WATERS CORP /DE/
Form 10-K
February 26, 2019
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UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

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
Commission File Number: 01-14010

Waters Corporation

(Exact name of registrant as specified in its charter)

Delaware	**13-3668640**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

34 Maple Street

Milford, Massachusetts 01757

(Address, including zip code, of principal executive offices)

(508) 478-2000

(Registrant s telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:	Common Stock, par value $0.01 per share
Name of each exchange on which registered:	New York Stock Exchange, Inc.
Securities registered pursuant to Section 12(g) of the Act:	None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or 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. (Check one):

Large accelerated filer	Accelerated filer	Non-accelerated filer	Smaller reporting company
			Emerging growth company

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

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

State the aggregate market value of the registrant s common stock held by non-affiliates of the registrant as of June 30, 2018: $14,912,684,699.

Indicate the number of shares outstanding of the registrant s common stock as of February 22, 2019: 71,512,391

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant s definitive proxy statement that will be filed for the 2019 Annual Meeting of Stockholders are incorporated by reference in Part III.

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WATERS CORPORATION AND SUBSIDIARIES

ANNUAL REPORT ON FORM 10-K

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PART I

Item 1: ***Business***

General

Waters Corporation (the Company, we, our, or us) is a specialty measurement company that operates with a fundamental underlying purpose to advance the science that enables our customers to enhance human health and well-being. The Company has pioneered analytical workflow solutions involving liquid chromatography, mass spectrometry and thermal analysis innovations serving the life, materials and food sciences for more than 60 years. The Company primarily designs, manufactures, sells and services high performance liquid chromatography (HPLC), ultra performance liquid chromatography (UPLC™ and together with HPLC, referred to as LC) and mass spectrometry (MS) technology systems and support products, including chromatography columns, other consumable products and comprehensive post-warranty service plans. These systems are complementary products that are frequently employed together (LC-MS) and sold as integrated instrument systems using common software platforms. In addition, the Company designs, manufactures, sells and services thermal analysis, rheometry and calorimetry instruments through its TA™ product line. The Company is also a developer and supplier of advanced software-based products that interface with the Company s instruments, as well as other manufacturers instruments.

The Company s products are used by pharmaceutical, biochemical, industrial, nutritional safety, environmental, academic and governmental customers working in research and development, quality assurance and other laboratory applications. LC is a standard technique and is utilized in a broad range of industries to detect, identify, monitor and measure the chemical, physical and biological composition of materials, and to purify a full range of compounds. MS technology, principally in conjunction with chromatography, is employed in drug discovery and development, including clinical trial testing, the analysis of proteins in disease processes (known as proteomics), nutritional safety analysis and environmental testing. LC-MS instruments combine a liquid phase sample introduction and separation system with mass spectrometric compound identification and quantification. The Company s thermal analysis, rheometry and calorimetry instruments are used in predicting the suitability and stability of fine chemicals, pharmaceuticals, water, polymers, metals and viscous liquids for various industrial, consumer goods and healthcare products, as well as for life science research.

Waters Corporation, organized as a Delaware corporation in 1991, is a holding company that owns all of the outstanding common stock of Waters Technologies Corporation, its operating subsidiary. Waters Corporation became a publicly-traded company with its initial public offering (IPO) in November 1995. Since the IPO, the Company has added two significant and complementary technologies to its range of products with the acquisitions of TA Instruments in May 1996 and Micromass Limited in September 1997.

Business Segments

The Company s business activities, for which discrete financial information is available, are regularly reviewed and evaluated by the chief operating decision maker. As a result of this evaluation, the Company determined that it has two operating segments: Waters™ and TA™. The Waters operating segment is primarily in the business of designing, manufacturing, selling and servicing LC and MS instrument systems, columns and other precision chemistry consumables that can be integrated and used along with other analytical instruments. The TA operating segment is primarily in the business of designing, manufacturing, selling and servicing thermal analysis, rheometry and calorimetry instruments. The Company s two operating segments have similar economic characteristics; product processes; products and services; types and classes of customers; methods of distribution; and regulatory environments. Because of these similarities, the two segments have been aggregated into one reporting segment for financial statement purposes.

Information concerning revenues and long-lived assets attributable to each of the Company s products, services and geographic areas is set forth in Note 17 in the Notes to the Consolidated Financial Statements, which is incorporated herein by reference.

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Waters Products and Markets

High Performance and Ultra Performance Liquid Chromatography

HPLC is a standard technique used to identify and analyze the constituent components of a variety of chemicals and other materials. The Company believes that HPLC s performance capabilities enable it to separate, identify and quantify a high proportion of all known chemicals. As a result, HPLC is used to analyze substances in a wide variety of industries for research and development purposes, quality control and process engineering applications.

The most significant end-use markets for HPLC are those served by the pharmaceutical and life science industries. In these markets, HPLC is used extensively to understand diseases, identify new drugs, develop manufacturing methods and assure the potency and purity of new pharmaceuticals. HPLC is also used in a variety of other applications, such as analyses of foods and beverages for nutritional labeling and compliance with safety regulations and the testing of water and air purity within the environmental testing industry, as well as applications in other industries, such as chemical and consumer products. HPLC is also used by universities, research institutions and governmental agencies, such as the United States Food and Drug Administration (FDA) and the United States Environmental Protection Agency (EPA) and their foreign counterparts that mandate safety and efficacy testing.

In 2004, Waters introduced a novel technology that the Company describes as ultra performance liquid chromatography that utilizes a packing material with small, uniform diameter particles and a specialized instrument, the ACQUITY UPLC™, to accommodate the increased pressure and narrower chromatographic bands that are generated by these small and tightly packed particles. By using the ACQUITY UPLC, researchers and analysts are able to achieve more comprehensive chemical separations and faster analysis times in comparison with many analyses previously performed by HPLC. In addition, in using the ACQUITY UPLC, researchers have the potential to extend the range of applications beyond that of HPLC, enabling them to uncover more levels of scientific information. While offering significant performance advantages, the ACQUITY UPLC is also compatible with the Company s software products and the general operating protocols of HPLC. For these reasons, the Company s customers and field sales and support organizations are well positioned to utilize this new technology and instrument. In 2018, the Company introduced the ACQUITY™ ARC™ Bio System, a versatile, iron-free, bio-inert, quaternary liquid chromatograph specifically engineered to improve bioseparation analytical methods. The Company also introduced the ACQUITY™ UPLC™ PLUS series in 2018, consisting of the H-Class PLUS, H-Class PLUS Bio and I-Class PLUS systems, which incorporate foundational enhancements into the legacy systems.

Waters manufactures LC instruments that are offered in configurations that allow for varying degrees of automation, from component configured systems for academic teaching and research applications to fully automated systems for regulated and high sample throughput testing, and that have a variety of detection technologies, from optical-based ultra-violet (UV) absorbance, refractive index and fluorescence detectors to a suite of MS-based detectors, optimized for certain analyses.

The primary consumable products for LC are chromatography columns. These columns are packed with separation media used in the LC testing process and are typically replaced at regular intervals. The chromatography column contains one of several types of packing material, typically stationary phase particles made from silica or polymeric resins. As a pressurized sample is introduced to the column inlet and permeates through the packed column, it is separated into its constituent components.

Waters HPLC columns can be used on Waters-branded and competitors LC systems. The Company believes that it is one of a few suppliers in the world that processes silica and polymeric resins, packs columns and distributes its own products. In doing so, the Company believes it can better ensure product consistency, a key attribute for its customers in quality control laboratories, and can react quickly to new customer requirements. The Company believes that its ACQUITY UPLC lines of columns are used primarily on its

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ACQUITY UPLC instrument systems and, furthermore, that its ACQUITY UPLC instruments primarily use ACQUITY UPLC columns. In 2016, the Company continued to expand its column chemistry capabilities through the introduction of CORTECS™ C_8, CORTECS™ Phenyl, CORTECS™ T3 and CORTECS™ Shield RP18. In 2018, the Company introduced the BioResolve™ RP mAb Polyphenyl columns, which improve the consistency and reliability of the overly complex separations of monoclonal antibodies and antibody-drug conjugates.

The Company s precision chemistry consumable products also include environmental and nutritional safety testing products, including Certified Reference Materials (CRM s) and Proficiency Testing (PT) products. Laboratories around the world and across multiple industries use these products for quality control and proficiency testing and also purchase product support services required to help with their federal and state mandated accreditation requirements or with quality control over critical pharmaceutical analysis. In 2018, the Company introduced the VICAM™ BPATest™, which provides a sensitive, precise determination of Bisphenol A in as little as ten minutes. VICAM also introduced a user-friendly lateral flow zearalenone strip test, the Zearala-V AQUA™ in 2018.

Mass Spectrometry and Liquid Chromatography-Mass Spectrometry

MS is a powerful analytical technology that is used to identify unknown compounds, to quantify known materials and to elucidate the structural and chemical properties of molecules by measuring the masses of molecules that have been converted into ions.

The Company is a technology and market leader in the development, manufacture, sale and service of MS instruments and components. These instruments are typically integrated and used along with other complementary analytical instruments and systems, such as LC, chemical electrophoresis and gas chromatography. A wide variety of instrumental designs fall within the overall category of MS instrumentation, including devices that incorporate quadrupole, ion trap, time-of-flight (Tof), magnetic sector and ion mobility technologies. Furthermore, these technologies are often used in tandem (MS-MS) to maximize the speed and/or efficacy of certain experiments.

Currently, the Company offers a wide range of MS instrument systems utilizing various combinations of quadrupole, Tof and ion mobility designs. These instrument systems are used in drug discovery and development, as well as for environmental, clinical and nutritional safety testing. The overwhelming majority of mass spectrometers sold by the Company are designed to utilize an LC system and a liquid compatible interface (such as an electrospray ionization source) as the sample introduction device. These products supply a diverse market with a strong emphasis on the pharmaceutical, biomedical, clinical, food and beverage and environmental market segments worldwide.

MS is an increasingly important detection technology for LC. The Company s smaller-sized mass spectrometers, such as the single quadrupole detector (SQD) and the tandem quadrupole detector (TQD), are often referred to as LC detectors and are typically sold as part of an LC system or as an LC system upgrade. Larger quadrupole systems, such as the Xevo™ TQ and Xevo™ TQ-S instruments, are used primarily for experiments performed for late-stage drug development, including clinical trial testing. Quadrupole time-of-flight (Q-Tof™) instruments, such as the Company s SYNAPT™ G2-S, are often used to analyze the role of proteins in disease processes, an application sometimes referred to as proteomics . In 2016, the Company introduced the Xevo™ TQ-XS mass spectrometry system enabled by the newly designed StepWave™ SX ion guide, which features a unique combination of ion optics, detection and ionization technologies resulting in levels of sensitivity not previously seen. The Company also introduced SONAR in 2016, which is a new data acquisition technology for use with the Xevo G2-XS that allows for the quantification and identification of lipids, metabolites and proteins in complex samples in a more efficient manner. In 2018, the Company introduced the DART QDa™ system with LiveID™, a direct-from-sample analytical system that verifies sample authenticity or adulteration, specifically for food applications. The Company also introduced the Xevo™ TQ-GC mass spectrometer in 2018, which allows laboratories to meet and exceed low part-per-billion limits of detection when

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quantifying pesticide residues and other contaminants in food using GC-MS/MS methods set forth by worldwide regulatory agencies/authorities. In addition, the Company introduced the RenataDX™ screening system, a flow-injection tandem mass spectrometry system for rapid high-throughput analysis of extracted dried blood spots and other human biological matrices.

LC and MS are typically embodied within an analytical system tailored for either a dedicated class of analyses or as a general purpose analytical device. An increasing percentage of the Company s customers are purchasing LC and MS components simultaneously and it has become common for LC and MS instrumentation to be used within the same laboratory and operated by the same user. The descriptions of LC and MS above reflect the historical segmentation of these analytical technologies and the historical categorization of their respective practitioners. Increasingly in today s instrument market, this segmentation and categorization is becoming obsolete as a high percentage of instruments used in the laboratory embody both LC and MS technologies as part of a single device. In response to this development and to further promote the high utilization of these hybrid instruments, the Company has organized its Waters operating segment to develop, manufacture, sell and service integrated LC-MS systems.

Based upon reports from independent marketing research firms and publicly-disclosed sales figures from competitors, the Company believes that it is one of the world s largest manufacturers and distributors of LC and LC-MS instrument systems, chromatography columns and other consumables and related services.

The Company has been a developer and supplier of software-based products that interface with the Company s instruments, as well as other suppliers instruments. The Company s newest software technology, UNIFI™, is a scientific information system that is the culmination of a multi-year effort to substantially bring all of Waters preexisting, distinct software systems under one operating system. UNIFI joins Waters suite of informatics products Empower™ Chromatography Data Software, MassLynx™ Mass Spectrometry Software and NuGenesis™ Scientific Data Management System, each of which is used to support innovations within world-leading institutions. UNIFI is the industry s first comprehensive software that seamlessly integrates UPLC chromatography, mass spectrometry and informatics data workflows. In 2016, the Company announced two reference libraries available within UNIFI, the Metabolic Profiling CCS Library and the *Rapi*Fluor-MS™ Glycan GU Scientific Library. The Company also introduced Symphony Data Pipeline software in 2016, which is a client-server application that automates the movement and transformation of large amounts of LC-MS data to speed up analytical workflows and liberate scientists from mundane yet necessary tasks associated with managing data files. In 2018, the Company announced new analysis capabilities across a variety of molecules by integrating UNIFI acquired data from the Company s Vion™ IMS QTof™ or Xevo GS XS mass spectrometers with Molecular Discovery s Mass-MetaSite and WebMetabase processing software.

Waters Service

Services provided by Waters enable customers to maximize technology productivity, support customer compliance activities and provide transparency into enterprise resource management efficiencies. The customer benefits from improved budget control, data-driven technology adoption and accelerated workflow at a site or on a global perspective. The Company considers its service offerings to be highly differentiated from our competition, as evidenced by a consistent increase in annual service revenues. The Company s principal competitors in the service market include PerkinElmer, Inc., Agilent Technologies, Inc., Thermo Fisher Scientific Inc. and General Electric Company. These competitors can provide certain services on Waters instruments to varying degrees and always present competitive risk.

The servicing and support of instruments, software and accessories is an important source of revenue and represents over 30% of sales for Waters. These revenues are derived primarily through the sale of support plans, demand services, spare parts, customer performance validation services and customer training. Support plans typically involve scheduled instrument maintenance and an agreement to promptly repair a non-functioning instrument in return for a fee described in a contract that is priced according to the configuration of the instrument.

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TA Products and Markets

Thermal Analysis, Rheometry and Calorimetry

Thermal analysis measures the physical or thermodynamic characteristics of materials as a function of temperature. Changes in temperature affect several characteristics of materials, such as their heat flow characteristics, physical state, weight, dimension and mechanical and electrical properties, which may be measured by one or more thermal analysis techniques, including calorimetry. Consequently, thermal analysis techniques are widely used in the development, production and characterization of materials in various industries, such as plastics, chemicals, automobiles, pharmaceuticals and electronics.

Rheometry instruments often complement thermal analyzers in characterizing materials. Rheometry characterizes the flow properties of materials and measures their viscosity, elasticity and deformation under different types of loading or other conditions. The information obtained under such conditions provides insight into a material s behavior during processing, packaging, transport, usage and storage.

Thermal analysis, rheometry and calorimetry instruments are heavily used in material testing laboratories and, in many cases, provide information useful in predicting the suitability and stability of industrial polymers, fine chemicals, pharmaceuticals, water, metals and viscous liquids in various industrial, consumer goods and healthcare products, as well as for life science research. As with systems offered by Waters, a range of instrument configurations is available with increasing levels of sample handling and information processing automation. In addition, systems and accompanying software packages can be tailored for specific applications

In 2016, TA introduced a new line of differential scanning calorimeters and thermogravimetric analyzers. These new Discovery DSC systems feature enhanced sensing technologies resulting in unprecedented performance in baseline flatness, sensitivity, resolution and reproducibility. In addition, TA introduced the ACS-2 Air Chiller System, ElectroForce 3310 test instrument and DuraPulse™ Stent Graft test instrument in 2016.

In 2017, TA introduced the TAM Air microcalorimeter. Although designed to characterize the curing of cement, this instrument is an ideal platform for imaginative experimental design in a wide range of applications, including cement and concrete, material science, food, pharmaceuticals and environmental analysis. TA also introduced three new dilatometer product lines in its 800 platform, which are high precision systems designed to measure dimensional changes of a specimen brought about by dynamic thermal events in a wide range of applications, including material science, ceramics and metals. In 2017, TA introduced the Discovery SDT 650, which provides a true simultaneous measurement of weight change and differential heat flow using advanced technologies, such as dual sample TGA, modulated DSC and modulated and hi-resolution TGA. In addition, TA introduced the Discovery HP-TGA750, a benchtop high pressure TGA that utilizes a patented ultra-high resolution magnetic suspension balance and new high precision temperature control system. Late in 2017, TA introduced the Discovery DMA 850, which measures the viscoelastic mechanical properties of material under controlled conditions of temperature, environment and mechanical stimulus (stress or strain). The DMA 850 features frictionless air bearing supports and a linear optical encoder, which ensures stable, accurate, high-resolution displacement measurement across the full travel range and enables displacement control of 5 nm. In 2017, TA introduced the WinTestTM 8.0 software package, which will be standard on all new ElectroForce™ products. In addition, TA introduced the ElectroForce DMA 3200 in 2017, which combines fatigue and dynamic mechanical analysis into a single mechanical test platform.

In September 2016, the Company acquired all of the outstanding stock of Rubotherm GmbH (Rubotherm), a manufacturer of gravimetric analysis systems, for approximately $6 million in cash, $5 million of which was paid at closing and an additional $1 million paid after closing to settle certain liabilities. Rubotherm develops and manufactures analytical test instruments for thermogravimetric and sorption measurements that are used in both industrial and academic research laboratories in disciplines that include chemistry, material science and engineering. The Rubotherm acquisition has helped support and further expand product offerings within TA s thermal analysis business.

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TA Service

Similar to Waters, the servicing and support of TA s instruments is an important source of revenue and represents more than 25% of sales for TA. TA operates independently from the Waters operating segment, though many of its overseas offices are situated in Waters facilities to achieve operational efficiencies. TA has dedicated field sales and service operations. Service sales are primarily derived from the sale of support plans, replacement parts and billed labor fees associated with the repair, maintenance and upgrade of installed systems.

Global Customers

The Company typically has a broad and diversified customer base that includes pharmaceutical accounts, other industrial accounts, universities and governmental agencies. Purchase of the Company s instrument systems is often dependent on its customers capital spending, or funding as in the cases of governmental, academic and research institutions, which often fluctuate from year to year. The pharmaceutical segment represents the Company s largest sector and includes multinational pharmaceutical companies, generic drug manufacturers, contract research organizations (CRO s) and biotechnology companies. The Company s other industrial customers include chemical manufacturers, polymer manufacturers, food and beverage companies and environmental testing laboratories. The Company also sells to universities and governmental agencies worldwide. The Company s technical sales and support staff members work closely with its customers in developing and implementing applications that meet their full range of analytical requirements. During 2018, 56% of the Company s net sales were to pharmaceutical accounts, 31% to other industrial accounts and 13% to governmental agencies and academic institutions.

The Company typically experiences an increase in sales in the fourth quarter, as a result of purchasing habits for capital goods of many customers who tend to exhaust their spending budgets by calendar year end. The Company does not rely on any single customer for a material portion of its sales. During fiscal years 2018, 2017 and 2016, no single customer accounted for more than 2% of the Company s net sales.

Sales and Service

The Company has one of the largest direct sales and service organizations focused exclusively on the analytical workflows offered by the Company. Across these product technologies, using respective specialized sales and service workforces, the Company serves its customer base with 87 sales offices throughout the world as of December 31, 2018 and approximately 3,900, 3,800 and 3,600 field representatives in 2018, 2017 and 2016, respectively. This investment in sales and service personnel serves to maintain and expand the Company s installed base of instruments. The Company s sales representatives have direct responsibility for account relationships, while service representatives work in the field to install instruments, train customers and minimize instrument downtime. In-house and field-based technical support representatives work directly with customers, providing them assistance with applications and procedures on Company products. The Company provides customers with comprehensive information through various corporate and regional internet websites and product literature, and also makes consumable products available through electronic ordering facilities and a dedicated catalog.

Manufacturing and Distribution

The Company provides high product quality by overseeing each stage of the production of its instruments, columns and chemical reagents.

The Company currently assembles a portion of its LC instruments at its facility in Milford, Massachusetts, where it performs machining, assembly and testing. The Milford facility maintains quality management and environmental management systems in accordance with the requirements of ISO 9001:2015, ISO 13485:2016 and ISO 14001:2015, and adheres to applicable regulatory requirements (including the FDA Quality System

Regulation and the European In-Vitro Diagnostic Directive). The Company outsources manufacturing of certain electronic components, such as computers, monitors and circuit boards, to outside vendors that meet the Company s quality requirements. In addition, the Company outsources the manufacturing of certain LC instrument systems and components to well-established contract manufacturing firms in Singapore. The Company s Singapore entity is ISO 9001:2015 certified and manages all Asian outsourced manufacturing as well as the distribution of all products from Asia. The Company may pursue outsourcing opportunities as they arise but believes it maintains adequate supply chain and manufacturing capabilities in the event of disruption or natural disasters.

The Company manufactures specialty Supercritical Fluid Chromatography (SFC) and Supercritical Fluid Extraction (SFE) products in its facility in Sharpsburg, Pennsylvania. The Sharpsburg facility is aligned with the policies and procedures for product manufacturing and distribution as adhered to in the Milford, Massachusetts facility and is under the same structural leadership organization.

The Company primarily manufactures and distributes its LC columns at its facilities in Taunton, Massachusetts and Wexford, Ireland. In February 2018, the Company s Board of Directors approved expanding its Taunton location and anticipates spending an estimated $215 million to build and equip this new state-of-the-art manufacturing facility. The Company has spent $11 million on this facility through the end of 2018. The Taunton facility processes, sizes and treats silica and polymeric media that are packed into columns, solid phase extraction cartridges and bulk shipping containers in both Taunton and Wexford. The Wexford facility also manufactures and distributes certain data, instruments and software components for the Company s LC, MS and TA product lines. The Company s Taunton facility is certified to ISO 9001:2015. The Wexford facility is certified to ISO 9001:2015 and ISO 13485:2016/EN ISO 13485:2016. VICAM™ manufactures antibody-linked resins and magnetic beads that are packed into columns and kits in Milford, Massachusetts and Nixa, Missouri. The Company manufactures and distributes its Analytical Standards and Reagents and Environmental Resource Associates (ERA) product lines at its facility in Golden, Colorado, which is certified to ISO 9001:2015 and accredited to ISO/IEC 17025:2017, ISO/IEC 17034:16 and ISO Guide 34. Some ERA products are also manufactured in the Wexford, Ireland facility, which is also accredited to ISO/IEC 17025:2005, ISO/IEC 17034:2016.

The Company manufactures and distributes its MS products at its facilities in Wilmslow, England and Wexford, Ireland. Certain components or modules of the Company s MS instruments are manufactured at its facility in Solihull, England and by long-standing outside contractors. Each stage of this supply chain is closely monitored by the Company to maintain high quality and performance standards. The instruments, components or modules are then returned to the Company s facilities, where its engineers perform final assembly, calibrations to customer specifications and quality control procedures. The Company s MS facilities are certified to ISO 9001:2015 and ISO 13485:2016/EN ISO 13485:2016 and adhere to applicable regulatory requirements (including the FDA Quality System Regulation and the European In-Vitro Diagnostic Directive).

TA s thermal analysis, rheometry and calorimetry products are manufactured and distributed at the Company s New Castle, Delaware, Wakefield, Massachusetts, Eden Prairie, Minnesota, Lindon, Utah and Huellhorst, Germany facilities. Similar to MS, elements of TA s products are manufactured by outside contractors and are then returned to the Company s facilities for final assembly, calibration and quality control. The Company s New Castle facility is certified to ISO 9001:2015 and ISO 17025:2005 standards and the Eden Prairie facility is certified to both ISO 9001:2015 and ISO/IEC 17025:2017 standards.

Raw Materials

The Company purchases a variety of raw materials, primarily consisting of high temperature alloy sheet metal and castings, forgings, pre-plated metals and electrical components from various vendors. The materials used by the Company s operations are generally available from a number of sources and in sufficient quantities to meet current requirements subject to normal lead times.

The Company is subject to rules of the Securities and Exchange Commission (SEC) under the Dodd-Frank Wall Street Reform and Consumer Protection Act, requiring disclosure as to whether certain materials (tantalum, tin, gold and tungsten), known as conflict minerals, which may be contained in the Company s products, are mined from the Democratic Republic of the Congo and adjoining countries. In 2017, the Company was not able to determine with certainty the country of origin of some of the conflict minerals in its manufactured products. However, the Company does not have knowledge that any of its conflict minerals originated from the Democratic Republic of the Congo or adjoining countries. The Company is in the process of evaluating its 2018 supply chain, and the Company plans to file its 2018 Form SD with the SEC in May 2019. The results of this and future evaluations may impose additional costs and may introduce new risks related to the Company s ability to verify the origin of any conflict minerals contained in its products.

In addition, the Company continues to monitor environmental health and safety regulations in countries in which it operates throughout the world, in particular, European Union and China Restrictions on the use of certain Hazardous Substances in electrical and electronic equipment (RoHS) and European Union Waste Electrical and Electronic Equipment directives. Further information regarding these regulations is available on the Company s website, www.waters.com, under the caption About Waters / Environmental Health & Safety .

Research and Development

The Company maintains an active research and development program focused on the development and commercialization of products that extend, complement and update its existing product offering. The Company s research and development expenditures for 2018, 2017 and 2016 were $143 million, $133 million and $125 million, respectively. In addition, in 2017, the Company incurred a $5 million charge for acquired in-process research and development related to milestone payments associated with a licensing arrangement for certain intellectual property relating to mass spectrometry technologies yet to be commercialized and for which there was no future alternative use as of the acquisition date. This licensing arrangement is significantly related to new, biologically-focused applications, as well as other applications, and require the Company to make additional future payments of up to $7 million if certain milestones are achieved, as well as royalties on future net sales.

Nearly all of the Company s LC products have been developed at the Company s main research and development center located in Milford, Massachusetts, with input and feedback from the Company s extensive field organizations and customers. The majority of the Company s MS products are developed at facilities in England and most of the Company s current materials characterization products are developed at the Company s research and development center in New Castle, Delaware. At December 31, 2018, 2017 and 2016, there were 1,011, 1,004 and 971 employees, respectively, involved in the Company s research and development efforts. The Company has increased research and development expenses from its continued commitment to invest significantly in new product development and existing product enhancements, and as a result of acquisitions. Despite the Company s active research and development programs, there can be no assurance that the Company s product development and commercialization efforts will be successful or that the products developed by the Company will be accepted by the marketplace.

Employees

The Company employed approximately 7,200 employees at both December 31, 2018 and 2017 and 6,900 at December 31, 2016, with approximately 39% of the Company s employees located in the United States. The Company believes its employee relations are generally good. The Company s employees are not unionized or affiliated with any internal or external labor organizations. The Company firmly believes that its future success largely depends upon its continued ability to attract and retain highly skilled employees.

Competition

The analytical instrument systems, supplies and services market is highly competitive. The Company encounters competition from several worldwide suppliers and other companies in both domestic and foreign markets for each of its three primary technologies. The Company competes in its markets primarily on the basis of product performance, reliability, service and, to a lesser extent, price. Competitors continuously introduce new products and have instrument businesses that are generally more diversified than the Company s business. Some competitors have greater financial resources and broader distribution than the Company s.

In the markets served by Waters, the Company s principal competitors include: Agilent Technologies, Inc., Shimadzu Corporation, Bruker Corporation, Danaher Corporation and Thermo Fisher Scientific Inc. In the markets served by TA, the Company s principal competitors include: PerkinElmer, Inc., Mettler-Toledo International Inc., NETZSCH-Geraetebau GmbH, Thermo Fisher Scientific Inc., Malvern PANalytical Ltd., a subsidiary of Spectris plc and Anton-Paar GmbH.

The market for consumable LC products, including separation columns, is highly competitive and generally more fragmented than the analytical instruments market. The Company encounters competition in the consumable columns market from chemical companies that produce column sorbents and small specialized companies that primarily pack purchased sorbents into columns and subsequently package and distribute columns. The Company believes that it is one of the few suppliers that processes silica and polymeric resins, packs columns and distributes its own products. The Company competes in this market on the basis of performance, reproducibility, reputation and, to a lesser extent, price. In recent years, the Company s principal competitors for consumable products have included: Danaher Corporation; Merck KGaA; Agilent Technologies, Inc.; General Electric Company and Thermo Fisher Scientific Inc. The ACQUITY UPLC instrument is designed to offer a predictable level of performance when used with ACQUITY UPLC columns and the Company believes that the expansion of the ACQUITY UPLC instrument base will enhance its chromatographic column business because of the high level of synergy between ACQUITY UPLC columns and the ACQUITY UPLC instruments.

Patents, Trademarks and Licenses

The Company owns a number of United States and foreign patents and has patent applications pending in the United States and abroad. Certain technology and software has been acquired or is licensed from third parties. The Company also owns a number of trademarks. The Company s patents, trademarks and licenses are viewed as valuable assets to its operations. However, the Company believes that no one patent or group of patents, trademark or license is, in and of itself, essential to the Company such that its loss would materially affect the Company s business as a whole.

Environmental Matters and Climate Change

The Company is subject to foreign and U.S. federal, state and local laws, regulations and ordinances that (i) govern activities or operations that may have adverse environmental effects, such as discharges to air and water as well as handling and disposal practices for solid and hazardous wastes, and (ii) impose liability for the costs of cleaning up and certain damages resulting from sites of past spills, disposals or other releases of hazardous substances. The Company believes that it currently conducts its operations and has operated its business in the past in substantial compliance with applicable environmental laws. From time to time, Company operations have resulted or may result in noncompliance with environmental laws or liability for cleanup pursuant to environmental laws. The Company does not currently anticipate any material adverse effect on its operations, financial condition or competitive position as a result of its efforts to comply with environmental laws.

The Company is sensitive to the growing global debate with respect to climate change. An internal sustainability working group develops increasingly robust data with respect to the Company s utilization of carbon producing substances in an effort to continuously reduce the Company s carbon footprint. In 2018, the Company published a sustainability report identifying the various actions and behaviors the Company has adopted from 2014 to 2017 concerning its commitment to both the environment and the broader topic of social responsibility. See Item 1A, Risk Factors *The effects of climate change could harm the Company s business*, for more information on the potential significance of climate change legislation. See also Note 17 in the Notes to the Consolidated Financial Statements for financial information about geographic areas.

Available Information

The Company files or furnishes all required reports with the SEC. The Company is an electronic filer and the SEC maintains a website that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC. The address of the SEC electronic filing website is http://www.sec.gov. The Company also makes available, free of charge on its website, its annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. The website address for Waters Corporation is http://www.waters.com and SEC filings can be found under the caption Investors .

Forward-Looking Statements

Certain of the statements in this Form 10-K and the documents incorporated herein, may contain forward-looking statements with respect to future results and events, including any statements regarding, among other items, anticipated trends or growth in the Company s business, including, but not limited to, the impact of new or proposed tariff or trade regulations; the impact of foreign currency translation on financial results; development of products by acquired businesses; the growth rate of sales and research and development expenses; the impact of costs associated with developing new technologies and bringing these new technologies to market; the impact of new product launches and the associated costs, such as the amortization expense related to software platforms; geographic sales mix of business; development of products by acquired businesses and the amount of contingent payments to the sellers of an acquired business; anticipated expenses, including interest expense, capitalized software costs and effective tax rates; the impact of the Tax Cuts and Jobs Act (the 2017 Tax Act) in the U.S.; the impact and outcome of the Company s various ongoing tax audit examinations; the achievement of contractual milestones to preserve foreign tax rates; the impact and outcome of litigation matters; the impact of the loss of intellectual property protection; the impact of new accounting standards and pronouncements; the adequacy of the Company s supply chain and manufacturing capabilities and facilities; the impact of regulatory compliance; the Company s expected cash flow, borrowing capacity, debt repayment and refinancing; the Company s ability to fund working capital, capital expenditures, service debt, repay outstanding lines of credit, make authorized share repurchases, fund potential acquisitions and pay any adverse litigation or tax audit liabilities, particularly in the U.S.; future impairment charges; the Company s contributions to defined benefit plans; the Company s expectations regarding changes to its financial position; compliance with applicable environmental laws; and the impact of recent acquisitions on sales and earnings.

Many of these statements appear, in particular, in Part II, Item 7, Management s Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K. Statements that are not statements of historical fact may be deemed forward-looking statements. You can identify these forward-looking statements by the use of the words feels , believes , anticipates , plans , expects , may , will , would , intends , estimates , projects , should and similar expressions, whether in the negative or affirmative. These statements are subject to various risks and uncertainties, many of which are outside the control of the Company, including, and without limitation:

Foreign currency exchange rate fluctuations that could adversely affect translation of the Company s future sales, financial operating results and the condition of its non-U.S. operations, especially when a currency weakens against the U.S. dollar.

Current global economic, sovereign and political conditions and uncertainties, particularly regarding the effect of new or proposed tariff or trade regulations; the U.K. voting to exit the European Union as well as the Chinese government s ongoing tightening of restrictions on procurement by government-funded customers; the Company s ability to access capital and maintain liquidity in volatile market conditions;

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changes in timing and demand for the Company s products among the Company s customers and various market sectors, particularly if they should reduce capital expenditures or are unable to obtain funding, as in the cases of governmental, academic and research institutions; the effect of mergers and acquisitions on customer demand for the Company s products; and the Company s ability to sustain and enhance service.

Negative industry trends; changes in the competitive landscape as a result of changes in ownership, mergers and continued consolidation among the Company s competitors; introduction of competing products by other companies and loss of market share; pressures on prices from customers or resulting from competition; regulatory, economic and competitive obstacles to new product introductions; lack of acceptance of new products; expansion of our business in developing markets; spending by certain end-markets; ability to obtain alternative sources for components and modules; and the possibility that future sales of new products related to acquisitions, which trigger contingent purchase payments, may exceed the Company s expectations.

Increased regulatory burdens as the Company s business evolves, especially with respect to the FDA and EPA, among others, as well as regulatory, environmental and logistical obstacles affecting the distribution of the Company s products, completion of purchase order documentation by our customers and ability of customers to obtain letters of credit or other financing alternatives.

Risks associated with lawsuits, particularly involving claims for infringement of patents and other intellectual property rights.

The impact and costs incurred from changes in accounting principles and practices; the impact and costs of changes in statutory or contractual tax rates in jurisdictions in which the Company operates, specifically as it relates to the 2017 Tax Act in the U.S.; shifts in taxable income among jurisdictions with different effective tax rates; and the outcome of and costs associated with ongoing and future tax audit examinations or changes in respective country legislation affecting the Company s effective rates.

Certain of these and other factors are further described below in Item 1A, Risk Factors, of this Form 10-K. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements, whether because of these factors or for other reasons. All forward-looking statements speak only as of the date of this annual report on Form 10-K and are expressly qualified in their entirety by the cautionary statements included in this report. Except as required by law, the Company does not assume any obligation to update any forward-looking statements.

Item 1A: ***Risk Factors***

The Company is subject to risks and uncertainties, including, but not limited to, the following:

The Company s international operations may be negatively affected by political events, wars or terrorism and regulatory changes, related to either a specific country or a larger region. These potential political, currency and economic disruptions, as well as foreign currency exchange rate fluctuations, could have a material adverse effect on the Company s results of operations or financial condition.

Approximately 72% and 71% of the Company s net sales in 2018 and 2017, respectively, were outside of the United States and were primarily denominated in foreign currencies. In addition, the Company has considerable manufacturing operations in Ireland and the United Kingdom, as well as significant subcontractors located in Singapore. As a result, a significant portion of the Company s sales and operations are subject to certain risks, including adverse developments in the political, regulatory and economic environment, in particular, uncertainty regarding possible changes to foreign and domestic trade policy; the effect of the U.K. voting to exit the European Union as well as the financial difficulties and debt burden experienced by a number of European countries; the instability and potential impact of war or terrorism; the instability and possible dissolution of the Euro as a single currency; sudden movements in a country s foreign exchange rates due to a change in a country s sovereign risk profile or foreign exchange regulatory practices; tariffs and other trade barriers; difficulties in staffing and managing foreign operations; and associated adverse operational, contractual and tax consequences.

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Additionally, the U.S. dollar value of the Company s net sales, cost of sales, operating expenses, interest, taxes and net income varies with foreign currency exchange rate fluctuations. Significant increases or decreases in the value of the U.S. dollar relative to certain foreign currencies, particularly the Euro, Japanese yen and British pound, could have a material adverse effect or benefit on the Company s results of operations or financial condition.

Global economic conditions may decrease demand for the Company s products and harm the Company s financial results.

The Company is a global business that may be adversely affected by changes in global economic conditions. These changes in global economic conditions, both inside and outside the U.S., may affect the demand for the Company s products and services. This may result in a decline in sales in the future, increased rate of order cancellations or delays, increased risk of excess or obsolete inventories, longer sales cycles and potential difficulty in collecting sales proceeds. There can be no assurance regarding demand for the Company s products and services in the future.

The Company s financial results are subject to changes in customer demand, which may decrease for a number of reasons, many beyond the Company s control.

The demand for the Company s products is dependent upon the size of the markets for its LC, LC-MS, thermal analysis, rheometry and calorimetry products; the timing and level of capital spending and expenditures of the Company s customers; changes in governmental regulations, particularly affecting drug, food and drinking water testing; funding available to governmental, academic and research institutions; general economic conditions and the rate of economic growth in the Company s major markets; and competitive considerations. The Company typically experiences an increase in sales in its fourth quarter as a result of purchasing habits for capital goods by customers that tend to exhaust their spending budgets by calendar year end. However, there can be no assurance that the Company will effectively forecast customer demand and appropriately allocated research and development expenditures to products with high growth and high margin prospects. Additionally, there can be no assurance that the Company s results of operations or financial condition will not be adversely impacted by a change in any of the factors listed above or the continuation of uncertain global economic conditions.

Additionally, the analytical instrument market may, from time to time, experience low sales growth. Approximately 56% of the Company s net sales in both 2018 and 2017 were to worldwide pharmaceutical and biotechnology companies, which may be periodically subject to unfavorable market conditions and consolidations. Unfavorable industry conditions could have a material adverse effect on the Company s results of operations or financial condition.

Disruption in worldwide financial markets could adversely impact the Company s access to capital and financial condition.

Financial markets in the U.S., Europe and Asia have experienced times of extreme disruption, including, among other things, sharp increases in the cost of new capital, credit rating downgrades and bailouts, severely diminished capital availability and severely reduced liquidity in money markets. Financial and banking institutions have also experienced disruptions, resulting in large asset write-downs, higher costs of capital, rating downgrades and reduced desire to lend money. There can be no assurance that there will not be future deterioration or prolonged disruption in financial markets or financial institutions. Any future deterioration or prolonged disruption in financial markets or financial institutions in which the Company participates may impair the Company s ability to access its existing cash, utilize its existing syndicated bank credit facility funded by such financial institutions, and impair its ability to access sources of new capital. The cost to the Company of any new capital raised and interest expense would increase if this were to occur.

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Competitors may introduce more effective or less expensive products than the Company s, which could result in decreased sales. The competitive landscape may transform as a result of potential changes in ownership, mergers and continued consolidations among the Company s competitors, which could harm the Company s business.

The analytical instrument market and, in particular, the portion related to the Company s HPLC, UPLC, LC-MS, thermal analysis, rheometry and calorimetry product lines, is highly competitive and subject to rapid changes in technology. The Company encounters competition from several international instrument suppliers and other companies in both domestic and foreign markets. Some competitors have instrument businesses that are generally more diversified than the Company s business, but are typically less focused on the Company s chosen markets. Over the years, some competitors have merged with other competitors for various reasons, including increasing product line offerings, improving market share and reducing costs. There can be no assurance that the Company s competitors will not introduce more effective and less costly products than those of the Company or that the Company will be able to increase its sales and profitability from new product introductions. There can be no assurance that the Company s sales and marketing forces will compete successfully against the Company s competitors in the future.

Strategies for organic growth require developing new technologies and bringing these new technologies to market, which could negatively impact the Company s financial results.

The Company s corporate strategy is fundamentally based on winning through organic innovation and deep application expertise. The Company is in the process of developing new products with recently acquired technologies. The future development of these new products will require a significant amount of spending over the next few years before significant, robust sales will be realized. Furthermore, these new products will be sold into both the non-clinical and clinical markets, and any new products requiring FDA clearance may take longer to bring to market. There can be no assurance given as to the timing of these new product launches and the ultimate realization of sales and profitability in the future.

The Company s software or hardware may contain coding or manufacturing errors that could impact their function, performance and security, and result in other negative consequences.

Despite testing prior to the release and throughout the lifecycle of a product or service, the detection and correction of any errors in released software or hardware can be time consuming and costly. This could delay the development or release of new products or services, or new versions of products or services, create security vulnerabilities in the Company s products or services, and adversely affect market acceptance of products or services. If the Company experiences errors or delays in releasing its software or hardware, or new versions thereof, its sales could be affected and revenues could decline. Errors in software or hardware could expose the Company to product liability, performance and warranty claims as well as harm to brand and reputation, which could impact future sales.

The loss of key members of management and the risks inherent in succession planning could adversely affect the Company s results of operations or financial condition.

The operation of the Company requires managerial and operational expertise. None of the Company s key management employees, with the exception of the Chairman and Chief Executive Officer and the Senior Vice President and Chief Financial Officer, have an employment contract with the Company and there can be no assurance that such individuals will remain with the Company. If, for any reason, other such key personnel do not continue to be active in management, the Company s results of operations or financial condition could be adversely affected.

Disruption of operations at the Company s manufacturing facilities could harm the Company s financial condition.

The Company manufactures LC instruments at facilities in Milford, Massachusetts and through a subcontractor in Singapore; precision chemistry separation columns at its facilities in Taunton, Massachusetts and Wexford,

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Ireland; MS products at its facilities in Wilmslow, England, Solihull, England and Wexford, Ireland; thermal analysis and rheometry products at its facilities in New Castle, Delaware and other instruments and consumables at various other locations as a result of the Company s acquisitions. Any prolonged disruption to the operations at any of these facilities, whether due to labor difficulties, destruction of or damage to any facility or other reasons, could have a material adverse effect on the Company s results of operations or financial condition.

Failure to adequately protect intellectual property could have materially adverse effects on the Company s results of operations or financial condition.

There can be no assurance that any patents held by the Company will not be challenged, invalidated or circumvented or that the rights granted thereunder will provide competitive advantages to the Company. Additionally, there could be successful claims against the Company by third-party patent holders with respect to certain Company products that may infringe the intellectual property rights of such third parties. The Company s patents, including those licensed from others, expire on various dates. If the Company is unable to protect its intellectual property rights, it could have an adverse and material effect on the Company s results of operations or financial condition.

The Company s business would suffer if the Company were unable to acquire adequate sources of supply.

Most of the raw materials, components and supplies purchased by the Company are available from a number of different suppliers; however, a number of items are purchased from limited or single sources of supply and disruption of these sources could have, at a minimum, a temporary adverse effect on shipments and the financial results of the Company. A prolonged inability to obtain certain materials or components could have an adverse effect on the Company s financial condition or results of operations and could result in damage to its relationships with its customers and, accordingly, adversely affect the Company s business.

The Company s sales would deteriorate if the Company s outside contractors fail to provide necessary components or modules.

Certain components or modules of the Company s LC and MS instruments are manufactured by outside contractors, including the manufacturing of LC instrument systems and related components by contract manufacturing firms in Singapore. Disruptions of service by these outside contractors could have an adverse effect on the supply chain and the financial results of the Company. A prolonged inability to obtain these components or modules could have an adverse effect on the Company s financial condition or results of operations.

The Company s business could be harmed by actions of distributors and other third parties that sell our products.

The Company sells some products through third parties, including distributors and value-added resellers. This exposes us to various risks, including competitive pressure, concentration of sales volumes, credit risks and compliance risks. We may rely on one or a few key distributors for a product or market and the loss of these distributors could reduce our revenue or net earnings. Distributors may also face financial difficulties, including bankruptcy, which could harm our collection of accounts receivable. Violations of the U.S. Foreign Corrupt Practices Act (FCPA), the U.K. Bribery Act or similar anti-bribery laws by distributors or other third-party intermediaries could materially impact our business. Risks related to our use of distributors may reduce sales, increase expenses and weaken our competitive position.

The Company may be harmed by improper conduct of any of our employees, agents or business partners.

We cannot provide assurance that our internal controls and compliance systems will always protect the Company from acts committed by employees, agents or business partners that would violate domestic and international laws, including laws governing payments to government officials, bribery, fraud, kickbacks and false claims, pricing, sales and marketing practices, conflicts of interest, competition, export and import compliance, money laundering and data privacy. In particular, the FCPA, the U.K. Bribery Act and similar anti-bribery laws generally prohibit companies and their intermediaries from making improper payments to government officials for the purpose of obtaining or retaining business, and we operate in many parts of the world that have experienced governmental corruption to some degree. Any such improper actions or allegations of such acts could damage our reputation and subject us to civil or criminal investigations in the U.S. and in other jurisdictions and related shareholder lawsuits, could lead to substantial civil and criminal, monetary and non-monetary penalties and could cause us to incur significant legal and investigatory fees. In addition, the government may seek to hold us liable as a successor for violations committed by companies in which we invest or that we acquire. We also rely on our suppliers to adhere to our supplier standards of conduct and material violations of such standards of conduct could occur that could have a material effect on our business, reputation and financial statements.

The effects of climate change could harm the Company s business.

The Company s manufacturing processes for certain of its products involve the use of chemicals and other substances that are regulated under various international, federal, state and local laws governing the environment. In the event that any future climate change legislation would require that stricter standards be imposed by domestic or international environmental regulatory authorities with respect to the use and/or levels of possible emissions from such chemicals and/or other substances, the Company may be required to make certain changes and adaptations to its manufacturing processes. Any such changes could have a material adverse effect on the financial statements of the Company.

Another potential effect of climate change is an increase in the severity of global weather conditions. The Company s manufacturing facilities are located in the United States, United Kingdom, Ireland and Germany. In addition, the Company manufactures a growing percentage of its HPLC, UPLC and MS products in both Singapore and Ireland. Severe weather and geological conditions or events, including earthquakes, hurricanes and/or tsunamis, could potentially cause significant damage to the Company s manufacturing facilities in each of these countries. The effects of such damage and the resulting disruption of manufacturing operations and the impact of lost sales could have a material adverse impact on the financial results of the Company.

The Company s financial results are subject to unexpected shifts in pre-tax income between tax jurisdictions, changing application of tax law and tax audit examinations.

The Company is subject to rates of income tax that range from 0% up to 35% in various jurisdictions in which it conducts business. In addition, the Company typically generates a substantial portion of its income in the fourth quarter of each fiscal year. Geographical shifts in income from previous quarters projections caused by factors including, but not limited to, changes in volume and product mix and fluctuations in foreign currency translation rates, could therefore have potentially significant favorable or unfavorable effects on the Company s income tax expense, effective tax rate and results of operations.

Governments in the jurisdictions in which the Company operates implement changes to tax laws and regulations from time to time. Any changes in corporate income tax rates or regulations regarding transfer pricing or repatriation of dividends or capital, as well as changes in the interpretation of existing tax laws and regulations, in the jurisdictions in which the Company operates could adversely affect the Company s cash flow and lead to increases in its overall tax burden, which would negatively affect the Company s profitability.

On December 22, 2017, the U.S. enacted the 2017 Tax Act. The 2017 Tax Act changed the U.S. tax system to a territorial tax system, including base broadening measures on non-U.S. earnings, whereby historical unremitted, earnings of foreign subsidiaries are deemed to have been repatriated to the U.S. in 2017 regardless of when the assets are actually remitted to the U.S., as well as reducing or eliminating certain domestic deductions and credits and limiting the deductibility of interest expense and executive compensation. Earnings deemed to have been distributed to the U.S. in accordance with the aforementioned 2017 Tax Act deemed distribution rules are subject to a transition tax, which is a one-time, mandatory deemed repatriation tax on the accumulated

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foreign earnings that have not been previously taxed. To the extent those earnings are deemed to have been invested in cash and cash equivalents, they will be taxed at a rate of 15.5%; the remainder of those earnings will be taxed at a rate of 8.0%. As a result, the Company s historical unremitted foreign earnings were deemed repatriated in 2017 and the Company incurred a $550 million estimated tax provision, which primarily consisted of an estimated transition tax, as well as estimated income tax provisions for state and withholding taxes and a provision associated with the remeasurement of the Company s deferred tax assets and liabilities from 35% to the new U.S. corporate income tax rate of 21%. The transition tax will be paid over an eight-year period, which started in 2018, and will not accrue interest. During 2018, the Internal Revenue Service issued proposed regulations with respect to the transition tax and other new areas of the Tax Reform law that impact the 2018 tax provision. The Company anticipates additional proposed regulations, and the final versions of the currently proposed regulations could clarify or change the interpretation of the new laws. As permitted by the SEC Staff Accounting Bulletin No. 118, the Company completed its analysis and calculation of the 2017 Tax Act federal and state transition tax liability during 2018, which remained significantly unchanged.

The Company has a contractual tax rate in Singapore of 0% through March 2021, based upon the achievement and continued satisfaction of certain operational and financial milestones, which the Company expects to continue to meet. Currently, the Company has determined that it is more likely than not to realize the contractual tax rate in Singapore of 0% and has not recognized any uncertain tax position in its balance sheet related to the achievement of the contractual milestones in Singapore. In the event that it appears that the milestone targets will not be met, the Company will no longer be entitled to a 0% contractual tax rate benefit on income earned in Singapore dating back to the start date of the agreement (April 1, 2016), at which time all tax benefits previously recorded would be reversed and an income tax charge equal to the statutory tax of 17% on income earned during that period would be recorded.

As a global business, the Company is subject to tax audit examinations in various jurisdictions throughout the world. The Company must manage the cost and disruption of responding to governmental audits, investigation and proceedings. In addition, the impact of the settlement of pending or future tax audit examination could have an unfavorable effect on the Company s income tax expense, effective tax rate and results of operations.

The Company s financial condition and results of operations could be adversely affected if the Company is unable to maintain a sufficient level of cash flow.

The Company had $1,148 million in debt and $1,735 million in cash, cash equivalents and investments as of December 31, 2018. As of December 31, 2018, the Company also had the ability to borrow an additional $1,208 million from its existing, committed credit facility. All but a small portion of the Company s debt was in the U.S. There is a substantial cash requirement in the U.S. to fund operations and capital expenditures, service debt interest obligations, finance potential U.S. acquisitions and continue authorized stock repurchase programs.

The Company has conducted a post-tax reform evaluation of its capital allocation strategy and is currently planning to use its existing cash, cash equivalents and investments, cash flow from operations and available debt capacity to repurchase up to $4 billion of the Company s common stock over the next two years. As a result, the Company s financial condition and results of operations could be adversely impacted if the Company is unable to generate and maintain a sufficient level of cash flow to address these requirements through (1) cash from operations, (2) the Company s ability to access its existing cash and revolving credit facility, (3) the ability to expand the Company s borrowing capacity and (4) other sources of capital obtained at an acceptable cost.

Debt covenants, and the Company s failure to comply with them, could negatively impact the Company s capital and financial results.

The Company s debt is subject to restrictive debt covenants that limit the Company s ability to engage in certain activities that could otherwise benefit the Company. These debt covenants include restrictions on the Company s ability to enter into certain contracts or agreements, which may limit the Company s ability to make dividend or other payments, secure other indebtedness, enter into transactions with affiliates and consolidate, merge or transfer all or substantially all of the Company s assets. The Company is also required to meet specified financial ratios under the terms of the Company s debt agreements. The Company s ability to comply with these financial restrictions and all other covenants is dependent on the Company s future performance, which is subject to, but not limited to, prevailing economic conditions and other factors, including factors that are beyond the Company s control, such as foreign exchange rates, interest rates, changes in technology and changes in the level of competition. As of December 31, 2018, the Company was in compliance with all debt covenants.

Disruption, cyber attack or unforeseen problems with the security, maintenance or upgrade of the Company s information and web-based systems could have an adverse effect on the Company s operations and financial condition.

The Company relies on its technology infrastructure and that of its software and banking partners, among other functions, to interact with suppliers, sell products and services, fulfill contract obligations, ship products, collect and make electronic wire and check based payments and otherwise conduct business. The Company s technology infrastructure may be vulnerable to damage or interruption from, but not limited to, natural disasters, power loss, telecommunication failures, terrorist attacks, computer viruses, unauthorized access to customer or employee data, unauthorized access to and funds transfers from Company bank accounts and other attempts to harm the Company s systems. Any prolonged disruption to the Company s technology infrastructure, at any of its facilities, could have a material adverse effect on the Company s results of operations or financial condition.

If the Company s security measures are compromised or fail to adequately protect its technology infrastructure, research and development efforts or manufacturing operations, the Company s products and services may be perceived as vulnerable or unreliable, the information the Company s controls and processes may be subject to unauthorized access, acquisition or modification, the Company s brand and reputation could be damaged, the services that the Company provides to its customers could be disrupted, and customers may stop using the Company s products and services, all of which could reduce the Company s revenue and earnings, increase its expenses and expose the Company to legal claims and regulatory actions.

The Company is in the business of designing, manufacturing, selling and servicing analytical instruments to life science, pharmaceutical, biochemical, industrial, nutritional safety, and environmental, academic and governmental customers working in research and development, quality assurance and other laboratory applications, and the Company is also a developer and supplier of software-based products that support instrument systems. Many of the Company s customers are in highly regulated industries. While the Company has invested time and resources implementing measures designed to protect the integrity and security of its technology infrastructure, research and development processes, manufacturing operations, products and services, and the internal and external data managed by the Company, there is a risk these measures will be defeated or compromised or that they are otherwise insufficient to protect against existing or emerging threats. The Company also has acquired companies, products, services and technologies over time and may face inherit risk when integrating these acquisitions into the Company. In addition, at times, the Company faces attempts by third parties to defeat its security measures or exploit vulnerabilities in its systems. These risks will increase as the Company continues to grow and expand geographically, and its systems, products and services become increasingly digital and sensor- and web-based.

The Company could suffer significant damage to its brand and reputation if a security incident resulted in unauthorized access to, acquisition of, or modification to the Company s technology infrastructure, research and development processes, manufacturing operations, its products and services as well as the internal and external data managed by the Company. Such an incident could disrupt the Company s operations and customers could lose confidence in the Company s ability to deliver quality and reliable products or services. This could negatively impact sales and could increase costs related to fixing and addressing these incidents and any vulnerabilities exposed by them, as well as to lawsuits, regulatory investigations, claims or legal liability including contractual liability, costs and expenses owed to customers and business partners.

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Compliance failures could harm the Company s business.

The Company is subject to regulation by various federal, state and foreign governments and agencies in areas including, among others, health and safety, import/export, privacy and data protection, FCPA and environmental laws and regulations. A portion of the Company s operations are subject to regulation by the FDA and similar foreign regulatory agencies. These regulations are complex and govern an array of product activities, including design, development, labeling, manufacturing, promotion, sales and distribution. Any failure by the Company to comply with applicable governmental regulations could result in product recalls, the imposition of fines, restrictions on the Company s ability to conduct or expand its operations or the cessation of all or a portion of its operations.

Regulators globally are increasingly imposing greater fines and penalties for privacy and data protection violations, and the European Union has enacted a broad data protection regulation with fines based on a percentage of global revenues. Changes in laws or regulations associated with enhanced protection of certain sensitive types of personal information, such as information related to health, could greatly increase the cost of compliance and the cost of providing the Company s products or services. Any failure, or perceived failure, by the Company to comply with laws and regulations on privacy, data security or consumer protection, or other policies, public perception, standards, self-regulatory requirements or legal obligations, could result in lost or restricted business, proceedings, actions or fines brought against the Company or levied by governmental entities or others, or could otherwise adversely affect the business and harm the Company s reputation.

Some of the Company s operations are subject to domestic and international laws and regulations with respect to the manufacturing, handling, use or sale of toxic or hazardous substances. This requires the Company to devote substantial resources to maintain compliance with those applicable laws and regulations. If the Company fails to comply with such requirements in the manufacturing or distribution of its products, it could face civil and/or criminal penalties and potentially be prohibited from distributing or selling such products until they are compliant.

Some of the Company s products are also subject to the rules of certain industrial standards bodies, such as the International Standards Organization. The Company must comply with these rules, as well as those of other agencies, such as the United States Occupational Safety and Health Administration. Failure to comply with such rules could result in the loss of certification and/or the imposition of fines and penalties, which could have a material adverse effect on the Company s operations.

As a publicly-traded company, the Company is subject to the rules of the SEC and the New York Stock Exchange. In addition, the Company must comply with the Sarbanes-Oxley regulations, which require the Company to establish and maintain adequate internal control over financial reporting. The Company s efforts to comply with such laws and regulations are time consuming and costly. While we continue to enhance our controls, we cannot be certain that we will be able to prevent future significant deficiencies or material weaknesses. Failure to comply with such regulations or having inadequate internal controls could have a material adverse effect on the Company s financial condition and operations, which could cause investors to lose confidence in our reported financial information and could have a negative effect on the trading price of our stock and our access to capital.

The Company is subject to the rules of the SEC under the Dodd-Frank Wall Street Reform and Consumer Protection Act, requiring disclosure as to whether certain materials (tantalum, tin, gold and tungsten), known as conflict minerals, which may be contained in the Company s products, are mined from the Democratic Republic of the Congo and adjoining countries. In 2017, the Company was not able to determine with certainty the country of origin of some of the conflict minerals in its manufactured products. However, the Company does not have knowledge that any of its conflict minerals originated from the Democratic Republic of the Congo or adjoining countries. The Company is in the process of evaluating its 2018 supply chain, and the Company plans to file its 2018 Form SD with the SEC in May 2019. The results of this and future evaluations may impose additional costs and may introduce new risks related to the Company s ability to verify the origin of any conflict minerals contained in its products.

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The Company s financial condition and results of operations could be adversely affected by changes to the Company s retirement plans or retirement plan assets.

In December 2018, the Company settled a frozen U.S. defined benefit pension plan by making lump-sum cash payments and purchasing annuity contracts for participants to permanently extinguish the pension plan s obligations. This plan was the Company s largest defined benefit pension plan. The Company still sponsors various retirement plans, both inside and outside the U.S. Any changes in regulations made by governments in countries in which the Company sponsors retirement plans could adversely impact the Company s cash flows or results of operations. In connection with these retirement plans, the Company is exposed to market risks associated with changes in the various capital markets. For example, changes in long-term interest rates affect the discount rate that is used to measure the Company s retirement plan obligations and related expense. In addition, changes in the market value of investments held by the retirement plans could materially impact the funded status of the retirement plans, and affect the related pension expense and level and timing of contributions required under applicable laws.

Estimates and assumptions made in accounting for the Company s results from operations are dependent on future results, which involve significant judgments and may be imprecise and may differ materially from actual results.

The preparation of consolidated financial statements in conformity with generally accepted accounting principles requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent liabilities at the dates of the financial statements. These estimates and assumptions must be made due to certain information used in preparation of our financial statements which is dependent on future events, cannot be calculated with a high degree of precision from data available or is not capable of being readily calculated based on generally accepted methodologies. The Company believes that the accounting related to revenue recognition, product returns and allowances, bad debts, inventory valuation, goodwill and intangible assets, income taxes, warranty and installation provisions, litigation, retirement plan obligations, stock-based compensation, equity investments, business combinations and asset acquisitions, uncertain tax positions and contingencies involves significant judgments and estimates. Actual results for all estimates could differ materially from the estimates and assumptions used, which could have a material adverse effect on our financial condition and results of operations.

Item 1B: ***Unresolved Staff Comments***

None.

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Item 2: ***Properties***

Waters Corporation operates 22 United States facilities and 72 international facilities, including field offices. The Company believes its facilities are suitable and adequate for its current production level and for reasonable growth over the next several years. The Company s primary facilities are summarized in the table below.

Primary Facility Locations

Location	Function (1)	Owned/Leased
Golden, CO	M, R, S, D, A	Leased
New Castle, DE	M, R, S, D, A	Owned
Franklin, MA	D	Leased
Milford, MA	M, R, S, A	Owned
Taunton, MA	M, R	Owned
Wakefield, MA	M, R, S, D, A	Leased
Eden Prairie, MN	M, R, S, D, A	Leased
Nixa, MO	M, S, D, A	Leased
Sharpsburg, PA	M, R, S, D, A	Leased
Lindon, UT	M, R, S, D, A	Leased
Newcastle, England	R, S, D, A	Leased
Solihull, England	M,A	Owned
Wilmslow, England	M, R, S, D, A	Owned
St. Quentin, France	S, A	Leased
Bochum, Germany	R, S, A	Leased
Huellhorst, Germany	M, R, S, D, A	Owned
Budapest, Hungary	R	Leased
Wexford, Ireland	M, R, D, A	Owned
Etten-Leur, Netherlands	S, D, A	Owned
Brasov, Romania	R, A	Leased
Singapore	R, S, D, A	Leased

(1) M = Manufacturing; R = Research; S = Sales and Service; D = Distribution; A = Administration

The Company operates and maintains 11 field offices in the United States and 61 field offices abroad in addition to sales offices in the primary facilities listed above. The Company s field office locations are listed below.

Field Office Locations (2)

United States	International			
Costa Mesa, CA	Australia	India	Portugal
Pleasanton, CA	Austria	Ireland	Poland
Wood Dale, IL	Belgium	Israel	Puerto Rico
Carmel, IN	Brazil	Italy	Spain
Columbia, MD	Canada	Japan	Sweden
Beverly, MA	Czech Republic	Korea	Switzerland
Durham, NC	Denmark	Malaysia	Taiwan
Morrisville, NC	Finland	Mexico	United Kingdom
Parsippany, NJ	France	Netherlands	
Plymouth Meeting, PA	Germany	Norway	
Bellaire, TX	Hungary	People s Republic of China	

(2) The Company operates more than one field office within certain states and foreign countries.

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Item 3: ***Legal Proceedings***

From time to time, the Company and its subsidiaries are involved in various litigation matters arising in the ordinary course of business. The Company believes it has meritorious arguments in its current litigation matters and believes any outcome, either individually or in the aggregate, will not be material to the Company s financial position or results of operations.

Item 4: ***Mine Safety Disclosures***

Not applicable.

EXECUTIVE OFFICERS OF THE REGISTRANT

Officers of the Company are elected annually by the Board of Directors and hold office at the discretion of the Board of Directors. The following persons serve as executive officers of the Company:

Christopher J. O Connell, 52, has served as a Director of the Company since September 2015, when he assumed the position of President and Chief Executive Officer of the Company. In December 2017, Mr. O Connell was appointed as the Chairman of the Board of Directors of the Company. Mr. O Connell served as Executive Vice President and President of Restorative Therapies Group of Medtronic plc from August 2009 to August 2015. From 1994 to August 2009, Mr. O Connell served in the following positions at Medtronic plc: Senior Vice President and President of Medtronic Diabetes, President of Medtronic Physio-Control, Vice President of Sales and Marketing for the Cardiac Rhythm Management business, Vice President/General Manager of the Patient Management Business, Vice President of Corporate Strategy, Director of Investor Relations and Corporate Development Associate.

Mark T. Beaudouin, 64, was appointed Senior Vice President, General Counsel and Secretary in February 2016 and was Vice President, General Counsel and Secretary of the Company since April 2003. Prior to joining Waters Corporation, he served as Senior Vice President, General Counsel and Secretary of PAREXEL International Corporation, a bio/pharmaceutical services company, from January 2000 to April 2003. Previously, from May 1985 to January 2000, Mr. Beaudouin served in several senior legal management positions, including Vice President, General Counsel and Secretary of BC International, Inc., a development stage biotechnology company, First Senior Vice President, General Counsel and Secretary of J. Baker, Inc., a diversified retail company, and General Counsel and Secretary of GenRad, Inc., a high technology test equipment manufacturer.

Sherry L. Buck, 55, was appointed Senior Vice President and Chief Financial Officer in January 2017. Previously, Ms. Buck served as the Vice President, Chief Financial Officer of Libbey Inc. since August 2012. From 1993 to 2012, Ms. Buck held several positions at Whirlpool Corporation, including Vice President, Finance/Chief Financial Officer, Global Product and Enterprise Cost Leadership; Vice President, Finance US; Vice President, Cost Leadership; Vice President, Finance International; and Vice President, Business Performance Management.

Robert G. Carson, 45, was appointed Senior Vice President, Corporate Development in February 2018. Prior to joining Waters Corporation, he held several positions during his 16 years at Medtronic plc, including Vice President and General Manager, Pacemaker Business from January 2017 to January 2018. In addition, Mr. Carson spent nearly 12 years in Medtronic s spinal implants and biologics business, serving as Vice President and General Manager from July 2016 to January 2017, Vice President of Global Marketing & Strategy from April 2015 to July 2016 and Vice President & Therapy Segment Leader from October 2012 to April 2015. Mr. Carson began his career with Banc of America Securities.

Dr. Michael C. Harrington, 58, was appointed Senior Vice President, Global Markets in February 2016. Dr. Harrington joined Waters Corporation in 1987 and has held several senior positions with Waters Corporation,

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including Vice President, Europe and Asia Pacific Operations, Senior Director of US Sales Operations, Director of US Chemistry Sales and General Manager of Phase Separations. Prior to joining Waters Corporation, Dr. Harrington held senior sales positions at Celsis, Inc.

Terrance P. Kelly, 56, was appointed Senior Vice President and President, TA Instruments in February 2016. Mr. Kelly has served as President, TA instruments since February 2005. Mr. Kelly started his career in finance and accounting at ICI in 1985. He joined DuPont in 1988. He held various sales and marketing positions with DuPont, and later TA Instruments. Mr. Kelly joined Waters Corporation in 1996, when TA Instruments was acquired.

Francis Kim, 52, was appointed Senior Vice President, Global Operations in February 2018. Mr. Kim previously served as Vice President of Global Quality Assurance since November 2016. Prior to joining Waters Corporation, he held several positions during his 20 years at Medtronic plc, including Vice President of Quality, Restorative Therapies Group from May 2015 to November 2016 and Vice President of Quality, Regulatory and Clinical Affairs, Surgical Technologies Division from January 2011 to May 2015.

Ian S. King, 62, was appointed Senior Vice President, Global Products in July 2017. Mr. King joined Waters in 1982 and previously served as Senior Vice President, Instrument Technology; Vice President, Separations Technologies; and Vice President and General Manager of Consumable Division, as well as a variety of scientific and management positions in Waters Corporation s international subsidiaries. Prior to joining Waters Corporation, Mr. King worked at Edinburgh University as a research scientist.

Elizabeth B. Rae, 61, was appointed Senior Vice President, Global Human Resources in February 2016 and was Vice President of Human Resources since October 2005 and Vice President of Worldwide Compensation and Benefits since January 2002. Ms. Rae joined Waters Corporation in January 1996 as Director of Worldwide Compensation. Prior to joining Waters Corporation, she held senior human resources positions in retail, healthcare and financial services companies.

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PART II

Item 5: ***Market for Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities***

The Company s common stock is registered under the Securities Exchange Act of 1934, as amended (the Exchange Act), and is listed on the New York Stock Exchange under the symbol WAT . As of February 21, 2019, the Company had 86 common stockholders of record. The Company has not declared or paid any dividends on its common stock in its past three fiscal years and does not intend to pay cash dividends in the foreseeable future. Any future determination to pay cash dividends will be made at the discretion of the Board of Directors and will depend on restrictions and other factors the Board of Directors may deem relevant. The Company has not made any sales of unregistered equity securities in the years ended December 31, 2018, 2017 or 2016.

Securities Authorized for Issuance under Equity Compensation Plans

Equity compensation plan information is incorporated by reference from Part III, Item 12, Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters, of this document and should be considered an integral part of this Item 5.

Stock Price Performance Graph

The following performance graph and related information shall not be deemed to be soliciting material or to be filed with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933, as amended, or the Exchange Act, except to the extent that the Company specifically incorporates it by reference into such filing.

The following graph compares the cumulative total return on $100 invested as of December 31, 2013 (the last day of public trading of the Company s common stock in fiscal year 2013) through December 31, 2018 (the last day of public trading of the common stock in fiscal year 2018) in the Company s common stock, the NYSE Market Index, the SIC Code 3826 Index and the S&P 500 Index. The return of the indices is calculated assuming reinvestment of dividends during the period presented. The Company has not paid any dividends since its IPO. The stock price performance shown on the graph below is not necessarily indicative of future price performance.

COMPARISON OF CUMULATIVE TOTAL RETURN SINCE DECEMBER 31, 2013

AMONG WATERS CORPORATION, NYSE MARKET INDEX, SIC CODE 3826 INDEX LABORATORY ANALYTICAL INSTRUMENTS AND S&P 500 INDEX

	2013	2014	2015	2016	2017	2018
WATERS CORPORATION	$ 100.00	$ 112.72	$ 134.58	$ 134.39	$ 193.19	$ 188.65
NYSE MARKET INDEX	$ 100.00	$ 106.75	$ 102.38	$ 114.61	$ 136.07	$ 123.89
SIC CODE INDEX	$ 100.00	$ 127.50	$ 141.59	$ 130.44	$ 199.51	$ 210.24
S&P 500 INDEX	$ 100.00	$ 113.69	$ 115.26	$ 129.05	$ 157.22	$ 150.33

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Purchases of Equity Securities by the Issuer

The following table provides information about purchases by the Company during the three months ended December 31, 2018 of equity securities registered by the Company under the Exchange Act (in thousands, except per share data):

Period	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Programs (2)	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Programs (2)
September 30 to October 27, 2018	128	$ 182.79	128	$ 2,968,685
October 28 to November 24, 2018	1,126	$ 195.56	1,126	$ 2,748,484
November 25 to December 31, 2018	1,466	$ 189.54	1,460	$ 2,471,785
Total	2,720	$ 191.71	2,714	$ 2,471,785

(1) The Company repurchased 6 thousand shares of common stock at a cost of less than $1 million related to the vesting of restricted stock units during the three months ended December 31, 2018.

(2) In April 2018, the Company s Board of Directors authorized the repurchase of up to $3.5 billion of its outstanding common stock in open market or private transactions over a three-year period. In January 2019, the Company s Board of Directors authorized the Company to repurchase up to $4 billion of its outstanding common stock in open market or private transactions over a two-year period. This new program replaced the remaining amounts available under the April 2018 authorization.

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Item 6: Selected Financial Data

The following table sets forth selected historical consolidated financial and operating data for the periods indicated. The statement of operations and balance sheet data is derived from financial statements for the years 2018, 2017, 2016, 2015 and 2014. The Company s financial statements as of December 31, 2018 and 2017, and for each of the three years in the period ended December 31, 2018 are included in Part II, Item 8, Financial Statements and Supplementary Data, of this Form 10-K.

In thousands, except per share and employees data	2018	2017	2016	2015	2014
STATEMENT OF OPERATIONS DATA:					
Net sales	$ 2,419,929	$ 2,309,078	$ 2,167,423	$ 2,042,332	$ 1,989,344
Income from operations before income taxes	$ 682,146	$ 641,097	$ 600,114	$ 541,918	$ 490,740
Net income*	$ 593,794	$ 20,311	$ 521,503	$ 469,275	$ 431,620
Net income per basic common share*	$ 7.71	$ 0.25	$ 6.46	$ 5.70	$ 5.12
Weighted-average number of basic common shares	76,992	79,793	80,786	82,336	84,358
Net income per diluted common share*	$ 7.65	$ 0.25	$ 6.41	$ 5.65	$ 5.07
Weighted-average number of diluted common shares and equivalents	77,618	80,604	81,417	83,087	85,151
BALANCE SHEET AND OTHER DATA:					
Cash, cash equivalents and investments	$ 1,735,224	$ 3,393,701	$ 2,813,032	$ 2,399,263	$ 2,055,388
Working capital, including current maturities of debt**	$ 2,214,232	$ 3,663,977	$ 3,115,124	$ 2,649,457	$ 2,236,558
Total assets**	$ 3,727,426	$ 5,324,354	$ 4,662,059	$ 4,268,677	$ 3,874,690
Long-term debt**	$ 1,148,172	$ 1,897,501	$ 1,701,966	$ 1,493,027	$ 1,237,463
Stockholders equity***	$ 1,567,258	$ 2,233,788	$ 2,301,949	$ 2,058,851	$ 1,894,666
Employees	7,246	7,020	6,899	6,594	6,161

* The provision for income taxes for 2017 includes a $550 million estimate for the impact of the enactment of the 2017 Tax Act, which was signed into law on December 22, 2017. The $550 million income tax provision reduced net income per share by $6.82. The $550 million income tax provision primarily consists of an estimated transition tax, as well as estimated income tax provisions for state and withholding taxes and a provision associated with the remeasurement of the Company s deferred tax assets and liabilities from 35% to the new U.S. corporate income tax rate of 21%.

The Company adopted new accounting guidance related to stock-based compensation in 2017. The new accounting guidance requires the excess tax benefits or deficiencies related to stock-based compensation to be reflected in the consolidated statements of operations as a component of the provision for income taxes, whereas they were previously recognized in equity. This aspect of the new accounting guidance was required to be adopted on a prospective basis for the statement of operations and retroactive restatement is not permitted. In 2018 and 2017, the Company recognized an excess tax benefit, which decreased income tax expense by $9 million and $20 million, respectively, and added $0.11 and $0.24, respectively, to net income per diluted share.

In addition, in December 2018, the Company settled a pension plan obligation by making lump-sum cash payments and purchasing annuity contracts for participants to permanently extinguish the pension plan s obligations. As a result, the Company recorded a $46 million charge, which consisted of a $6 million cash contribution to the plan and a $40 million non-cash charge related to the reversal of unrecognized actuarial losses recorded in accumulated other comprehensive income in the stockholders equity. The $46 million pre-tax charge reduced net income per diluted share by $0.39.

** In 2015, the Company adopted new accounting guidance related to the presentation of debt issuance costs and deferred income taxes, both standards have been applied above retrospectively. Certain debt issuance costs have been reclassified from intangible assets and are presented as a direct deduction from the carrying value of the associated debt. Current deferred tax assets and liabilities have been reclassified as non-current deferred tax assets and liabilities.

*** In 2018, the Company adopted new accounting guidance which eliminates the deferral of tax effects on intra-entity transfers other than inventory and requires an entity to recognize the income tax consequences when the transfer occurs. The Company adopted this standard as of January 1, 2018 with a $4 million charge to beginning retained earnings in the consolidated balance sheet.

Item 7: ***Management s Discussion and Analysis of Financial Condition and Results of Operations***

Business and Financial Overview

The Company has two operating segments: Waters™ and TA™. Waters products and services primarily consist of high performance liquid chromatography (HPLC), ultra performance liquid chromatography (UPLC™ and together with HPLC, referred to as LC), mass spectrometry (MS) and precision chemistry consumable products and related services. TA products and services primarily consist of thermal analysis, rheometry and calorimetry instrument systems and service sales. The Company s products are used by pharmaceutical, biochemical, industrial, nutritional safety, environmental, academic and governmental customers. These customers use the Company s products to detect, identify, monitor and measure the chemical, physical and biological composition of materials and to predict the suitability and stability of fine chemicals, pharmaceuticals, water, polymers, metals and viscous liquids in various industrial, consumer goods and healthcare products.

The Company s operating results are as follows for the years ended December 31, 2018, 2017 and 2016 (dollars in thousands, except per share data):

	Year Ended December 31,			% change	
	2018	**2017**	**2016**	***2018 vs. 2017***	***2017 vs. 2016***
Revenues:					
Product sales	$ 1,604,993	$ 1,552,349	$ 1,460,296	*3%*	*6%*
Service sales	814,936	756,729	707,127	*8%*	*7%*
Total net sales	2,419,929	2,309,078	2,167,423	*5%*	*7%*
Costs and operating expenses:					
Cost of sales	992,564	947,067	891,453	*5%*	*6%*
Selling and administrative expenses	536,902	544,363	512,331	*(1%)*	*6%*
Research and development expenses	143,403	132,593	125,187	*8%*	*6%*
Purchased intangibles amortization	7,712	6,743	9,889	*14%*	*(32%)*
Litigation (settlement) provision	(426)	11,114	3,524	*(104%)*	*215%*
Acquired in-process research and development		5,000		*(100%)*	
Operating income	739,774	662,198	625,039	*12%*	*6%*
Operating income as a % of sales	*30.6%*	*28.7%*	*28.8%*		
Other expense	(47,794)	(340)	(700)	**	*51%*
Interest expense, net	(9,834)	(20,761)	(24,225)	*(53%)*	*(14%)*
Income before income taxes	682,146	641,097	600,114	*6%*	*7%*
Provision for income taxes	88,352	620,786	78,611	*(86%)*	*690%*
Net income	$ 593,794	$ 20,311	$ 521,503	**	*(96%)*
Net income per diluted common share	$ 7.65	$ 0.25	$ 6.41	**	*(96%)*

** Percentage not meaningful

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The Company s net sales increased 5% in 2018 as compared to 2017, and 7% in 2017 as compared to 2016. Foreign currency translation increased sales growth by 1% in both 2018 and 2017. Recent acquisitions did not have an impact on sales growth. Unless otherwise noted, sales growth or decline percentages are presented as compared with the same period in the prior year.

Instrument system sales increased 2% and 6% in 2018 and 2017, respectively. In 2018, the increase in instrument system sales was primarily driven by an increase in demand for LC and TA s instrument systems. During 2018, the demand for our LC-MS instrument systems was somewhat unfavorably impacted by the timing of new product introductions, as many of the Company s new products were not launched until the second half of 2018 or early in 2019. In 2017, the demand for instrument system sales was balanced across our LC-MS and TA instrument systems. Recurring revenues (combined sales of precision chemistry consumables and services) increased 8% and 7% in 2018 and 2017, respectively, as a result of a larger installed base of customers and higher billing demand for service sales.

Geographically, the Company s sales growth in both 2018 and 2017 was primarily driven by the 7% and 10% sales growth in Asia, respectively, with double-digit sales growth in China for both years. Europe s sales grew 4% and 10% in 2018 and 2017, respectively, and benefited from the effect of foreign currency translation, which added 3% and 2% to sales growth, respectively. The Company s 2018 sales were impacted by lower sales growth in India and Europe, resulting from lower customer demand for our instrument systems. Sales in the Americas grew 3% in 2018 and were flat in 2017. The Americas sales growth in 2017 was negatively impacted by natural disasters in the U.S., Mexico and Puerto Rico, as well as weaker customer sentiment in the first half of 2017.

Sales to pharmaceutical customers grew 5% and 7% in 2018 and 2017, respectively. These increases were driven by the increasing need for global access to prescription drugs and the testing of newer and more complex biologic drugs. Combined sales to industrial customers, which include materials characterization, food, environmental and fine chemical markets, grew 2% and 4% in 2018 and 2017, respectively. The growth in both 2018 and 2017 was driven by recent product introductions and rising global regulatory standards in both food and materials markets. Combined sales to governmental and academic customers increased 8% in both 2018 and 2017. Sales to governmental and academic customers are highly dependent on when institutions receive funding to purchase our instrument systems and, as such, sales growth rates can vary significantly from period to period.

Operating income was $740 million in 2018, an increase of 12% as compared to 2017. This increase was primarily a result of the effect of higher sales volume achieved in 2018, as well as the effect of approximately $33 million of facility closure, litigation and intellectual property payment charges from 2017 that did not recur in 2018.

Operating income increased 6% in 2017 as compared to 2016. This increase was primarily a result of the effect of higher sales volume achieved in 2017, which was somewhat offset by the impact of $13 million of severance costs primarily associated with the closure of a facility in Germany and costs associated with providing U.S. employees with an early retirement transition incentive; an $11 million litigation settlement provision and related costs and a $5 million charge relating to a milestone payment for the licensing of certain intellectual property relating to mass spectrometry technologies yet to be commercialized. The change in operating income in 2017 as compared with 2016 was also impacted by $4 million of expense in 2017 related to the acceleration of certain stock awards as compared to $7 million of similar expense in 2016.

The Company s effective tax rates were 13.0%, 96.8% and 13.1% for 2018, 2017 and 2016, respectively. Net income per diluted share was $7.65, $0.25 and $6.41 in 2018, 2017 and 2016, respectively. The Company s effective tax and net income per diluted share were impacted by the following items:

In December 2018, the Company settled a pension plan obligation by making lump-sum cash payments and purchasing annuity contracts for participants to permanently extinguish the pension plan s obligations. As a result, the Company recorded a $46 million charge, which consisted of a $6 million cash contribution to the plan and a $40 million non-cash charge related to the reversal of unrecognized actuarial losses recorded in accumulated other comprehensive income in the stockholders equity. The $46 million pre-tax charge reduced net income per diluted share by $0.39.

The significant increase in the provision for income taxes for 2017 was a result of the $550 million estimate for the impact of the enactment of the legislation informally referred to as the Tax Cuts and Jobs Act (the 2017 Tax Act). The 2017 Tax Act changed the U.S. tax system to a territorial system, including broadening measures requiring the taxation of the Company s historical unremitted foreign earnings through a deemed repatriation. This provision reduced net income per diluted share by $6.82 in 2017, and the Company s effective tax rate was 11.0% excluding this $550 million provision. As permitted by the U.S. Securities and Exchange Commission (SEC) Staff Accounting Bulletin No. 118, the Company completed its analysis and calculation of the 2017 Tax Act federal and state transition tax liability during 2018, which remained significantly unchanged.

The Company generated $604 million, $698 million and $643 million of net cash flows from operations in 2018, 2017 and 2016, respectively. The decrease in operating cash flow in 2018 was primarily a result of $103 million of income tax payments made in the U.S. relating to the Company s estimated 2017 transition tax liability and 2018 estimated tax payments, a $15 million litigation settlement payment and $11 million of contributions to certain defined benefit pension plans. Over the next four years, the Company is required to make annual U.S. federal tax payments of approximately $38 million to tax authorities in connection with the Company s estimated transition tax liabilities of $433 million under the 2017 Tax Act. The remaining 60% of the total liability is required to be paid over a three-year period beginning in 2023. The increase in operating cash flow in 2017 was primarily a result of the increase in sales and operating income.

Cash flows used in investing activities included capital expenditures related to property, plant, equipment and software capitalization of $96 million, $85 million and $95 million in 2018, 2017 and 2016, respectively. In February 2018, the Company s Board of Directors approved expanding its precision chemistry consumable manufacturing operations in the U.S. The Company anticipates spending an estimated $215 million to build and equip this new state-of-the-art manufacturing facility, which will be paid for with existing cash, investments and available debt capacity. The Company has spent $11 million on this facility through the end of 2018.

During the past three years, the Company has acquired technology to expand its future sales. In July 2018, the Company acquired the sole intellectual property rights to the Desorption Electrospray Ionization (DESI) imaging technology for $30 million in cash and a future contractual obligation to pay a minimum royalty of $3 million over the remaining life of the patent. DESI is a mass spectrometry imaging technique that is used to develop medical therapies. During 2018, the Company made $8 million of investments in unaffiliated companies. In 2017, the Company made a $7 million payment for an investment in a developer of analytical system solutions used to make measurements, predict stability and accelerate product discovery in the routine analytic, process monitoring and quality control release processes for life science and biopharmaceutical markets. In addition, the Company made a milestone payment of $5 million in 2017 to acquire and license intellectual property. In September 2016, the Company acquired Rubotherm GmbH for approximately $6 million in cash.

During 2018, the Company had net proceeds from the maturity of short-term investments of $1.8 billion. Most of these proceeds were repatriated into the U.S. in 2018, and were taxed at lower income tax rates as a result of the 2017 Tax Act, and used to reduce the Company s debt by $850 million and fund $1,315 million of share repurchases.

The Company has conducted a post-tax reform evaluation of its capital allocation strategy and the Company is currently planning to use its existing cash, cash equivalents and investments, cash flow from operations and its available debt capacity to repurchase up to $4 billion of the Company s common stock over the next two years. The Company is currently planning to increase its outstanding debt balances to approximately 2.5 times the

Company s net debt-to-earnings before interest, taxes, depreciation and amortization ratio to fund a significant portion of these share repurchases.

In January 2019, the Company s Board of Directors authorized the Company to repurchase up to $4 billion of its outstanding common stock over a two-year period. This new program replaced the remaining amounts available under the April 2018 authorization of $3 billion. During 2018, 2017 and 2016, the Company repurchased $1,306 million, $323 million and $318 million of the Company s outstanding common stock, respectively, under authorized share repurchase programs. The Company believes that it has the financial flexibility to fund these share repurchases given current cash and investment levels and debt borrowing capacity, as well as to invest in research, technology and business acquisitions to further grow the Company s sales and profits.

During 2018, the Company entered into $300 million of U.S.-to-Euro interest rate cross-currency swap agreements that hedge the Company s net investment in its Euro denominated net assets. As a result of entering into these agreements, the Company lowered its net interest expense by $3 million during 2018. The Company anticipates that these swap agreements will lower net interest expense by approximately $9 million annually in 2019 and 2020, and less in 2021 as the three year term of the agreements expire.

In January 2019, the Company made organizational changes to better align our resources with our growth and innovation strategies, resulting in a worldwide workforce reduction, impacting 1% of the Company s employees. The Company currently estimates that it will incur approximately $15 million of severance and related costs during 2019.

Results of Operations

Sales by Geography

Geographic sales information is presented below for the years ended December 31, 2018, 2017 and 2016 (dollars in thousands):

	Year Ended December 31,			% change	
	2018	**2017**	**2016**	***2018 vs. 2017***	***2017 vs. 2016***
Net Sales:					
Asia:					
China	$ 443,321	$ 387,059	$ 331,354	*15%*	*17%*
Japan	173,357	167,258	167,977	*4%*	
Asia Other	305,613	308,300	283,653	*(1%)*	*9%*
Total Asia	922,291	862,617	782,984	*7%*	*10%*
Americas:					
United States	683,596	669,274	665,280	*2%*	*1%*
Americas Other	151,581	140,715	141,902	*8%*	*(1%)*
Total Americas	835,177	809,989	807,182	*3%*	
Europe	662,461	636,472	577,257	*4%*	*10%*
Total net sales	$ 2,419,929	$ 2,309,078	$ 2,167,423	*5%*	*7%*

In 2018, sales in China increased across all product lines and were driven by double-digit increases in sales to pharmaceutical, governmental and academic customers. The effect of foreign currency translation increased sales in Japan by 2% in 2018 and sales growth was also driven by increased sales to pharmaceutical and industrial customers. The sales decline in the rest of Asia in 2018 was a result of lower customer demand in India and weaker sales to environmental customers in the first quarter of 2018. In 2018, sales growth in Europe was driven by TA s products and services and recurring revenues to pharmaceutical and industrial customers. In addition, the effect of foreign currency translation increased sales in Europe by 3% in 2018. Sales growth in the U.S. in 2018 was driven by recurring revenues and TA instruments. Sales in the rest of the Americas had double-digit sales growth for instrument systems and double-digit sales growth for pharmaceutical customers, which was offset by a decline in sales to industrial customers.

In 2017, the sales growth in Asia was driven by double-digit increases in China s sales across all product and customer classes. The increase in Asia Other in 2017 was driven by strong sales in India across all product and customer classes. Japan s sales in 2017 were flat as the effect of foreign currency decreased sales by 3%. Japan s sales in 2017 were driven by recurring revenue sales to governmental and academic customers. Europe s sales in 2017 were balanced across all product lines and driven by sales to pharmaceutical, governmental and academic customers. Sales growth in the U.S. in 2017 was driven by TA instrument system sales and recurring revenues. In 2017, sales to the rest of the world were impacted by a decrease in demand from industrial customers resulting from recent natural disasters.

Net sales by customer class are presented below for the years ended December 31, 2018, 2017 and 2016 (dollars in thousands):

	Year Ended December 31,			***% change***	
	2018	**2017**	**2016**	***2018 vs. 2017***	***2017 vs. 2016***
Pharmaceutical	$ 1,365,731	$ 1,294,668	$ 1,206,316	*5%*	*7%*
Industrial	737,144	721,088	690,119	*2%*	*4%*
Governmental and academic	317,054	293,322	270,988	*8%*	*8%*
Total net sales	$ 2,419,929	$ 2,309,078	$ 2,167,423	*5%*	*7%*

In 2018, sales to pharmaceutical customers were driven by recurring revenues, with double-digit growth in China, Canada and Latin America. Sales growth for the industrial market in 2018 was driven by TA products and services, and mid-single-digit sales growth in Europe, Japan and India. The increase in sales to governmental and academic customers in 2018 was broad-based across all product classes and geographies, with double-digit growth in China, India and Canada.

In 2017, the growth within our pharmaceutical market was driven by double-digit growth in China, India and Europe. Sales growth to the industrial market in 2017 was highest in China and India, with modest growth in other regions offset by flat sales in the Americas. The increase in sales to governmental and academic customers in 2017 was broad-based across all geographies, with double-digit growth in Europe and the Americas.

Waters Products and Services Net Sales

Net sales for Waters products and services are as follows for the years ended December 31, 2018, 2017 and 2016 (dollars in thousands):

	Year Ended December 31,						***% change***	
	2018	***% of* Total**	**2017**	***% of* Total**	**2016**	***% of* Total**	***2018 vs. 2017***	***2017 vs. 2016***
Waters instrument systems	$ 1,000,625	*47%*	$ 988,750	*48%*	$ 943,218	*49%*	*1%*	*5%*
Chemistry consumables	400,287	*18%*	372,157	*18%*	345,413	*18%*	*8%*	*8%*
Total Waters product sales	1,400,912	*65%*	1,360,907	*66%*	1,288,631	*67%*	*3%*	*6%*
Waters service	738,433	*35%*	686,656	*34%*	639,432	*33%*	*8%*	*7%*
Total Waters net sales	$ 2,139,345	*100%*	$ 2,047,563	*100%*	$ 1,928,063	*100%*	*4%*	*6%*

Precision chemistry consumables sales increased in both 2018 and 2017 on the uptake in columns and application-specific testing kits. Waters service sales in both 2018 and 2017 benefited from increased sales of

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service plans and higher service demand billings to a higher installed base of customers. The increase in Waters instrument system sales (LC and MS technology-based) in 2018 is primarily attributable to sales of LC systems, while sales growth in 2017 was driven by higher sales of LC-MS systems that incorporate the Company s tandem quadrupole technologies. The effect of foreign currency translation had a minimal impact on Waters sales in both 2018 and 2017.

In 2018, Waters sales increased 7% in Asia, 4% in Europe and 2% in the Americas. Waters sales increased 15% in China in 2018 and were broad-based across all product classes, with double-digit increases in sales to pharmaceutical, governmental and academic customers. Waters sales in Japan in 2018 increased 5%, with the effect of foreign currency translation increasing sales 2%. Sales in the rest of Asia declined 2% in 2018, primarily due to lower customer demand in India and a negative 2% impact of foreign currency translation. In the Americas, U.S. sales increased 1% in 2018.

In 2017, Waters sales increased 10% in both Europe and Asia and were flat in the Americas. Waters sales increased 16% in China and were broad-based across all product and customer classes. Waters sales in Japan decreased 1%, primarily due to foreign currency translation, which decreased sales by 3%. Waters sales in the rest of Asia increased 8% and were driven by recurring revenues across all customer classes.

TA Product and Services Net Sales

Net sales for TA products and services are as follows for the years ended December 31, 2018 and December 31, 2017 (dollars in thousands):

	Year Ended December 31,						% change	
	2018	% of Total	2017	% of Total	2016	% of Total	2018 vs. 2017	2017 vs. 2016
TA instrument systems	$ 204,081	73%	$ 191,442	73%	$ 171,665	72%	7%	12%
TA service	76,503	27%	70,073	27%	67,695	28%	9%	4%
Total TA net sales	$ 280,584	100%	$ 261,515	100%	$ 239,360	100%	7%	9%

TA s instrument system sales were broad-based across all product classes in 2018, while 2017 instrument system sales grew primarily from the Discovery product line of thermal instrument systems. In addition, TA s rheology instrument systems saw strong performance across the entire range of products in the portfolio in 2017, driven by the Discovery Hybrid Rheometer and Rubber Rheometer instrument systems. TA service sales increased in both 2018 and 2017 due to sales of service plans and billings to a higher installed base of customers. The effect of foreign currency translation and recent acquisitions had a minimal impact on TA s sales in both 2018 and 2017.

In 2018, TA sales increased 9% in the Americas, 8% in Europe and 5% in Asia. TA sales in the U.S. increased 9% in 2018, while sales in the rest of the Americas increased 8%. TA s sales in Asia were driven by double-digit sales growth in India and 8% sales growth in China, which was offset by declines in Japan.

In 2017, TA sales increased 14% in Asia, 11% in Europe and 5% in the Americas. TA achieved double-digit sales growth in Asia, with the exception of Japan, where a 5% sales growth included a 2% negative impact of foreign currency translation. TA sales in the U.S. in 2017 increased 8%, while sales in the rest of the Americas declined after strong sales in the prior year.

Cost of Sales

The increases in cost of sales for both 2018 and 2017 were consistent with the increase in sales volumes. The effect of foreign currency translation had a minimal impact on cost of sales in both 2018 and 2017.

Cost of sales is affected by many factors, including, but not limited to, foreign currency translation, product mix, product costs of instrument systems and amortization of software platforms. At current foreign currency exchange rates, the Company expects that the impact of foreign currency translation may decrease sales and gross profit during 2019.

Selling and Administrative Expenses

Selling and administrative expenses decreased 1% in 2018 and increased 6% in 2017. The decrease in 2018 was primarily due to the impact of $13 million of severance costs incurred in 2017 in connection with the closure of a facility in Germany and an early retirement transition incentive program. The effect of foreign currency translation increased selling and administrative expenses by 3% in 2017 and had a minimal impact in 2018. In addition, selling and administrative expenses in both 2018 and 2017 were impacted by headcount additions and higher merit compensation costs, as well as $1 million and $4 million, respectively, of stock compensation expense related to the modification of certain stock awards upon the retirement of senior executives.

As a percentage of net sales, selling and administrative expenses were 22.2%, 23.6% and 23.6% for 2018, 2017 and 2016, respectively.

Research and Development Expenses

Research and development expenses increased 8% and 6% in 2018 and 2017, respectively. Research and development expenses in both 2018 and 2017 were impacted by additional headcount, merit compensation and costs associated with new products and the development of new technology initiatives. In addition, the effect of foreign currency translation reduced research and development expenses by 4% in 2017, primarily due to the weakening of the British pound on the Company s U.K.-based research and development expenses. Foreign currency translation had a minimal impact on research and development costs in 2018.

Litigation Settlement

In the second quarter of 2017, the Company incurred an $11 million litigation provision related to the issuance of a verdict in a patent litigation case. In the first quarter of 2018, the Company resolved the case with a final settlement that resulted in a gain of $2 million.

Acquired In-Process Research and Development

During 2017, the Company incurred charges of $5 million for acquired in-process research and development related to milestone payments associated with a licensing arrangement for certain intellectual property relating to mass spectrometry technologies yet to be commercialized and for which there was no future alternative use as of the acquisition date. These licensing arrangements are significantly related to new, biologically-focused applications, as well as other applications, and require the Company to make additional future payments of up to $7 million if certain milestones are achieved, as well as royalties on future net sales. These future payments may be significant and occur over multiple years.

Interest Expense, Net

The decrease in net interest expense in 2018 was primarily attributable to the Company using cash, cash equivalents and investment balances recently repatriated into the U.S. to reduce its debt by $850 million during the 2018, as well as higher yields on investments. The Company is currently planning to increase its outstanding debt balances in the future and, as a result, the Company is expecting its net interest expense to increase by an estimated $25 million in 2019 at current interest rates.

In 2018, the Company entered into three-year U.S.-to-Euro interest rate cross-currency swap agreements with a notional value of $300 million that hedges the Company s net investment in its Euro denominated net assets. The difference between the interest rate received and paid under the interest rate cross-currency swap agreement is recorded as interest income. During 2018, the Company recorded $3 million of interest income related to these agreements. This interest rate cross-currency swap agreement is estimated to generate $9 million of interest income annually over a three-year period.

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Provision for Income Taxes

The four principal jurisdictions in which the Company manufactures are the U.S., Ireland, the U.K. and Singapore, where the statutory tax rates were 21%, 12.5%, 19% and 17%, respectively, as of December 31, 2018. The Company has a contractual tax rate in Singapore of 0% on qualifying activities in Singapore through March 2021, based upon the achievement of certain contractual milestones, which the Company expects to continue to meet. The effect of applying the contractual tax rate rather than the statutory tax rate to income from qualifying activities in Singapore increased the Company s net income in 2018, 2017 and 2016 by $28 million, $25 million and $23 million, respectively, and increased the Company s net income per diluted share by $0.36, $0.31 and $0.29, respectively.

The Company s effective tax rates were 13.0%, 96.8% and 13.1% in 2018, 2017 and 2016, respectively, and were impacted by the following:

In December 2017, the U.S. enacted legislation informally referred to as the Tax Cuts and Jobs Act (the 2017 Tax Act). For the year ended December 31, 2017 the Company accrued a $550 million tax provision related to the 2017 Tax Act. The $550 million expense consisted of $490 million related to the federal transition tax, $40 million for state income taxes and foreign withholding taxes and $20 million for the revaluation of the Company s deferred tax assets and liabilities at the new federal tax rate of 21%. This provision reduced net income per diluted share by $6.82 in 2017, and the Company s effective tax rate was 11.0% excluding this $550 million provision.

During 2018, the Internal Revenue Service issued proposed regulations on the federal transition tax and various other aspects of the Tax Reform law. The Company finalized its analysis of the transition tax and related liabilities, including uncertain tax positions, in the fourth quarter of 2018 pursuant to U.S. Securities and Exchange Commission (SEC) Staff Accounting Bulletin No. 118. As a result of the new guidance issued and additional work to complete the calculation of its federal transition tax, the Company reduced its provisional accrual for federal, state and foreign taxes by net $24 million during 2018. In addition, the Company also assessed its uncertain tax positions related to these taxes and accrued income tax reserves of $18 million during 2018. The net favorable impact to the 2018 provision for income taxes is $6 million.

The provision for income taxes for 2018 includes a $7 million expense related to the 2017 Tax Act. This additional tax results from the change in foreign currency exchange rates on the earnings taxed on December 31, 2017 under 2017 Tax Act as compared with the foreign currency exchange rates on the date of distribution of assets into the U.S. We do not expect this expense to recur in future periods.

The 2018 effective income tax rate of 13.0% was impacted by the reduction in the U.S. federal income tax rate from 35% to 21% as a result of the 2017 Tax Act, which decreased the Company s effective tax rate by 2.0 percentage points as compared to 2017. The 2017 Tax act also added a new Global Intangible Low-Taxed Income (GILTI) tax, which increased the Company s 2018 effective tax rate by approximately 2.0 percentage points.

After the completion of the Company s review of its capital allocation strategy in the fourth quarter of 2018, the Company determined that it will provide income taxes on all future foreign earnings from 2018 forward. As a result, this change added 0.6 percentage points to the 2018 effective tax rate as compared to 2017.

In addition, the reduction in the U.S. federal income tax rate from 35% to 21% as a result of the 2017 Tax Act also reduced the 2018 tax benefit on stock compensation. The Company recorded a tax benefit on stock-based compensation in 2018 and 2017 that decreased income tax expense by $9 million and $20 million, respectively, and added $0.11 and $0.24 to net income per diluted share, respectively.

The difference between the 2017 and 2016 effective tax rates can be attributed primarily to the 2016 provision for income taxes including a $3 million tax benefit (0.7 percentage points) related to the release of a valuation allowance on certain net operating loss carryforwards.

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The remaining differences between effective tax rates can primarily be attributed to differences in the proportionate amounts of pre-tax income recognized in jurisdictions with different effective tax rates.

The Company s effective tax rate is influenced by many significant factors, including, but not limited to, the wide range of income tax rates in jurisdictions in which the Company operates; sales volumes and profit levels in each tax jurisdiction; changes in tax laws, tax rates and policies; the outcome of various ongoing tax audit examinations; and the impact of foreign currency transactions and translation. In addition, upon completion of the Company s review of its capital allocation strategy in the fourth quarter of 2018, the Company has determined that it will provide income taxes on all future foreign earnings. The Company estimates that this will increase the Company s effective income tax rate by approximately one percentage point in the future. However, the Company will continue to be permanently reinvested in relation to the cumulative historical outside basis difference that is not related to earnings. As a result of variability in these factors, the Company s effective tax rates in the future may not be similar to the effective tax rates for the current or prior years, or for previously forecasted periods.

Liquidity and Capital Resources

Condensed Consolidated Statements of Cash Flows (in thousands):

	Year Ended December 31,		
	2018	**2017**	**2016**
Net income	$ 593,794	$ 20,311	$ 521,503
Depreciation and amortization	108,408	106,002	96,449
Stock-based compensation	37,541	39,436	40,998
Deferred income taxes	2,405	45,510	1,204
Excess tax benefit related to stock option plans			13,844
Gain on sale of assets			(1,500)
In-process research and development and other non-cash charges		5,000	
Change in accounts receivable	(47,921)	(24,013)	(31,721)
Change in inventories	(25,396)	731	(20,147)
Change in accounts payable and other current liabilities	(81,663)	3,175	6,842
Change in deferred revenue and customer advances	2,721	10,386	9,974
Effect of the 2017 Tax Act	(6,059)	530,383	
Other changes	20,616	(39,281)	5,474
Net cash provided by operating activities	604,446	697,640	642,920
Net cash provided by (used in) investing activities	1,683,302	(535,752)	(487,918)
Net cash used in financing activities	(2,119,522)	(63,869)	(115,701)
Effect of exchange rate changes on cash and cash equivalents	(14,265)	38,669	(21,335)
Increase in cash and cash equivalents	$ 153,961	$ 136,688	$ 17,966

Cash Flow from Operating Activities

Net cash provided by operating activities was $604 million, $698 million and $643 million in 2018, 2017 and 2016, respectively. The changes within net cash provided by operating activities include the following significant changes in the sources and uses of net cash provided by operating activities, aside from the changes in net income:

The changes in accounts receivable were primarily attributable to timing of payments made by customers and timing of sales. Days sales outstanding was 74 days at December 31, 2018 and 71 days at both December 31, 2017 and 2016.

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The changes in inventory were primarily attributable to anticipated annual increases in sales volumes, as well as new product launches.

The changes in accounts payable and other current liabilities were the result of timing of payments to vendors. In addition, the change in 2018 included $103 million of income tax payments made in the U.S. relating to the Company s estimated 2017 tax reform liability and 2018 estimated income tax payments and a $15 million litigation settlement payment.

Net cash provided from deferred revenue and customer advances results from annual increases in new service contracts as a higher installed base of customers renew annual service contracts.

Other changes were attributable to variation in the timing of various provisions, expenditures, prepaid income taxes and accruals in other current assets, other assets, other liabilities, and income tax expenses related to the 2017 Tax Act. In addition, the Company made $11 million of contributions to certain defined benefit pension plans.

In addition, as a result of the adoption of a new accounting standard related to stock-based compensation, the Company reclassified $14 million of excess tax benefits related to stock-based compensation in 2016 from cash flows from financing activities to cash flows from operating activities.

Cash Provided By (Used in) Investing Activities

Net cash provided by investing activities totaled $1,683 million in 2018, while net cash used in investing activities totaled $536 million and $488 million in 2017 and 2016, respectively. Additions to fixed assets and capitalized software were $96 million, $85 million and $95 million in 2018, 2017 and 2016, respectively. In February 2018, the Company s Board of Directors approved expanding its chemistry synthesis operations in the U.S. The Company anticipates spending an estimated $215 million to build and equip this new state-of-the-art manufacturing facility, which will be paid for with existing cash, investments and debt capacity.

During 2018, 2017 and 2016, the Company purchased $1.0 billion, $3.0 billion and $2.4 billion of investments, respectively, while $2.8 billion, $2.5 billion and $2.0 billion of investments matured, respectively. Most of the proceeds received in 2018 were repatriated into the U.S. at lower income tax rates as a result of the 2017 Tax Act and used to reduce the Company s debt by $850 million and fund the Company s share repurchase program.

Asset and business acquisitions, net of cash acquired, were $31 million and $6 million during 2018 and 2016, respectively. There were no business acquisitions in 2017. During 2018, the Company made $8 million of investments in unaffiliated companies. During 2017, the Company made a $7 million payment for an investment in a developer of analytical system solutions used to make measurements, predict stability and accelerate product discovery in the routine analytic, process monitoring and quality control release processes for life science and biopharmaceutical markets. During 2017, the Company made payments of $5 million to acquire and license intellectual property relating to mass spectrometry technologies yet to be commercialized. In 2016, the Company sold an equity investment for $4 million.

Cash Used in Financing Activities

In November 2017, the Company entered into a credit agreement (the 2017 Credit Agreement), which provides for a $1.5 billion revolving facility and a $300 million term loan. The revolving facility and term loan both mature on November 30, 2022 and require no scheduled prepayments before that date.

The interest rates applicable to the 2017 Credit Agreement are, at the Company s option, equal to either the alternate base rate (which is a rate per annum equal to the greatest of (a) the prime rate in effect on such day, (b) the Federal Reserve Bank of New York Rate on such day plus 1/2 of 1% per annum and (c) the adjusted

LIBO rate on such day (or if such day is not a business day, the immediately preceding business day) for a deposit in U.S. dollars with a maturity of one month plus 1% per annum) or the applicable 1, 2, 3 or 6 month adjusted LIBO rate or EURIBO rate for Euro-denominated loans, in each case, plus an interest rate margin based upon the Company s leverage ratio, which can range between 0 and 12.5 basis points for alternate base rate loans and between 80 and 112.5 basis points for LIBO rate or EURIBO rate loans. The facility fee on the 2017 Credit Agreement ranges between 7.5 and 25 basis points per annum, based on the leverage ratio, of the amount of the revolving facility commitments and the outstanding term loan. The 2017 Credit Agreement requires that the Company comply with an interest coverage ratio test of not less than 3.50:1 as of the end of any fiscal quarter for any period of four consecutive fiscal quarters and a leverage ratio test of not more than 3.50:1 as of the end of any fiscal quarter. In addition, the 2017 Credit Agreement includes negative covenants, affirmative covenants, representations and warranties and events of default that are customary for investment grade credit facilities.

Interest on the Company s fixed rate senior unsecured notes is payable semi-annually each year. Interest on the floating rate senior unsecured notes is payable quarterly. The Company may prepay all or some of the senior unsecured notes at any time in an amount not less than 10% of the aggregate principal amount outstanding, plus the applicable make-whole amount or prepayment premium for Series H and J senior unsecured notes. In the event of a change in control of the Company (as defined in the note purchase agreement), the Company may be required to prepay the senior unsecured notes at a price equal to 100% of the principal amount thereof, plus accrued and unpaid interest. These senior unsecured notes require that the Company comply with an interest coverage ratio test of not less than 3.50:1 for any period of four consecutive fiscal quarters and a leverage ratio test of not more than 3.50:1 as of the end of any fiscal quarter. In addition, these senior unsecured notes include customary negative covenants, affirmative covenants, representations and warranties and events of default.

During 2018, the Company s net debt borrowings decreased by $850 million, using cash repatriated under the 2017 Tax Act. During 2017 and 2016, the Company s net debt borrowings increased $170 million and $160 million, respectively. As of December 31, 2018, the Company had a total of $1.1 billion in outstanding debt, which consisted of $560 million in outstanding senior unsecured notes, $300 million borrowed under a term loan and $290 million borrowed under a revolving credit facility, with both the term loan and revolving credit facilities under the 2017 Credit Agreement. As of December 31, 2018, the Company had a total amount available to borrow under the 2017 Credit Agreement of $1,208 million after outstanding letters of credit. As of December 31, 2018, the Company was in compliance with all debt covenants.

During 2018, the Company entered into $300 million of U.S.-to-Euro interest rate cross-currency swap agreements that hedge the Company s net investment in its Euro denominated net assets. As a result of entering into these agreements, the Company anticipates lowering net interest expense by approximately $9 million annually over the three-year term of the agreements.

In January 2019, the Company s Board of Directors authorized the Company to repurchase up to $4 billion of its outstanding common stock over a two-year period. This new program replaced the remaining amounts available under the April 2018 authorization of $3 billion. During 2018, 2017 and 2016, the Company repurchased 6.8 million, 1.8 million and 2.3 million shares of the Company s outstanding common stock at a cost of $1,306 million, $323 million and $318 million, respectively, under the April 2018 authorization and other previously announced programs. In addition, the Company repurchased $10 million, $10 million and $8 million of common stock related to the vesting of restricted stock units during the years ended December 31, 2018, 2017 and 2016, respectively.

The Company received $52 million, $98 million and $62 million of proceeds from the exercise of stock options and the purchase of shares pursuant to the Company s employee stock purchase plan in 2018, 2017 and 2016, respectively.

The Company had cash, cash equivalents and investments of $1,735 million as of December 31, 2018. The majority of the Company s cash, cash equivalents and investments are generated from foreign operations, with

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$471 million held by foreign subsidiaries at December 31, 2018, of which $251 million was held in currencies other than U.S. dollars. The Company believes it has sufficient levels of cash flow and access to its existing cash, cash equivalents and investments to fund operations and capital expenditures, service debt interest, finance potential acquisitions and continue the authorized stock repurchase program in the U.S. These cash requirements are managed by the Company s cash flow from operations, its existing cash, cash equivalents and investments, and the use of the Company s revolving credit facility.

Management believes, as of the date of this report, that the Company s financial position, along with expected future cash flows from earnings based on historical trends and the ability to raise funds from external sources and the borrowing capacity from existing, committed credit facilities, will be sufficient to service debt and fund working capital and capital spending requirements, authorized share repurchase amounts and potential acquisitions for at least the next twelve months. The Company has conducted a post-tax reform evaluation of its capital allocation strategy and the Company is currently planning to use its existing cash, cash equivalents and investments, cash flow from operations and its available debt capacity to repurchase up to $4 billion of the Company s common stock over the next two years. The Company is currently planning to increase its outstanding debt balances to approximately 2.5 times the Company s net debt-to-earnings before interest, taxes, depreciation and amortization ratio to fund a significant portion of these share repurchases. In addition, as of December 31, 2018, the Company has determined that it will provide income taxes on all future foreign earnings and reverse its historical assertion that its foreign earnings were permanently invested. However, the Company will continue to be permanently reinvested in relation to the cumulative historical outside basis difference that is not related to the unremitted earnings. There have been no other significant changes to the Company s financial position.

Contractual Obligations and Commercial Commitments

The following is a summary of the Company s known contractual obligations as of December 31, 2018 (in thousands):

	Payments Due by Year (1)							
	Total	2019	2020	2021	2022	2023	2024	After 2024
Notes payable and debt	$ 178	$ 178	$	$	$	$	$	$
Interest on senior unsecured notes	86,418	21,214	16,630	12,942	10,829	9,851	7,384	7,568
Long-term debt (2)	1,150,000		100,000	150,000	590,000	50,000	100,000	160,000
2017 Tax Act liability	432,877	29,109	38,454	38,454	38,454	72,101	96,135	120,170
Operating leases	102,958	28,417	23,424	16,032	11,816	6,601	5,285	11,383
Total	$ 1,772,431	$ 78,918	$ 178,508	$ 217,428	$ 651,099	$ 138,553	$ 208,804	$ 299,121

(1) Does not include normal purchases made in the ordinary course of business and uncertain tax positions discussed below.

2) The interest rates applicable to the 2017 Credit Agreement are, at the Company s option, equal to either the alternate base rate (which is a rate per annum equal to the greatest of (a) the prime rate in effect on such day, (b) the Federal Reserve Bank of New York Rate on such day plus 1/2 of 1% per annum and (c) the adjusted LIBO rate on such day (or if such day is not a business day, the immediately preceding business day) for a deposit in U.S. dollars with a maturity of one month plus 1% per annum) or the applicable 1, 2, 3 or 6 month adjusted LIBO rate or EURIBO rate for Euro-denominated loans, in each case, plus an interest rate margin based upon the Company s leverage ratio, which can range between 0 and 12.5 basis points for alternate base rate loans and between 80 and 112.5 basis points for LIBO rate or EURIBO rate loans. The facility fee on the 2017 Credit Agreement ranges between 7.5 and 25 basis points per annum, based on the leverage ratio, of the amount of the revolving facility commitments and the outstanding term loan. The 2017 Credit Agreement requires that the Company comply with an interest coverage ratio test of not less than 3.50:1 as

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of the end of any fiscal quarter for any period of four consecutive fiscal quarters and a leverage ratio test of not more than 3.50:1 as of the end of any fiscal quarter. In addition, the 2017 Credit Agreement includes negative covenants, affirmative covenants, representations and warranties and events of default that are customary for investment grade credit facilities. As of December 31, 2018, the Company was in compliance with all such covenants.

The following is a summary of the Company s known commercial commitments as of December 31, 2018 (in thousands):

		Amount of Commitments Expiration Per Period						
	Total	2019	2020	2021	2022	2023	2024	After 2024
Letters of credit	$ 1,572	$ 1,572	$	$	$	$	$	$

From time to time, the Company and its subsidiaries are involved in various litigation matters arising in the ordinary course of business. The Company believes it has meritorious arguments in its current litigation matters and believes any outcome, either individually or in the aggregate, will not be material to the Company s financial position or results of operations.

The Company has long-term liabilities for deferred employee compensation, including pension and supplemental executive retirement plans. The payments related to the supplemental retirement plan are not included above since they are dependent upon when the employee retires or leaves the Company and whether the employee elects lump-sum or annuity payments. During fiscal year 2019, the Company expects to contribute approximately $3 million to $6 million to the Company s defined benefit plans.

The Company has contingent consideration for an earnout pertaining to its July 2014 acquisition of the net assets of Medimass Research, Development and Service Kft. (Medimass). The earnout payments are not included above since they are dependent upon many factors that cannot be predicted with any certainty. The estimated fair value of the contingent consideration as of December 31, 2018 is $2 million.

The Company licenses certain technology and software from third parties. Future minimum license fees payable under existing license agreements as of December 31, 2018 are immaterial. The Company enters into licensing arrangements with third parties that require future milestone or royalty payments contingent upon future events. Upon the achievement of certain milestones in existing agreements, the Company could make additional future payments of up to $7 million, as well as royalties on future net sales. It is not possible to predict with reasonable certainty whether these milestones will be achieved or the timing for achievement. As a result, these potential payments are not included in the table above.

The Company accounts for its uncertain tax positions in accordance with the accounting standards for income taxes, which require financial statement reporting of the expected future tax consequences of uncertain tax positions on the presumption that all concerned tax authorities possess full knowledge of those tax positions, as well as all of the pertinent facts and circumstances, but prohibit any discounting of unrecognized tax benefits associated with those positions for the time value of money. The Company classified interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes. If all of the Company s unrecognized tax benefits accrued as of December 31, 2018 were to become recognizable in the future, the Company would record a total reduction of approximately $26 million in its income tax provision.

With limited exceptions, the Company is no longer subject to tax audit examinations in significant jurisdictions for the years ended on or before December 31, 2013. However, carryforward tax attributes that were generated in years beginning on or before January 1, 2014 may still be adjusted upon examination by tax authorities if the attributes are utilized. The Company continuously monitors the lapsing of statutes of limitations on potential tax assessments for related changes in the measurement of unrecognized tax benefits, related net interest and penalties, and deferred tax assets and liabilities.

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As of December 31, 2018, the Company expects to record additional reductions in the measurement of its unrecognized tax benefits and related net interest and penalties of approximately $1 million within the next twelve months due to potential tax audit settlements and the lapsing of statutes of limitations on potential tax assessments. The Company does not expect to record any other material reductions in the measurement of its unrecognized tax benefits within the next twelve months.

The Company has not paid any dividends and has no plans, at this time, to pay any dividends in the future.

Off-Balance Sheet Arrangements

The Company has not created, and is not party to, any special-purpose or off-balance sheet entities for the purpose of raising capital, incurring debt or operating parts of its business that are not consolidated (to the extent of the Company s ownership interest therein) into the consolidated financial statements. The Company has not entered into any transactions with unconsolidated entities whereby it has subordinated retained interests, derivative instruments or other contingent arrangements that expose the Company to material continuing risks, contingent liabilities or any other obligation under a variable interest in an unconsolidated entity that provides financing, liquidity, market risk or credit risk support to the Company.

The Company enters into standard indemnification agreements in its ordinary course of business. Pursuant to these agreements, the Company indemnifies, holds harmless and agrees to reimburse the indemnified party for losses suffered or incurred by the indemnified party, generally the Company s business partners or customers, in connection with patent, copyright or other intellectual property infringement claims by any third party with respect to its current products, as well as claims relating to property damage or personal injury resulting from the performance of services by the Company or its subcontractors. The maximum potential amount of future payments the Company could be required to make under these indemnification agreements is unlimited. Historically, the Company s costs to defend lawsuits or settle claims relating to such indemnity agreements have been minimal and management accordingly believes the estimated fair value of these agreements is immaterial.

Critical Accounting Policies and Estimates

Summary

The preparation of consolidated financial statements requires the Company to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent liabilities. Critical accounting policies are those that are central to the presentation of the Company s financial condition and results of operations that require management to make estimates about matters that are highly uncertain and that would have a material impact on the Company s results of operations given changes in the estimate that are reasonably likely to occur from period to period or use of different estimates that reasonably could have been used in the current period. On an ongoing basis, the Company evaluates its policies and estimates. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual amounts may differ from these estimates under different assumptions or conditions. There are other items within the Company s consolidated financial statements that require estimation, but are not deemed critical as defined above. Changes in estimates used in these and other items could potentially have a material impact on the Company s consolidated financial statements.

Revenue Recognition

The Company adopted new accounting guidance regarding the recognition of revenue from contracts with customers as of January 1, 2018 and applied the modified-retrospective method. The Company elected the practical expedient and only evaluated the contracts that were considered incomplete as of January 1, 2018 when quantifying the cumulative effect adjustment under the modified retrospective method. Ultimately, the Company determined that there was not a significant change in the timing or pattern of revenue recognition for the Company s products and services. The adoption of this standard did not have a material impact on the Company s financial position, results of operations or cash flows and, as such, did not require any adjustments to information reported in the prior year. The revenue recognition policies described below were effective as of January 1, 2018.

The Company recognizes revenue upon transfer of control of promised products and services to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products or services. The Company generally enters into contracts that include a combination of products and services. Revenue is allocated to distinct performance obligations and is recognized net of allowances for returns and discounts.

The Company recognizes revenue on product sales at the time control of the product transfers to the customer. In substantially all of the Company s arrangements, title of the product transfers at shipping point and, as a result, the Company determined control transfers at the point of shipment. In more limited cases, there are destination-based shipping terms and, thus, control is deemed to transfer when the products arrive at the customer site. All incremental costs of obtaining a contract are expensed as and when incurred if the expected amortization period of the asset that would have been recognized is one year or less. Shipping and handling costs are included as a component of cost of sales. In situations where the control of the goods transfers prior to the completion of the Company s obligation to ship the products to its customers, the Company has elected the practical expedient to account for the shipping services as a fulfillment cost. Accordingly, such costs are recognized when control of the related goods is transferred to the customer. In more rare situations, the Company has revenue associated with products that contain specific customer acceptance criteria and the related revenue is not recognized before the customer acceptance criteria are satisfied. The Company elected to exclude from the measurement of the transaction price all taxes assessed by a governmental authority that are both imposed on and concurrent with specific revenue-producing transactions and collected by the Company from a customer.

Generally, the Company s contracts for products include a performance obligation related to installation. The Company has determined that the installation represents a distinct performance obligation and revenue is recognized separately upon the completion of installation. The Company determines the amount of the transaction price to allocate to the installation service based on the standalone selling price of the product and the service, which requires judgment. The Company determines relative standalone selling price of installation based upon a number of factors, including hourly service billing rates and estimated installation hours. In developing these estimates, the Company considers past history, competition, billing rates of current services and other factors.

The Company has sales from standalone software, which is included in instrument systems revenue. These arrangements typically include software licenses and maintenance contracts, both of which the Company has determined are distinct performance obligations. The Company determines the amount of the transaction price to allocate to the license and maintenance contract based on the relative standalone selling price of each performance obligation. Software license revenue is recognized at the point in time when control has been transferred to the customer. The revenue allocated to the software maintenance contract is recognized on a straight-line basis over the maintenance period, which is the contractual term of the contract, as a time-based measure of progress best reflects the Company s performance in satisfying this obligation. Unspecified rights to software upgrades are typically sold as part of the maintenance contract on a when-and-if-available basis.

Payment terms and conditions vary among the Company s revenue streams, although terms generally include a requirement of payment within 30 to 60 days of product shipment. Prior to providing payment terms to customers, an evaluation of the customer s credit risk is performed. Returns and customer credits are infrequent and insignificant and are recorded as a reduction to sales. Rights of return are not included in sales arrangements and, therefore, there is minimal variable consideration included in the transaction price of our products.

Service revenue includes (i) service and software maintenance contracts and (ii) service calls (time and materials). Instrument service contracts and software maintenance contracts are typically annual contracts, which are billed at the beginning of the contract or maintenance period. The amount of the service and software maintenance contract is recognized on a straight-line basis to revenue over the maintenance service period, which is the contractual term of the contract, as a time-based measure of progress best reflects the Company s performance in satisfying this obligation. There are no deferred costs associated with the service contract, as the cost of the service is recorded when the service is performed. Service calls are recognized to revenue at the time a service is performed.

The Company s deferred revenue liabilities at December 31, 2018 was $204 million on the consolidated balance sheets consists of the obligation on instrument service contracts and customer payments received in advance, prior to transfer of control of the instrument. The Company records deferred revenue primarily related to its service contracts, where consideration is billable at the beginning of the service period.

Loss Provisions on Accounts Receivable and Inventory

The Company maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. If the financial condition of the Company s customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be required. The Company does not request collateral from its customers, but collectibility is enhanced through the use of credit card payments and letters of credit. The Company assesses collectibility based on a number of factors, including, but not limited to, past transaction history with the customer, the credit-worthiness of the customer, industry trends and the macro-economic environment. Historically, the Company has not experienced significant bad debt losses. Sales returns and allowances are estimates of future product returns related to current period revenue. Material differences may result in the amount and timing of revenue for any period if management made different judgments or utilized different estimates for sales returns and allowances for doubtful accounts. The Company s accounts receivable balance at December 31, 2018 was $568 million, net of allowances for doubtful accounts of $8 million.

The Company values all of its inventories at the lower of cost or net realizable value on a first-in, first-out basis (FIFO). The Company estimates revisions to its inventory valuations based on technical obsolescence, historical demand, projections of future demand, including that in the Company s current backlog of orders, and industry and market conditions. If actual future demand or market conditions are less favorable than those projected by management, additional write-downs may be required. The Company s inventory balance at December 31, 2018 was recorded at its net realizable value of $292 million, which is net of write-downs of $23 million.

Long-Lived Assets, Intangible Assets and Goodwill

The Company assesses the impairment of identifiable intangibles, long-lived assets and goodwill whenever events or changes in circumstances indicate that the carrying value may not be recoverable. Factors the Company considers important which could trigger impairment include, but are not limited to, the following:

- significant underperformance relative to historical or projected future operating results, particularly as it pertains to capitalized software and patent costs;
- significant negative industry or economic trends, competitive products and technologies; and
- significant changes or developments in strategic technological collaborations or legal matters which affect the Company s capitalized patents, purchased technology, trademarks and intellectual properties, such as licenses.

When the Company determines that the carrying value of an individual intangible asset, long-lived asset or goodwill may not be recoverable based upon the existence of one or more of the above indicators, an estimate of

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undiscounted future cash flows produced by that intangible asset, long-lived asset or goodwill, including its eventual residual value, is compared to the carrying value to determine whether impairment exists. In the event that such cash flows are not expected to be sufficient to recover the carrying amount of the asset, the asset is written-down to its estimated fair value. Net intangible assets, long-lived assets and goodwill amounted to $247 million, $343 million and $356 million, respectively, as of December 31, 2018.

The Company performs annual impairment reviews of its goodwill on January 1 of each year. For goodwill impairment review purposes, the Company has two reporting units: Waters and TA. The Company currently does not expect to record an impairment charge in the foreseeable future; however, there can be no assurance that, at the time future reviews are completed, a material impairment charge will not be recorded. The factors that could cause a material goodwill impairment charge in the future include, but are not limited to, the following:

- significant decline in the Company s projected revenue, earnings or cash flows;
- significant adverse change in legal factors or business climate;
- significant decline in the Company s stock price or the stock price of comparable companies;
- adverse action or assessment by a regulator; and
- unanticipated competition.

Income Taxes

As part of the process of preparing the consolidated financial statements, the Company is required to estimate its income taxes in each of the jurisdictions in which it operates. This process involves the Company estimating its income taxes, taking into account the amount, timing and character of taxable income, tax deductions and credits and assessing changes in tax laws, regulations, agreements and treaties. Differing treatment of items for tax and accounting purposes, such as depreciation, amortization and inventory reserves, result in deferred tax assets and liabilities, which are included within the consolidated balance sheets. In the event that actual results differ from these estimates, or the Company adjusts these estimates in future periods, such changes could materially impact the Company s financial position and results of operations.

The accounting standards for income taxes require that a company continually evaluate the necessity of establishing or changing a valuation allowance for deferred tax assets depending on whether it is more likely than not that the actual benefit of those assets will be realized in future periods.

Uncertain Tax Positions

The Company accounts for its uncertain tax return positions in accordance with the accounting standards for income taxes, which require financial statement reporting of the expected future tax consequences of uncertain tax positions on the presumption that all concerned tax authorities possess full knowledge of those tax positions, as well as all of the pertinent facts and circumstances, but prohibit any discounting of unrecognized tax benefits associated with those positions for the time value of money. The Company classified interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes. At December 31, 2018, the Company had unrecognized tax benefits of $27 million.

The Company has been granted a 0% contractual tax rate in Singapore that requires the achievement of certain operational and financial milestones that the Company expects to meet, to the extent not already achieved, by December 31, 2020 and maintain through at least March 31, 2021. As part of the Company s determination of uncertain tax positions, the Company regularly assesses its progress against these operational and financial milestone targets to determine whether the milestones can be reasonably achieved. These milestones were negotiated with the Singaporean tax authorities and established based on the Company s historical financial performance; the anticipated customer end-market demand, particularly in certain regions in the world, and the Company s anticipated future operating plans. These assessments require significant judgments and estimates

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about the Company s ability to meet the milestone targets for the following types of objectives: reaching and maintaining annual revenue and business spending targets; meeting capital expenditures targets; attaining and sustaining employment targets; and establishing a local research and development and service center. The Company regularly monitors its actual and forecasted sales and operating results against these milestones and the Company makes the determination as to whether the future forecasted financial results are most likely to be achieved. These milestones are very similar in nature to the previous Singaporean tax holiday contractual agreements that the Company successfully completed. These milestones are not required to be met until December 21, 2020, at the earliest, which gives the Company sufficient time to make any necessary adjustments to its operating plans to achieve the milestones.

Currently, the Company has determined that it is more likely than not to realize the contractual tax rate in Singapore of 0% and has not recognized an uncertain tax position in its balance sheet related to the achievement of the contractual milestones in Singapore. However, these milestones can be significantly influenced by the business climate in Singapore and the Company s overall financial performance and, in the event that the Company determines that the milestone targets are not expected to be met, the Company would no longer be able to record a tax benefit at a 0% contractual tax rate on income earned in Singapore from and after the April 1, 2016 start date of the contract period. At such time, the Company would record an income tax charge on the affected Singapore income earned back to April 1, 2016 at the Singapore statutory tax rate(s) (currently 17%), with a corresponding income tax liability recorded on the balance sheet. For the year ended 2018, the effect of applying the contractual tax rate rather than the statutory tax rate to income from qualifying activities in Singapore increased the Company s net income and net income per diluted share by $28 million and $0.36, respectively.

Warranty

Product warranties are recorded at the time revenue is recognized for certain product shipments. While the Company engages in extensive product quality programs and processes, including actively monitoring and evaluating the quality of its component suppliers, the Company s warranty obligation is affected by product failure rates, material usage and service delivery costs incurred in correcting a product failure. Should actual product failure rates, material usage or service delivery costs differ from the Company s previous estimates, revisions to the estimated warranty liability would be required. At December 31, 2018, the Company s warranty liability was $12 million.

Litigation

As described in Part I, Item 3, Legal Proceedings, of this Form 10-K, the Company is a party to various pending litigation matters. With respect to each pending claim, management determines whether it can reasonably estimate whether a loss is probable and, if so, the probable range of that loss. If and when management has determined, with respect to a particular claim, both that a loss is probable and that it can reasonably estimate the range of that loss, the Company records a charge equal to either its best estimate of that loss or the lowest amount in that probable range of loss. The Company will disclose additional exposures when the range of loss is subject to considerable uncertainty.

Pension and Other Retirement Benefits

Assumptions used in determining projected benefit obligations and the fair values of plan assets for the Company s pension plans and other retirement benefits are evaluated periodically by management. Changes in assumptions are based on relevant Company data. Critical assumptions, such as the discount rate used to measure the benefit obligations and the expected long-term rate of return on plan assets, are evaluated and updated annually. The Company has assumed that the weighted-average expected long-term rate of return on plan assets will be 4.35% for its U.S. benefit plans and 2.75% for its non-U.S. benefit plans.

At the end of each year, the Company determines the discount rate that reflects the current rate at which the pension liabilities could be effectively settled. The Company utilized Milliman s Bond Matching model to determine the discount rate for its U.S. benefit plans. The Company determined the discount rate for its non-U.S. benefit plans based on the analysis of the Mercer Pension Discount Curve for high quality investments as of December 31, 2018 that best matched the timing of the plan s future cash flows for the period to maturity of the pension benefits. Once the interest rates were determined, the plan s cash flow was discounted at the spot interest rate back to the measurement date. At December 31, 2018, the Company determined the weighted-average discount rate to be 4.40% for the U.S. benefit plans and 1.95% for the non-U.S. benefits plans.

A one-quarter percentage point increase in the assumed long-term rate of return would decrease the Company s net periodic benefit cost by less than $1 million. A one-quarter percentage point increase in the discount rate would decrease the Company s net periodic benefit cost by less than $1 million.

Stock-based Compensation

The accounting standards for stock-based compensation require that all share-based payments to employees be recognized in the statements of operations based on their fair values. The Company has used the Black-Scholes option pricing model and Monte Carlo simulation model to determine the fair value of its stock option awards and performance stock unit awards, respectively. Under the fair-value recognition provisions of this statement, share-based compensation cost is measured at the grant date based on the value of the award and is recognized as expense over the vesting period. Determining the fair value of share-based awards at the grant date requires judgment, including estimating stock price volatility and employee stock option exercise behaviors. If actual results differ significantly from these estimates, stock-based compensation expense and the Company s results of operations could be materially impacted. As stock-based compensation expense recognized in the consolidated statements of operations is based on awards that ultimately are expected to vest, the amount of the expense has been reduced for estimated forfeitures. These accounting standards require forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Forfeitures are estimated based on historical experience. If factors change and the Company employs different assumptions in the application of these accounting standards, the compensation expense that the Company records in future periods may differ significantly from what the Company has recorded in the current period. The Company recognizes the expense using the straight-line attribution method.

As of December 31, 2018, unrecognized compensation costs and related weighted-average lives over which the costs will be amortized were as follows (in millions):

	Unrecognized Compensation Costs	Weighted-Average Life in Years
Stock options	$ 42	3.5
Restricted stock units	34	3.2
Performance stock units	14	2.3
Restricted stock		
Total	$ 90	3.2

Business Combinations and Asset Acquisitions

The Company accounts for business acquisitions under the accounting standards for business combinations. The results of each acquisition are included in the Company s consolidated results as of the acquisition date and the purchase price of an acquisition is allocated to tangible and intangible assets and assumed liabilities based on their estimated fair values. Any excess of the fair value consideration transferred over the estimated fair values of the net assets acquired is recognized as goodwill. Acquired in-process research and development (IPR&D) included in a business combination is capitalized as an indefinite-lived intangible asset. Development costs incurred after the acquisition are expensed as incurred and acquired IPR&D is tested for impairment annually until completion of the acquired programs. Upon commercialization, this indefinite-lived intangible asset is then accounted for as a finite-lived intangible asset and amortized on a straight-line basis over its estimated useful life, subject to periodic impairment reviews. If the research and development project is abandoned, the indefinite-lived asset is charged to expense. Legal costs, due diligence costs, business valuation costs and all other business acquisition costs are expensed when incurred.

The Company also acquires intellectual property through licensing arrangements. These arrangements often require upfront payments and may include additional milestone or royalty payments, contingent upon certain future events. IPR&D acquired in an asset acquisition (as opposed to a business combination) is expensed immediately unless there is an alternative future use. Subsequent payments made for the achievement of milestones are evaluated to determine whether they have an alternative future use or should be expensed. Payments made to third parties subsequent to commercialization are capitalized and amortized over the remaining useful life of the related asset, and are classified as intangible assets.

Contingent Consideration

In addition to the initial cash consideration paid to acquire Medimass, the Company is obligated to make additional earnout payments based on a royalty due on future sales of products containing the REIMS technology. In accordance with the accounting standards for business combinations, the Company determines the fair value of the liability for contingent consideration at each reporting date using a probability-weighted discounted cash flow model. Subsequent changes in the fair value of the contingent consideration liability are recorded in the results of operations. The fair value of the contingent consideration liability associated with future earnout payments is based on several factors, including estimated future results and a discount rate reflective of the Company s creditworthiness. A change in any of these unobservable inputs can significantly change the fair value of the contingent consideration. Although there is no contractual limit, total future undiscounted contingent consideration payments were estimated to be $2 million as of December 31, 2018, based on the Company s best estimate, as the earnout is based on future sales of certain products through 2034.

Recent Accounting Standard Changes and Developments

Information regarding recent accounting standard changes and developments is incorporated by reference from Part II, Item 8, Financial Statements and Supplementary Data, of this document and should be considered an integral part of this Item 7. See Note 2 in the Notes to the Consolidated Financial Statements for recently adopted and issued accounting standards.

Item 7A: ***Quantitative and Qualitative Disclosures About Market Risk***

Derivative Transactions

The Company is a global company that operates in over 35 countries and, as a result, the Company s net sales, cost of sales, operating expenses and balance sheet amounts are significantly impacted by fluctuations in foreign currency exchange rates. The Company is exposed to currency price risk on foreign currency exchange rate fluctuations when it translates its non-U.S. dollar foreign subsidiaries financial statements into U.S. dollars, and when any of the Company s subsidiaries purchase or sell products or services in a currency other than its own currency.

The Company s principal strategies in managing exposures to changes in foreign currency exchange rates are to (1) naturally hedge the foreign-currency-denominated liabilities on the Company s balance sheet against corresponding assets of the same currency, such that any changes in liabilities due to fluctuations in foreign currency exchange rates are typically offset by corresponding changes in assets and (2) mitigate foreign exchange risk exposure of international operations by hedging the variability in the movement of foreign currency exchange rates on a portion of its Euro-denominated net asset investments. The Company presents the derivative transactions in financing activities in the statement of cash flows.

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Foreign Currency Exchange Contracts

The Company does not specifically enter into any derivatives that hedge foreign-currency-denominated operating assets, liabilities or commitments on its balance sheet, other than a portion of certain third-party accounts receivable and accounts payable, and the Company s net worldwide intercompany receivables and payables, which are eliminated in consolidation. The Company periodically aggregates these net worldwide balances by currency and then enters into foreign currency exchange contracts that mature within 90 days to hedge a portion of the remaining balance to minimize some of the Company s currency price risk exposure. The foreign currency exchange contracts are not designated for hedge accounting treatment. Principal hedged currencies include the Euro, Japanese yen, British pound, Mexican peso and Brazilian real.

Interest Rate Cross-Currency Swap Agreements

In 2018, the Company entered into three-year interest rate cross-currency swap derivative agreements with a notional value of $300 million to hedge the variability in the movement of foreign currency exchange rates on a portion of its Euro-denominated net asset investments. Under hedge accounting, the change in fair value of the derivative that relates to changes in the foreign currency spot rate are recorded in the currency translation adjustment in other comprehensive income and remain in accumulated comprehensive income in stockholders equity until the sale or substantial liquidation of the foreign operation. The difference between the interest rate received and paid under the interest rate cross-currency swap derivative agreement is recorded in interest income in the statement of operations.

The Company s foreign currency exchange contracts and interest rate cross-currency swap agreements included in the consolidated balance sheets are classified as follows (in thousands):

	December 31, 2018		December 31, 2017	
	Notional Value	Fair Value	Notional Value	Fair Value
Foreign currency exchange contracts:				
Other current assets	$ 112,212	$ 503	$ 110,759	$ 566
Other current liabilities	$ 40,175	$ 224	$ 37,104	$ 182
Interest rate cross-currency swap agreements:				
Other assets	$ 300,000	$ 1,093	$	$
Accumulated other comprehensive income		$ (1,093)		$

The following is a summary of the activity included in the statements of comprehensive income related to the foreign currency exchange contracts (in thousands):

	Financial Statement Classification	Year Ended December 31,		
		2018	2017	2016
Foreign currency exchange contracts:				
Realized (losses) gains on closed contracts	Cost of sales	$ (6,684)	$ 3,894	$ (10,401)
Unrealized (losses) gains on open contracts	Cost of sales	(105)	1,054	(883)
Cumulative net pre-tax (losses) gains	Cost of sales	$ (6,789)	$ 4,948	$ (11,284)
Interest rate cross-currency swap agreements:				
Interest earned	Interest income	$ 2,713	$	$
Unrealized gains on open contracts	Stockholders equity	$ 1,093	$	$

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Assuming a hypothetical adverse change of 10% in year-end exchange rates (a strengthening of the U.S. dollar), the fair market value of the foreign currency exchange contracts outstanding as of December 31, 2018 would decrease pre-tax earnings by approximately $15 million. Assuming a hypothetical adverse change of 10% in year-end exchange rates (a strengthening of the U.S. dollar), the fair market value of the interest rate cross-currency swap agreements outstanding as of December 31, 2018 would increase by approximately $30 million and would be recorded to foreign currency translation in other comprehensive income within stockholders equity. The related impact on interest income would not have a material effect on pre-tax earnings.

The Company s cash and cash equivalents are not subject to significant interest rate risk due to the short maturities of these instruments. The Company s cash equivalents represent highly liquid investments, with original maturities of 90 days or less, primarily in bank deposits, U.S. treasury bill money market funds and commercial paper. As of December 31, 2018, the carrying value of the Company s cash and cash equivalents approximated fair value.

The Company is exposed to the risk of interest rate fluctuations from the investments of cash generated from operations. Investments with maturities greater than 90 days are classified as investments, and are held primarily in U.S. dollar-denominated treasury bills and commercial paper, bank deposits and corporate debt securities. As of December 31, 2018, the Company estimates that a hypothetical adverse change of 100 basis points across all maturities would not have a material effect on the fair market value of its portfolio.

The Company is also exposed to the risk of exchange rate fluctuations. The Company maintains cash balances in various operating accounts in excess of federally insured limits, and in foreign subsidiary accounts in currencies other than the U.S. dollar. As of December 31, 2018 and 2017, $471 million out of $1,735 million and $3,326 million out of $3,394 million, respectively, of the Company s total cash, cash equivalents and investments were held by foreign subsidiaries. In addition, $251 million out of $1,735 million and $304 million out of $3,394 million of cash, cash equivalents and investments were held in currencies other than the U.S. dollar at December 31, 2018 and 2017, respectively. As of December 31, 2018, the Company has no holdings in auction rate securities or commercial paper issued by structured investment vehicles.

Assuming a hypothetical adverse change of 10% in year-end exchange rates (a strengthening of the U.S. dollar), the fair market value of the Company s cash, cash equivalents and investments held in currencies other than the U.S. dollar as of December 31, 2018 would decrease by approximately $25 million, of which the majority would be recorded to foreign currency translation in other comprehensive income within stockholders equity.

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Item 8: ***Financial Statements and Supplementary Data***

Management s Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Under the supervision and with the participation of our management, including our chief executive officer and chief financial officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on our evaluation under the framework in *Internal Control Integrated Framework (2013)*, our management, including our chief executive officer and chief financial officer, concluded that our internal control over financial reporting was effective as of December 31, 2018.

The effectiveness of our internal control over financial reporting as of December 31, 2018 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which is included herein.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Waters Corporation

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Waters Corporation and its subsidiaries (the Company) as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income, stockholders equity and cash flows for each of the three years in the period ended December 31, 2018, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2018 appearing under Item 15(c) (collectively referred to as the consolidated financial statements). We also have audited the Company s internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control Integrated Framework (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 10 to the consolidated financial statements, the Company changed the manner in which it accounts for share-based payment transactions in 2017.

Basis for Opinions

The Company s management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management s Report on Internal Control Over Financial Reporting. Our responsibility is to express opinions on the Company s consolidated financial statements and on the Company s internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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Definition and Limitations of Internal Control over Financial Reporting

A company s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company s internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company s assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 26, 2019
We have served as the Company s auditor since 1994.

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WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31, 2018	December 31, 2017
	(In thousands, except per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 796,280	$ 642,319
Investments	938,944	2,751,382
Accounts receivable, net	568,316	533,825
Inventories	291,569	270,294
Other current assets	68,054	72,314
Total current assets	2,663,163	4,270,134
Property, plant and equipment, net	343,083	349,278
Intangible assets, net	246,902	228,395
Goodwill	355,614	359,819
Other assets	118,664	116,728
Total assets	$ 3,727,426	$ 5,324,354
LIABILITIES AND STOCKHOLDERS EQUITY		
Current liabilities:		
Notes payable and debt	$ 178	$ 100,273
Accounts payable	68,168	64,537
Accrued employee compensation	64,545	69,024
Deferred revenue and customer advances	164,965	166,840
Accrued income taxes	22,943	73,008
Accrued warranty	12,300	13,026
Other current liabilities	115,832	119,449
Total current liabilities	448,931	606,157
Long-term liabilities:		
Long-term debt	1,148,172	1,897,501
Long-term portion of retirement benefits	55,853	67,334
Long-term income tax liabilities	430,866	456,949
Other long-term liabilities	76,346	62,625
Total long-term liabilities	1,711,237	2,484,409
Total liabilities	2,160,168	3,090,566
Commitments and contingencies (Notes 6, 9, 10, 11, 12 and 16)		
Stockholders equity:		
Pr		