sustained upon examination by the applicable taxing authority. In the normal course of business, we are examined by various federal, state and foreign tax authorities. We regularly assess the potential outcomes of these examinations and any future examinations for the current or prior years in determining the adequacy of our provision for income taxes. We adjust the income tax provision, the current tax liability and deferred taxes in any period in which we become aware of facts that necessitate an adjustment. We are currently under examination in Germany. The ultimate outcome

of this examination could result in increases or decreases to our recorded tax liabilities, which would affect our financial results. See Note 14 to the consolidated financial statements in this Annual Report on Form 10-K for additional information regarding our uncertain tax positions.

As noted above, the TCJA significantly changes U.S. tax law. As a result of the enactment of the TCJA, our consolidated financial statements as of, and for the year ended December 31, 2017, included provisional amounts with respect to the deemed repatriated earnings and the revaluation of deferred tax assets and liabilities. In our consolidated financial statements for the year ended December 31, 2018, as permitted by SAB 118, we recorded

adjustments to the provisional amounts related to the TCJA included in our December 31, 2017 financial statements. See Note 14 to the consolidated financial statements included in this Annual Report on Form 10-K for additional information.

New Accounting Standards

See Note 2 to the consolidated financial statements included in this Annual Report on Form 10-K for a discussion of recently issued accounting standards, including estimated effects, if any, of the adoption of those standards on our consolidated financial statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risk

We are exposed to certain financial risks, specifically fluctuations in market interest rates, foreign currency exchange rates and, to a lesser extent, commodity prices. We use derivative financial instruments to manage or reduce the impact of some of these risks. We do not enter into derivative instruments for trading purposes. We are also exposed to changes in the market traded price of our common stock as it influences the valuation of stock options and their effect on earnings.

Interest Rate Risk

We are exposed to changes in interest rates as a result of our borrowing activities and our cash balances. The table below provides information regarding the interest rates by year of maturity for our fixed and variable rate debt obligations. Variable interest rates on December 31, 2018 were determined using a base rate of the one-month LIBOR rate plus the applicable spread.

	Year of Maturity						
	2019	2020	2021	2022	2023	Thereafter	Total
	(Dollars in thousands)						
Fixed rate debt	$—	$—	$—	$—	$ —	$1,150,000	$1,150,000
Average interest rate	— %	— %	— %	— %	—%	4.848 %	4.848 %
Variable rate debt	$86,625	$51,562	$70,313	$818,000	$ —	$—	$1,026,500
Average interest rate	3.684 %	4.272 %	4.272 %	4.270 %	—%	— %	4.221 %

A change of 1.0% in variable interest rates would increase or decrease annual interest expense by $10.3 million based on our outstanding debt as of December 31, 2018.

Foreign Currency Risk

We are exposed to currency fluctuations in connection with transactions, as well as monetary assets and liabilities, denominated in currencies other than the functional currencies of certain subsidiaries.

Forward currency contracts

We enter into forward contracts with several major financial institutions to hedge the risk associated with these foreign currency exposures; these contracts generally involve the purchase or sale, at designated future dates, of specified amounts of a foreign currency while simultaneously committing to an opposite way sale or purchase of a specified amount of U.S. dollars or euros, based on the exchange rate at the time of entry into the contract. The contracts we enter into to hedge transactions denominated in non-functional currencies are designated as cash flow hedges. The contracts to hedge monetary asset and liabilities denominated in non-functional currencies are not designated as cash flow, fair value or net investment hedges. See Note 10 to the consolidated financial statements included in this Annual Report on Form 10-K for information regarding the accounting treatment of designated and non-designated hedge contracts.

The following table provides information regarding our open foreign currency forward contracts at December 31, 2018, which mature during 2019. As of December 31, 2018, the total notional amount for the designated and non-designated contracts, expressed in U.S. dollars, is $115.3 million and $125.9 million, respectively. As of December 31, 2017, the total notional amount for the designated and non-designated contracts, expressed in U.S. dollars, is $88.5 million and $110.6 million, respectively. Forward contract notional amounts presented below are expressed in the stated currencies.

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	Buy/(Sell) (in thousands)	
	Designated	Non-designated
Australian dollar	(14,160)	(7,313)
British pound	(7,230)	(11,639)
Canadian dollar	(12,410	