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, 2023

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:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	**WAT**	**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 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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, 2023: $ 15,633,596,711 .

Indicate the number of shares outstanding of the registrant's common stock as of February 23, 2024: 59,202,626

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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," "Waters," "we," "our," or "us"), a global leader in analytical instruments and software, has pioneered innovations in chromatography, mass spectrometry and thermal analysis serving life, materials and food sciences for more than 65 years. With approximately 7,900 employees worldwide, Waters operates directly in over 35 countries and has products available in more than 100 countries. 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 Instruments™ ("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, clinical, 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 three significant and complementary technologies to its range of products with the acquisitions of TA Instruments in May 1996, Micromass Limited in September 1997 and Wyatt Technology in May 2023. On May 16, 2023, the Company completed the acquisition of Wyatt Technology, LLC and its three operating subsidiaries, Wyatt Technology Europe GmbH, Wyatt Technology France and Wyatt Technology UK Ltd. (collectively, "Wyatt"), for a total purchase price of $1.3 billion in cash. Wyatt is a pioneer in innovative light scattering and field-flow fractionation instruments, software, accessories and services. The acquisition will expand Waters™ portfolio and increase exposure to large molecule applications.

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. Operations of the recently acquired Wyatt business are part of the Waters operating segment.

Information concerning revenues and long-lived assets attributable to each of the Company’s products, services and geographic areas is set forth in Note 18 in the Notes to the Consolidated Financial Statements, which is incorporated herein by reference.

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. Waters also has in vitro diagnostic labelled products that are used as general-purpose instruments for clinical diagnostic applications, such as newborn screening and therapeutic drug management, in countries where these products are registered. 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™ System, to accommodate the increased pressure and narrower chromatographic bands that are generated by these small and tightly packed particles. By using the ACQUITY UPLC System, 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 System, 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 System 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 innovative 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 System series in 2018, consisting of the ACQUITY UPLC H-Class PLUS System, ACQUITY UPLC H-Class PLUS Bio System and ACQUITY UPLC 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 absorbance, refractive index and fluorescence detectors to a suite of MS-based detectors, optimized for certain analyses.

In 2019, the Company introduced the ACQUITY Advanced Polymer Chromatography ™ System, which is the first fully solvent-compatible UPLC System to perform size exclusion, gradient polymer elution and solvent compatible reversed-phase liquid chromatographic separations on a single platform. The all-in-one system gives research scientists greater analytical versatility and speed when conducting research on next-generation polymers. In 2020, the Company introduced the Waters Arc HPLC System, a new HPLC system for routine testing in the pharmaceutical, food, academic and materials markets. A key target application is quality control in laboratories performing batch release tests on small molecule pharmaceuticals. In 2021, the Company introduced the new ACQUITY Premier LC solution and the Arc Premier System both featuring Waters MaxPeak™ High Performance Surface ("HPS") Technology. MaxPeak HPS Technology, which was first introduced with the Company's introduction of ACQUITY Premier Columns in 2020, is a surface technology that forms a barrier between the sample and the metal surfaces of both the system and column, eliminating the need for system passivation, mitigating the loss of metal-sensitive analytes and yielding higher quality data in less time and effort.

During the second half of 2023, Waters introduced the DynaPro ™ ZetaStar™ instrument through its Wyatt Technology ™ portfolio for nanoparticle analysis. The new instrument simultaneously enables dynamic and static light scattering and dynamic and electrophoretic light scattering measurements, all in one device. By combining multiple light scattering techniques and automatically assessing data quality and performing adaptive data capture, the ZetaStar instrument delivers both increased sensitivity and faster measurements to aid the precise development of complex biologics, using extremely low sample volumes.

The primary consumable products for LC instruments 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 manufactures 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 Columns are used primarily on its ACQUITY UPLC Systems and, furthermore, that its ACQUITY UPLC Systems primarily use ACQUITY UPLC Columns. In 2019, the Company introduced the BioResolve™ SCX mAb Columns and VanGuard ™ FIT Cartridge technologies. These new cation exchange column lines with specialized consumables are designed to simplify and improve the characterization and monitoring of monoclonal antibody ("mAb") therapeutics, as well as enable mAb charge-variant analyses as required by the World Health Organization, the FDA and the International Conference on Harmonization for confirming the efficacy and safety of biologics and biosimilars with discovery, development and manufacturing applications. In 2020, Waters introduced ACQUITY Premier Columns, at the time a new family of premium sub-2-micron columns featuring MaxPeak HPS Technology. The columns are for use with any brand of UPLC System and can measurably improve data quality by mitigating the loss of sample analytes due to analyte-to-surface interactions.

The Company's precision chemistry consumable products also include environmental and nutritional safety testing products, including Certified Reference Materials and Proficiency Testing 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 2023, the Company introduced the first in a new line of size exclusion chromatography columns aimed at improving analysis while lowering the cost of gene therapies, specifically adeno-associated viral ("AAV") vectors. The new Waters XBridge™ Premier GTx BEH™ size exclusion chromatography columns double the speed of measuring the potency and safety of AAVs. Combining the columns with light scattering technologies from its Wyatt Technology portfolio deepens the level of information acquired from a single experiment and optimizes the manufacturing of these novel gene delivery vehicles.

In 2020, the Company acquired all of the outstanding stock of Andrew Alliance, S.A. (“Andrew Alliance”). Andrew Alliance offers lab workflow automation solutions with the combination of its software platform and smart, connected laboratory equipment and accessories. The addition of Andrew Alliance to our portfolio has allowed us to positively impact our customers’ workflows by improving the repeatability, performance and speed of laboratory operations and chemistry workflows.

In 2023, the Company introduced the Alliance ™ iS HPLC System, the next-generation intelligent HPLC System, designed to reduce compliance risk by adding new levels of proactive error detection, troubleshooting and ease-of-use. When combined with Waters compliance-ready Empower™ Chromatography Software and eConnect ™ HPLC Columns, the Alliance iS HPLC System streamlines the task of making accurate and precise measurements by detecting and eliminating common errors. In doing so, the Alliance iS HPLC System helps quality control laboratories to consistently meet quality, safety, compliance and on-time product delivery goals. This system also integrates with the cloud-native waters_connect™ System Monitoring Software enabling real-time monitoring of the Alliance iS HPLC System and any other chromatography instruments controlled by Empower Software. Laboratory managers can view the live status of their HPLC instrument fleet from anywhere and at any time to further improve equipment utilization and overall productivity.

Also in 2023, the Company introduced the new bioprocess walk-up solutions designed to further simplify biologic sample preparation and analysis. This solution eliminated the need to send bioreactor samples to a central laboratory for analysis making it even easier to accelerate upstream bioprocess development by up to six weeks over traditional methods.

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 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 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 MS System and Xevo TQ-S MS System, 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 HDMS System, are often used to analyze the role of proteins in disease processes, an application sometimes referred to as "proteomics."

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.

In 2019, the Company introduced the BioAccord ™ System, a liquid chromatography-mass spectrometry solution that expands access to high-resolution time-of-flight mass spectrometry capabilities. The system provides new levels of user experience with automated setup and self-diagnosis delivered through an intuitive user interface. Also in 2019, the Company introduced the SELECT SERIES™ Cyclic™ IMS System, which seamlessly integrates cyclic ion mobility technology into a high-performance research-grade time-of-flight mass spectrometer. In addition, the Company introduced the SYNAPT XS System, a new highly flexible, high-resolution mass spectrometer for research and development labs focused on discovery applications. The Company also reinforced its tandem quadrupole mass spectrometry portfolio during the current year with upgrades to the Xevo TQ-S micro MS System and the introduction of the new Xevo TQ-S cronos MS System. The Xevo TQ-S micro System features new performance enhancements that bring the quantitation of highly polar, ionic compounds in food to a higher level. The Xevo TQ-S cronos System is a new, tandem quadrupole mass spectrometer purposely built for routine quantitation of large numbers of small-molecule organic compounds over a wide concentration range. The Xevo TQ-S micro System and the Xevo TQ-S cronos System are also well suited to meet regulatory requirements for pesticide residue analysis, the monitoring for contaminants in processed foods, identifying drugs of abuse, and performing impurity profiling of pharmaceuticals. In 2020, the Company introduced the RADIAN™ ASAP™ System, a novel direct mass detector engineered for non-mass spectrometry experts to conduct fast and accurate analyses of solids and liquids with minimal sample prep. Also in 2020, the Company introduced enhancements for the Waters Xevo G2-XS QTof System, SYNAPT XS System and SELECT SERIES Cyclic IMS System, including a new fragmentation technique and imaging option.

In 2021, the Company introduced the SELECT SERIES MRT MS System, a high-resolution mass spectrometer that combines Multi-Reflecting Time-of-Flight ("MRT") technology with enhanced desorption electrospray ionization and new matrix-assisted laser desorption ionization imaging sources. The platform will serve as the basis for Waters next generation Tof instruments with applications in pharmaceutical, biomedical, natural products, and materials research. Also in 2021, the Company released the ACQUITY RDa™ Detector featuring SmartMS™ Technology, the company's newest Tof MS designed to improve the ease and reliability of small molecule analysis for pharmaceutical, academic, food, and forensic applications. The Company also introduced a new peptide multi-attribute method workflow for the BioAccord LC-MS System in 2021, which is an end-to-end workflow for analyzing monoclonal antibodies and other protein and peptide-based drugs.

In 2022, the Company introduced the Xevo TQ Absolute System, the most sensitive and compact benchtop tandem mass spec in its class. The Company introduced the new Xevo G3 Q-Tof Mass Spectrometer with CONFIRM Sequence, a new oligonucleotide sequencing confirmation app for the waters_connect Software platform and an electrospray ionization source for the high-resolution SELECT SERIES MRT Mass Spectrometer.

Based upon 2023 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 both the Company's and other suppliers' instruments. The Company's newest software technology for mass spectrometry is the waters_connect Software platform. In 2019, the Company introduced the first of a series of applications on this platform supporting the BioAccord System and the Xevo G2 XS Mass Spectrometer. These applications support biopharmaceutical workflows, simplifying the collection of often complex LCMS data for use in biopharmaceutical development and into QC where it is used to assure the quality of existing medicines and new drug formulations. The platform design of waters_connect Software has enabled rapid delivery of several major updates including new biopharma application workflows designed in close collaboration with biopharmaceutical innovators to solve specific challenges they face with existing solutions. The platform also provides the foundation for the connected lab of the future where data is no longer siloed but can be securely shared among a community of connected scientists. The waters_connect Software joins the existing 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. In 2020, Waters announced the availability of Empower BC LAC/E™ Solution with SecureSync, an enhanced solution to preserve the ability for laboratories to work locally when organizations with distributed laboratory environments experience an enterprise interruption.

On December 15, 2020, the Company acquired all of the outstanding stock of Integrated Software Solutions Pty Limited and its two operating subsidiaries Integrated Software Solutions Limited and Integrated Software Solutions USA, LLC (collectively, "ISS"). ISS offers clinical laboratory software systems that support and further expand product offerings within our clinical business. The net assets acquired primarily relate to ISS' laboratory information system, OMNI-Lab.

In 2022, the Company introduced a new Per-and Polyfluoroalkyl Substances ("PFAS") quantitation workflow enabled by enhancements to its waters_connect Software for quantitation software and the Company introduced Extraction+™ Connected Device, a new software-controlled product for the Waters Andrew+™ Pipetting Robot that automates the preparation of biological, food, forensics and environmental samples by solid phase extraction.

In 2023, the Company introduced the next generation Xevo TQ Absolute IVD Mass Spectrometer, expanding its family of MassTrak ™ IVD LC-MS/MS Systems for clinical diagnostic applications. The powerful analytical performance of the Xevo TQ Absolute IVD Mass Spectrometer is up to five times more sensitive for quantifying clinical analytes. This sensitivity enables clinical laboratories to detect and measure trace level analytes within a sample at lower detection levels than previously possible. It can also extend the testing capabilities of the clinical laboratory to include lower volume samples obtained in less-invasive assays such as saliva, breath, dried blood spots and multiplex panels and large molecules. The new MassTrak LC-MS/MS IVD System includes the ACQUITY UPLC I-Class PLUS System with the Xevo TQ Absolute IVD Mass Spectrometer. The ACQUITY UPLC I-Class PLUS System is designed to deliver rapid and accurate sample analysis to enhance the sensitivity of any mass spectrometer and simplify the characterization of the most complex sample. The Xevo TQ Absolute IVD System provides more consistent instrument-to-instrument performance, with a user-friendly design that maximizes service uptime. Its innovative design is also 45% smaller and uses 50% less nitrogen gas and electricity than comparable tandem quadrupole-mass spectrometry systems, making it ideal for hospital labs and independent commercial labs with both sustainability and business growth goals to meet.

In addition, in 2023, the Company introduced the industry's first targeted imaging mass spectrometer based on its Xevo TQ Absolute Tandem Quadrupole Mass Spectrometer which is the most sensitive and compact mass spectrometer in its class. The new instrument combines the Waters DESI XS source with the Xevo TQ Absolute

System and is five times more sensitive and five times faster than discovery-based imaging systems at precisely determining whether a particular small molecule drug product, and how much of it, reaches its intended target, such as a brain, liver or lung, in a test subject.

Also in 2023, the Company announced new updates to its SELECT SERIES MRT System that increases its specificity and utility for UPLC-MS/MS metabolomics and drug discovery applications and for mass spectrometry imaging experiments. The MRT System now offers 50% higher resolution, making it capable of 300,000 FWHM resolution, a 3X faster scan rate and parts-per-billion mass accuracy. These MRT System enhancements are designed to help research scientists unambiguously identify analytes of interest in samples of blood, urine and tissue, contributing to a greater understanding of molecules and their mechanisms of action in numerous scientific fields. It is compatible with numerous MS imaging sources including DESI and MALDI, and generates crystal-clear, high-resolution images without compromising mass spectral resolution or accuracy.

In addition, in 2023, the Company combined its BioAccord LC-MS System and the Waters Andrew+ Pipetting Robot, connecting via new protocols in OneLab™ Software to create fully integrated and easy-to-use bioprocess walk-up solutions. It is designed to enable less experienced LC-MS users to acquire critical quality attribute data for analysis of drug product and cell culture media. Capturing data directly at the bioproduction laboratory can help bioprocess engineers improve process understanding, leading to more robust manufacturing processes and accelerated development timelines.

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 its competition, as evidenced by a consistent increase in annual service revenues. The Company’s principal competitors in the service market include Revvity, Inc., Agilent Technologies, Inc. and Thermo Fisher Scientific Inc. 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 represented over 35% of sales for Waters in 2023. 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.

The waters_connect System Monitoring is a new Software-as-a-Service application that enables laboratory managers and analysts to monitor the real-time status of any chromatography instruments, regardless of the manufacturer, running on Waters Empower Software. The waters_connect System Monitoring application was developed especially for high-volume quality assurance/quality control laboratories. It can reduce the turnaround time of product release samples and facilitate the planning and progress of critical analyses via live, at-a-glance dashboard views of the operational status of chromatography instruments. The cloud-native application also helps lab managers utilize capital resources better by providing an understanding of instrument history and usage levels and improve the productivity of their teams.

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 2020, TA introduced the new Discovery ™ X3™ Differential Scanning Calorimeter ("X3 DSC"), Discovery Hybrid Rheometers and TAM IV Micro XL isothermal microcalorimeter. The X3 DSC accelerates productivity in customers' laboratories by enabling three samples to be measured in a single experiment, compared to the single-sample series operation of the other available DSC offerings in the market. This particularly addresses a need in high-throughput laboratories in industries such as composites, electronics and polymer manufacturing. The new line of Discovery Hybrid Rheometers provides increased sensitivity and versatility of rheometry measurements, supporting the development of next-generation, high-performance materials by improving the productivity and efficiency of materials science research. The TAM IV Micro XL isothermal calorimeter supports the development of new battery chemistries by measuring self-discharge and unwanted reactions that reduce battery life and efficiency.

In 2021, TA introduced the TMA 450 RH Instrument and the Discovery SA Instrument. The TMA 450 RH Instrument provides measurements of dimensional compatibility of materials under controlled temperature and humidity that are important for the development of new electronic devices. The Discovery SA Instrument is used in pharmaceutical development to assess the impact of moisture in drug product processing and storage on crystalline structure, which is related to drug product efficacy.

In 2021, TA introduced the TRIOS ™ AutoPilot Software for its thermal analyzer product line. This software helps laboratory staff using TA's thermal analyzers create routine and streamlined standard operating procedures improving the speed and productivity of thermal analysis measurements.

In 2022, TA introduced the Powder Rheology Accessory, which enables our Discovery Hybrid Rheometers to characterize the behavior of powders during storage, dispensing, processing and end-use. The Powder Rheology Accessory provides relevant property and processing measurements for battery electrode coatings to prevent defects that cause cell failure and pharmaceutical tablets to prevent instabilities of API blends.

In 2022, TA introduced Polymer Workflow Guided Methods, which provides walk up and use functionality by codifying polymer workflows. Guided Methods leverages the power of TRIOS AutoPilot Software and enables novice users to quickly learn and use the instrument to set up test methods, run tests, and execute analyses across our Thermal Analysis and Rheology product lines.

In 2023, TA introduced a new Battery Cycler Microcalorimeter Solution for high-resolution characterization of battery cells. The instrument and software combination enables non-destructive testing under real-world operating conditions and significantly reduces experiment time from months to weeks, while providing decisive insights for greater battery efficiency, safety and stability.

TA Service

Similar to Waters, the servicing and support of TA’s instruments is an important source of revenue and represented more than 25% of sales for TA in 2023. TA operates independently from the Waters operating segment, though many of its overseas offices are jointly occupied with Waters 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 academic, governmental 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 (“CROs”) 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 2023, 57% of the Company’s net sales were to pharmaceutical accounts, 31% to other industrial accounts and 12% to academic institutions and governmental agencies. Although the Company transacts business with various government agencies, no government contract is of such magnitude that a renegotiation of profits or termination of the contract at the election of the government agency would have a material adverse effect on the Company’s financial results.

The Company typically experiences seasonality in its orders that is reflected as 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 2023, 2022 and 2021, 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 85 sales offices throughout the world as of December 31, 2023 and approximately 4,300, 4,500 and 4,300 field representatives in 2023, 2022 and 2021, 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 geographic-specific 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, ISO 45001:2018 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 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. The Company has incurred costs of approximately $248 million on a new state-of-the-art facility, which is substantially complete as of December 31, 2023. 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 and ISO 14001:2015. The Wexford facility is certified to ISO 9001:2015, ISO 13485:2016/EN ISO 13485:2016 and ISO 14001:2015. 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, ISO/IEC 17043:2010 and TNI Standard Vol. 3:2016. Some ERA products are also manufactured in the Wexford, Ireland facility, which is also accredited to ISO/IEC 17025:2017 and 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, ISO 13485:2016/EN ISO 13485:2016 and ISO 14001:2015 (Wexford only) 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, Eden Prairie, Minnesota, Lindon, Utah and Hüllhorst, 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 the ISO 9001:2015 standard and the Eden Prairie facility is certified to both ISO 9001:2015 and ISO/IEC 17025:2017 standards, and the Lindon facility is certified to ISO 9001:2015.

All instrument manufacturing for Wyatt products takes place at its facilities in Santa Barbara, California. The Company's Wyatt facility in Santa Barbara, California is certified to ISO 9001:2015

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, which require 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 2022, 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 2023 supply chain, and the Company plans to file its 2023 Form SD with the SEC in May 2024. 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 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 / Corporate Governance".

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 2023, 2022 and 2021 were $175 million, $176 million and $168 million, respectively.

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, 2023, 2022 and 2021, there were approximately 1,200 employees 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.

In 2020, the Company opened a new research laboratory in Cambridge, MA, which serves as a strategic, collaborative space in the community, where Waters can partner with academia, research and industry to accelerate the next generation of scientific advancements.

Human Capital

We believe that our people differentiate our business and are vital to our continued success. As a result, we have made important investments in our workforce through initiatives and programs that support talent development and inclusion and enhance our Total Rewards programs.

Employees

The Company employed approximately 7,900, 8,200 and 7,800 employees at December 31, 2023, 2022 and 2021, respectively, with approximately 38% 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.

In July 2023, the Company made organizational changes to better align its resources with its growth and innovation strategies, resulting in a worldwide workforce reduction that impacted approximately 5% of the Company's employees.

Talent Development

We believe that our future success depends in a significant part on our continued ability to attract and retain highly skilled employees and then contribute to the growth and development of these employees.

We further the growth and development of our employees by investing in various programs, digital platforms and workshops that build professional and technical skills. In addition, management periodically assesses succession planning for certain key positions and reviews our workforce to identify high potential employees for future growth and development.

Inclusion & Diversity

We believe inclusion is a core tenet of organizational success and that fostering a sense of inclusivity allows our employees to maximize their performance contribution to our business. In 2021, we hired our first Director of Diversity, Equity and Inclusion to help strategize and focus our inclusivity efforts. As part of our company-led initiatives to drive an inclusive workplace, we have created Employee Circles and Employee Hubs, which are voluntary, employee-driven employee resource groups worldwide to foster a diverse and inclusive culture through awareness, education and employee connections. Our five Employee Circles are people of color, LGBTQ+ pride, veterans, women and disability. Our global Employee Circles provide opportunities for Waters employees to connect with teammates throughout the world, while Employee Hubs encourage engagement at the local level. Our Employee Circles and Hubs led various initiatives in 2023 to build a strong culture of inclusion and awareness. We have also rolled out training to all employees to support an inclusive culture that values diverse perspectives.

We believe that part of fostering a diverse, inclusive and equitable organization and workforce means understanding the makeup of our current employees. As of December 31, 2023, our workforce identifies as:

- 32% female, with women occupying 34% of company leadership roles (defined as Senior Director or above) compared with 22% in 2017, an increase of 12 percentage points; and
- 23% racially and/or ethnically diverse, with 11% of our workforce identifying as Asian, 3.5% as identifying as Black or African American, 7% identifying as Hispanic/Latinx and 1% identifying as two or more races.

Recruitment

Waters has focused on expanding diversity in our recruitment processes, including developing partnerships with organizations that support diversity in hiring and employee engagement. Current partnerships include: the National Organization of Black Chemists and Chemical Engineers, Out in Tech, Vercida, Home Base and Fairygodboss to expand the pipeline of strong candidates.

Health and Safety

The health and safety of our employees is our highest priority. Through online and in-person training programs, we believe that we foster a safe workplace and ensure that all employees are empowered to prevent accidents and injuries.

We manufacture products deemed essential to critical infrastructure, including health and safety, food and agriculture, and energy, and as a result, the majority of our production sites continued operating during the COVID-19 pandemic.

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: Perkin Elmer, Inc., NETZSCH-Geraetebau GmbH, Thermo Fisher Scientific Inc., Malvern PANalytical Ltd., a subsidiary of Spectris plc, Anton-Paar GmbH and others not identified here.

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 2019, the Company published a sustainability report identifying the various actions and behaviors the Company adopted in 2018 concerning its commitment to both the environment and the broader topic of social responsibility. The Company has continued to publish a sustainability report (which was renamed the ESG Report in 2022) on an annual basis. In November 2023, the Company published its 2023 ESG Report, detailing the Company's efforts to address its environmental impact and uphold its social responsibilities in 2023. 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 18 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". The Company is providing its website address solely for the information of investors. The Company does not intend the address to be an active link or to otherwise incorporate the contents of the website, including any reports that are noted in this annual report on Form 10-K (this "Annual Report") as being posted on the website, into this Annual Report. Investors and others should note that we may announce material information to our investors using our investor relations website (ir.waters.com), SEC filings, press releases, public conference calls and webcasts. We use these channels, as well as social media, to communicate with our investors and the public about our Company, our business and other issues. It is possible that the information that we post on these channels could be deemed to be material information. We therefore encourage investors to visit these websites from time to time.

Forward-Looking Statements

This Annual Report, including the information incorporated by reference herein, contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). 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", "suggests", "appears", "estimates", "projects", "should" and similar expressions, whether in the negative or affirmative. These forward-looking 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 potentially affecting translation of the Company's future non-U.S. operating results, particularly when a foreign currency weakens against the U.S. dollar;
- current global economic, sovereign and political conditions and uncertainties, including the effect of new or proposed tariff or trade regulations, changes in inflation and interest rates, the impacts and costs of war, in particular as a result of the ongoing conflicts between Russia and Ukraine and in the Middle East, and the possibility of further escalation resulting in new geopolitical and regulatory instability and the Chinese government's ongoing tightening of restrictions on procurement by government-funded customers;

- the Company’s ability to access capital, maintain liquidity and service the Company’s debt in volatile market conditions;
- risks related to the effects of any pandemic on our business, financial condition, results of operations and prospects;
- changes in timing and demand for the Company’s products among the Company’s customers and various market sectors, particularly as a result of fluctuations in their expenditures or ability to obtain funding;
- the ability to realize the expected benefits related to the Company’s various cost-saving initiatives, including workforce reductions and organizational restructurings;
- the introduction of competing products by other companies and loss of market share, as well as pressures on prices from competitors and/or customers;
- changes in the competitive landscape as a result of changes in ownership, mergers and continued consolidation among the Company’s competitors;
- regulatory, economic and competitive obstacles to new product introductions, lack of acceptance of new products and inability to grow organically through innovation;
- rapidly changing technology and product obsolescence;
- risks associated with previous or future acquisitions, strategic investments, joint ventures and divestitures, including risks associated with achieving the anticipated financial results and operational synergies; contingent purchase price payments; and expansion of our business into new or developing markets;
- risks associated with unexpected disruptions in operations;
- failure to adequately protect the Company’s intellectual property, infringement of intellectual property rights of third parties and inability to obtain licenses on commercially reasonable terms;
- the Company’s ability to acquire adequate sources of supply and its reliance on outside contractors for certain components and modules, as well as disruptions to its supply chain;
- risks associated with third-party sales intermediaries and resellers;
- the impact and costs of changes in statutory or contractual tax rates in jurisdictions in which the Company operates as well as shifts in taxable income among jurisdictions with different effective tax rates, the outcome of ongoing and future tax examinations and changes in legislation affecting the Company’s effective tax rate;
- the Company’s ability to attract and retain qualified employees and management personnel;
- risks associated with cybersecurity and technology, including attempts by third parties to defeat the security measures of the Company and its third-party partners;
- increased regulatory burdens as the Company’s business evolves, especially with respect to the U.S. Food and Drug Administration and U.S. Environmental Protection Agency, among others, and in connection with government contracts;
- regulatory, environmental and logistical obstacles affecting the distribution of the Company’s products, completion of purchase order documentation and the ability of customers to obtain letters of credit or other financing alternatives;
- risks associated with litigation and other legal and regulatory proceedings; and
- the impact and costs incurred from changes in accounting principles and practices.

Certain of these and other factors are further described below in Item 1A, Risk Factors, of this Annual Report. 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, and forward-looking statements in documents that are incorporated by reference hereto speak only as of the date of those documents. Such forward-looking statements 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:

RISKS RELATED TO MACROECONOMIC CONDITIONS

The Company's international operations may be negatively affected by political events, wars or terrorism, economic conditions 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 69% and 70% of the Company's net sales in 2023 and 2022, 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 U.K., 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.'s exit from the European Union as well as the financial difficulties and debt burden experienced by a number of European countries; impact and costs of terrorism or war, in particular as a result of the ongoing conflict between Russia and Ukraine and in the Middle East, and the possibility of further escalation resulting in new geopolitical and regulatory instability; 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; trade protection measures including embargoes, sanctions and tariffs; differing tax laws and changes in those laws; restrictions on investments and/or limitations regarding foreign ownership; nationalization of private enterprises which may result in the confiscation of assets; credit risk and uncertainties regarding the collectability of accounts receivable; the impact of global health pandemics and epidemics, such as COVID-19; changes in inflation and interest rates; instability in the global banking industry; rising energy prices and potential energy shortages; difficulties in protecting intellectual property; difficulties in staffing and managing foreign operations; and associated adverse operational, contractual and tax consequences.

In 2023, the Company generated $441 million of total net sales from China, down from $565 million in 2022. This significant 22% reduction in sales from China resulted from lower customer demand for our products across all customer classes, driven by various factors. Such factors include a decline in the economic conditions in China, trade tensions and tariffs between the U.S. and China and their impact on our customers' purchasing decisions, increased competition from local and international competitors in China, the Chinese government's ongoing tightening of restrictions on procurement by government-funded customers and other regulatory and compliance challenges and uncertainties in the Chinese market, all of which had, and may continue to have, an adverse effect on our business and operations in China.

In particular, China's government continues to play a significant role in regulating industry development by imposing sector-specific policies, and it maintains control over China's economic growth through setting monetary policy and determining treatment of particular industries or companies. The U.S. government has called for substantial changes to foreign trade policy with China and has recently raised, and has proposed to further raise in the future, tariffs on several Chinese goods. China has retaliated with increased tariffs on U.S. goods, which may increase our cost of doing business in China. Any further changes in U.S. trade policy could trigger retaliatory actions by affected countries, including China, resulting in trade wars and increased costs for goods imported into the U.S. and impacting our ability to sell our products in China and other affected countries. Accordingly, our financial position or results of operations can be adversely influenced by political, economic, legal, compliance, social and business conditions in China generally.

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, British pound and Chinese renminbi, could have a material adverse effect or benefit on the Company's results of operations or financial condition.

From time to time, the Company enters into certain foreign currency exchange contracts that are intended to offset some of the market risk associated with sales denominated in foreign currencies. We cannot predict the effectiveness of these transactions or their impact upon our future operating results, and from time to time they may negatively affect our quarterly earnings.

Global economic conditions may have an adverse effect on the demand for, and supply of, 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 such as changes in the rate of inflation (including the cost of raw materials, commodities and supplies) and interest rates. Both our domestic and international markets experience varying degrees of inflationary and interest rate pressures. These changes in global economic conditions may affect the demand for, and supply of, 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.

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 or access sources of new capital, which it may need to meet its capital needs. The cost to the Company of any new capital raised and interest expense would increase if this were to occur.

Public health crises, epidemics or pandemics, such as the COVID-19 pandemic have had, and could in the future have, a negative impact on the Company's business and operations.
Public health crises, epidemics or pandemics have had, and could in the future have, a negative impact on our business and operations, including Company sales and cash flow. Such public health crises, epidemics and pandemics have the potential to create significant volatility, uncertainty and worldwide economic disruption, resulting in an economic slowdown of potentially extended duration, as seen with the COVID-19 pandemic from 2020 to 2022. The Company's global operations expose it to risks associated with such public health crises, epidemics and pandemics, which could have an adverse effect on its business, results of operations and financial condition. The degree to which such public health crisis, epidemics or pandemics ultimately affects the Company's business, results of operations and financial condition is highly uncertain and cannot be predicted.

RISKS RELATED TO OUR BUSINESS

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, light scattering, 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 those affecting drug, food and drinking water testing; funding available to academic, governmental 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 seasonality in its orders that is reflected as 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 allocate 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.

The analytical instrument market may also, from time to time, experience low sales growth. Approximately 57% and 59% of the Company's net sales in 2023 and 2022, respectively, were to worldwide pharmaceutical accounts, which are 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.

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, light scattering, thermal analysis, rheometry and calorimetry product lines, is highly competitive. 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 new, disruptive technologies that displace the Company's existing technologies or 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 any 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.

In addition, the Company's products are subject to rapid changes in technology. Rapidly changing technology could make some or all of our product lines obsolete unless the Company is able to continually improve our existing products and develop new products. If the Company fails to develop and introduce products in a timely manner in response to changing technology, market demands or the requirements of our customers, the Company's product sales may decline, and we could experience an adverse effect on our results of operations or financial condition.

The Company may face risks associated with previous or future acquisitions, strategic investments, joint ventures and divestitures.
In the normal course of business, the Company may engage in discussions with third parties relating to possible acquisitions, strategic investments, joint ventures and divestitures. The Company may pursue transactions that complement or augment its existing products and services, such as the Wyatt acquisition that was completed in May 2023. Such transactions involve numerous risks, including difficulties in integrating the acquired operations, technologies and products; diversion of management's attention from other business concerns; inability to predict financial results; potential departures of key employees of the acquired company; and difficulties in effectively transferring divested businesses and liabilities. If the Company successfully identifies acquisitions in the future, completing such acquisitions may result in new issuances of the Company's stock that may be dilutive to current owners; increases in the Company's debt and contingent liabilities; and additional amortization expense related to intangible assets. For example, the Company financed the Wyatt acquisition, in part, through borrowings under its revolving credit facility, resulting in a significant increase in the Company's outstanding debt. Acquired businesses may also expose the Company to new risks and new markets, and the Company may have difficulty addressing these risks in a cost-effective and timely manner. Any of these transaction-related risks could have a material adverse effect on the Company's profitability. In addition, the Company may not be able to identify, successfully complete, or integrate potential acquisitions in the future. Even if the Company can do so, it cannot be sure that these acquisitions will have a positive impact on the Company's business or operating results.

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.

A successful product liability claim brought against the Company in excess of, or outside the coverage of, the Company's insurance coverage could have a material adverse effect on our business, financial condition and results of operations. The Company may not be able to maintain product liability insurance on acceptable terms, if at all, and insurance may not provide adequate coverage against potential liabilities.

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, 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, power interruptions, cybersecurity incidents, weather events or natural disasters (including the potential impacts of climate change) or other reasons, could harm our customer relationships, impede our ability to generate sales and 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.
Our success depends on our ability to obtain, maintain, and enforce patents on our technology, maintain our trademarks, and protect our trade secrets. 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. In the event that a claim relating to intellectual property is asserted against the Company, or third parties hold pending or issued patents that relate to the Company's products or technology, the Company may seek licenses to such intellectual property or challenge those patents. However, the Company may be unable to obtain these licenses on commercially reasonable terms, if at all, and the challenge of the patents may be unsuccessful. The Company's failure to obtain the necessary licenses or other rights could impact the sale, manufacture, or distribution of its products and, therefore, could have a material adverse effect on its results of operations and financial condition. The Company's patents, including those licensed from others, expire on various dates.

The Company also depends in part on its trademarks and the strength of its proprietary brands, which the Company considers important to its business. The Company's inability to protect or preserve the value of its intellectual property rights for any reason, including the Company's inability to successfully defend against counterfeit, knock-offs, grey-market, infringing or otherwise unauthorized products, could damage the Company's brand and reputation and harm its business.

The Company also relies on trade secrets and proprietary know-how with which it seeks to protect its products, in part, by confidentiality agreements with its collaborators, employees and consultants. These agreements may not adequately protect the Company's trade secrets and other proprietary rights. These agreements may be breached, and the Company may not have adequate remedies for any breach. In addition, the Company's trade secrets may otherwise become known or be independently developed by its competitors. 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. Consolidation among such suppliers could also result in other limited or sole-source suppliers for the Company in the future. Disruption of these sources could have, at a minimum, a temporary adverse effect on shipments and the financial results of the Company. In addition, price increases from these suppliers could have an adverse effect on the Company's margins. 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. The ability of these contractors to perform their obligations is largely outside of the Company's control. Failure by these outside contractors to perform their obligations in a timely manner or at satisfactory quality levels could have an adverse effect on the supply chain and the financial results of the Company. In addition, if one or more of such contractors experience significant disruption in services or institute a significant price increase, the Company may have to seek alternative providers, its costs could increase and the delivery of its products could be prevented or delayed. 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 third-party sales intermediaries and other third parties that sell our products.
The Company sells some products through third parties, including third-party sales intermediaries 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 third-party sales intermediaries for a product or market and the loss of these third-party sales intermediaries could reduce our revenue or net earnings. Third-party sales intermediaries may also face financial difficulties, including bankruptcy, which could harm our collection of accounts receivable. Moreover, 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 and adversely impact our business, reputation and results of operations. Risks related to our use of third-party sales intermediaries and other third parties may reduce sales, increase expenses and weaken our competitive position.

The Company is subject to laws and regulations governing government contracts, and failure to address these laws and regulations or comply with government contracts could harm its business by leading to a reduction in revenues associated with these customers.
The Company derives a portion of its revenue from direct and indirect sales to U.S. federal, state and local as well as foreign governments and their respective agencies, and, as a result, it is subject to various statutes and regulations that apply to companies doing business with the government. The laws governing government contracts differ from the laws governing private contracts and government contracts may contain pricing terms and conditions that are not applicable to private contracts. The Company is also subject to investigation for compliance with the regulations governing government contracts. A failure to comply with these regulations could result in suspension of these contracts, criminal, civil and administrative penalties or debarment, which could negatively impact the Company's business and operations. If the Company's government contracts are terminated, if it is suspended from government work or if its ability to compete for new contracts is adversely affected, the Company's business could be negatively impacted.

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 34% 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. From 2024, various foreign jurisdictions are beginning to implement aspects of the guidance issued by the Organization for Economic Co-operation and Development related to the new Pillar Two system of global minimum tax rules. These new tax laws and regulations, and 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, 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. The Company continues to monitor the adoption of the Pillar Two rules in additional jurisdictions.

The Company entered into a new Development and Expansion Incentive in Singapore that provides a concessionary income tax rate of 5% on certain types of income for the period April 1, 2021 through March 31, 2026. Prior to April 1, 2021, the Company had a tax exemption in Singapore on certain types of income, based upon the achievement and continued satisfaction of certain operational and financial milestones, which the Company met as of December 31, 2020 and maintained through March 2021. The Company had determined that it was more likely than not to realize the tax exemption in Singapore and, accordingly, did not recognize any reserves for unrecognized tax benefits on its balance sheet related to this tax exemption. If any of the milestone targets were not met, the Company would not have been entitled to the tax exemption on income earned in Singapore dating back to the start date of the agreement (April 1, 2016), and all the tax benefits previously recognized would be reversed, resulting in the recognition of income tax expense equal to the statutory tax of 17% on income earned during that period.

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, investigations 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 may be required to recognize impairment charges for our goodwill and other intangible assets.
As of December 31, 2023, the net carrying value of the Company's goodwill and other intangible assets totaled approximately $1.9 billion. The Wyatt acquisition significantly increased the carrying value of the Company's goodwill and other intangible assets, which could lead to potential impairments if Wyatt's financial results are significantly less than anticipated in the future. In accordance with generally accepted accounting principles, the Company periodically assesses these assets to determine if they are impaired. Significant negative industry or economic trends, disruptions to the Company's business, inability to effectively integrate acquired businesses, unexpected significant changes or planned changes in use of our assets, changes in the structure of our business, divestitures, market capitalization declines or increases in associated discount rates can impair the Company's goodwill and other intangible assets. Any charges relating to such impairments adversely affect the Company's financial statements in the periods recognized.

RISKS RELATED TO HUMAN CAPITAL MANAGEMENT

We may not be able to attract and retain qualified employees.
Our future success depends upon the continued service of our executive officers and other key management and technical personnel, and on our ability to continue to identify, attract, retain and motivate them. Implementing our business strategy requires specialized engineering and other talent, as our revenues are highly dependent on technological and product innovations. The market for employees in our industry is extremely competitive, and competitors for talent, particularly engineering talent, increasingly attempt to hire, and to varying degrees have been successful in hiring, our employees. A number of such competitors for talent are significantly larger than us and are able to offer compensation in excess of what we are able to offer. Additionally, macroeconomic conditions, including wage inflation, could have a material impact on our ability to attract and retain talent, our turnover rate and the cost of operating our business. In July 2023, the Company made organizational changes to better align its resources with its growth and innovation strategies, resulting in a worldwide workforce reduction that impacted approximately 5% of the Company's employees. These workforce reductions may not have the desired impact on our cost-saving initiatives, as they could adversely affect our productivity, morale, customer relationships, product quality, innovation capabilities and ability to execute our strategic plans. Moreover, these workforce reductions could expose us to potential litigation, severance costs, reputational damage and loss of key personnel. If we are unable to manage the effects of these workforce reductions or achieve the expected benefits from them, our business, financial condition and results of operations could be materially and adversely affected. Further, existing immigration laws make it more difficult for us to recruit and retain highly skilled foreign national graduates of universities in the United States, making the pool of available talent even smaller. If we are unable to attract and retain qualified employees, our business may be harmed.

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 Chief Executive Officer 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 key personnel do not continue to be active in management, the Company's results of operations or financial condition could be adversely affected. The Company's success also depends on its ability to execute leadership succession plans. The inability to successfully transition key management roles could have a material adverse effect on the Company's operating results.

RISKS RELATED TO CYBERSECURITY

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 business strategy, results of operations and financial condition.

The Company relies on its technology infrastructure and that of its third-party partners, including 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 and that of its third-party partners has been, and may in the future be, vulnerable to damage or interruption from, but not limited to, natural disasters, power loss, telecommunication failures, terrorist attacks, computer viruses, ransomware, 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. In the event of such an incident, the Company has in the past, and may in the future, suffer interruptions in service, loss of assets or data or reduced functionality. The Company attempts to mitigate cybersecurity risks by employing a number of proactive measures, including mandatory ongoing employee training and awareness, technical security controls, enhanced data protection and maintenance of backup and protective systems. Despite these mitigation measures, the Company's systems and those of its partners remain potentially vulnerable to cybersecurity threats, any of which could have a material adverse effect on the Company's business. To date, cybersecurity incidents have not resulted in a material adverse impact to the Company's business strategy, results of operations, or financial condition, but future incidents could have such an impact. Additionally, the Company must maintain and periodically upgrade its information and web-based systems, which has caused and will in the future cause temporary interruptions to its technology infrastructure. Any prolonged disruption to the Company's technology infrastructure, at any of its facilities, could have a material adverse effect on the Company's business strategy, results of operations or financial condition. While the Company maintains cyber insurance, this insurance may not, however, be sufficient to cover the financial, legal, business or reputational losses that may result from an interruption or breach of its systems.

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 protected by 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 it 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 and 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 inherent 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.

RISKS RELATED TO COMPLIANCE, REGULATORY OR LEGAL MATTERS

Changes in governmental regulations and 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, can change frequently 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. Additionally, the Company develops, configures and markets its products and services to meet customer needs created by these regulations, and any significant change in regulations could reduce demand for its products, increase its expenses or otherwise materially impact its financial position and results of operations.

Regulators globally are increasingly imposing greater fines and penalties for privacy and data protection violations, and the European Union, as an example, 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, which require 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 2022, 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 2023 supply chain, and the Company plans to file its 2023 Form SD with the SEC in May 2024. 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.

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. In addition, any allegations of issues resulting from the misuse of our products could, even if untrue, adversely affect our reputation and our customers' willingness to purchase products from us. Any such allegations could cause us to lose customers and divert our resources from other tasks, which could materially and adversely affect our business and operating results.

Environmental, social and corporate governance ("ESG") issues, including those related to climate change and sustainability, may have an adverse effect on our business, financial condition and results of operations and damage our reputation.
There is an increasing focus from certain investors, customers, consumers, employees and other stakeholders concerning ESG matters. Additionally, public interest and legislative pressure related to public companies' ESG practices continue to grow. If our ESG practices fail to meet regulatory requirements or investor, customer, consumer, employee or other stakeholders' evolving expectations and standards for responsible corporate citizenship in areas including environmental stewardship and sustainability, support for local communities, director and employee diversity, human capital management, employee health and safety practices, product quality, supply chain management, corporate governance and transparency, our reputation, brand and employee retention may be negatively impacted, and our customers and suppliers may be unwilling to continue to conduct business with us.

Customers, consumers, investors and other stakeholders are increasingly focusing on environmental issues, including climate change, energy and water use, plastic waste and other sustainability concerns. Concern over climate change or plastics and packaging materials, in particular, may result in new or increased legal and regulatory requirements to reduce or mitigate impacts to the environment. Changing customer and consumer preferences or increased regulatory requirements may result in increased demands or requirements regarding plastics and packaging materials, including single-use and non-recyclable plastic products and packaging, other components of our products and their environmental impact on sustainability, or increased customer and consumer concerns or perceptions (whether accurate or inaccurate) regarding the effects of substances present in certain of our products. Complying with these demands or requirements could cause us and companies in our supply chain to incur additional manufacturing, operating or product development costs.

If we do not adapt to or comply with new regulations, or fail to meet evolving investor, industry or stakeholder expectations and concerns regarding ESG issues, investors may reconsider their capital investment in our Company, and customers and consumers may choose to stop purchasing our products, which could have a material adverse effect on our reputation, business or financial condition.

The Company is subject to or otherwise responsible for a variety of litigation and other legal and regulatory proceedings in the ordinary course of business that can adversely affect our business, results of operations and financial condition.
From time to time, the Company and its subsidiaries are subject to or otherwise responsible for a variety of litigation and other legal and regulatory proceedings in the ordinary course of business, as well as regulatory subpoenas, requests for information, investigations and enforcement. Defending or otherwise responding to these matters can divert the Company's management's attention and may cause it to incur significant expenses. 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. However, each of these matters is subject to uncertainties, and it is possible that some of these matters may be resolved unfavorably to the Company.

GENERAL RISK FACTORS

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 U.S., U.K., 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.

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, goodwill and intangible assets, income taxes, uncertain tax positions, litigation, business combinations and asset acquisitions and inventory valuation 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.

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.
The Company sponsors various retirement plans, both inside and outside the United States. 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.

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 $2.4 billion in debt and $396 million in cash, cash equivalents and investments as of December 31, 2023. As of December 31, 2023, the Company also had the ability to borrow an additional $0.9 billion 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 United States to fund operations and capital expenditures, service debt interest obligations, finance potential United States acquisitions and continue authorized stock repurchase programs. As such, 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 existing debt is, and future debt may be, 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. Failure to comply with restrictive debt covenants that are not waived or cured could result in an event of default under the applicable debt instrument, which could permit acceleration of the applicable debt and require the Company to prepay the debt before its scheduled due date.

Item 1B: *Unresolved Staff Comments*

None.

Item 1C: *Cybersecurity*

We maintain a robust system of data protection and cybersecurity resources, technology and processes. We regularly evaluate new and emerging risks and ever-changing legal and compliance requirements. We make strategic investments to address these risks and legal and compliance requirements to keep Company, customer and employee data secure. We monitor risks of sensitive information compromise at our business partners where relevant and reevaluate these risks on a periodic basis. We also perform annual and ongoing cybersecurity training and awareness for our employees.

We have a longstanding information security risk management framework structured according to the National Institute of Standards and Technology Cybersecurity Framework, industry best practices, privacy legislation, and other global and local standards and regulations. This risk management framework is under the specific oversight of the Company’s Vice President and Chief Information Officer (the “CIO”) and includes a defense-in-depth approach with multiple layers of security controls, including network segmentation, security monitoring, endpoint protection, and identity and access management, as well as data protection best practices and data loss prevention controls. Our Audit and Finance Committee is updated on the overall performance of our information security risk management framework on an annual basis by the CIO.

Our cybersecurity awareness program includes regular phishing simulations, annual general cybersecurity awareness, and data protection modules, as well as more contextual and personalized modules for targeted users and roles. We also perform simulations and drills at both a technical and leadership level at least annually. We incorporate external expertise and guidance in all aspects of our cybersecurity program. We complete annual internal security audits and vulnerability assessments of the Company’s information systems and related controls, including systems affecting personal data. In addition, we leverage cybersecurity specialists to complete annual external audits and objective assessments of our cybersecurity program and practices, including our data protection practices, as well as to conduct targeted attack simulations. We continually enhance our information security capabilities in order to protect against emerging threats, while also increasing our ability to detect and respond to cyber incidents and maximize our resilience to recover from potential cyber-attacks. We have a robust incident response plan in place that provides a documented playbook for responding to cybersecurity incidents and facilitates coordination across multiple parts of our Company. Additionally, we have purchased network security and cyber liability insurance in order to provide a level of financial protection, should a data breach occur.

Despite the existence of mitigation measures, the Company’s systems and those of its partners remain potentially vulnerable to cybersecurity threats, any of which could have a material adverse effect on the Company’s business. To date, cybersecurity incidents have not resulted in a material adverse impact to the Company’s business strategy, results of operations and financial condition, but future incidents could have such an impact. See Item 1A, Risk Factors - Risks Related to Cybersecurity.

The Board of Directors oversees the Company’s information security risk management framework that seeks to identify new risks, develop and implement risk mitigation plans, and monitor the results affecting the Company’s business and operations on an ongoing basis. The CIO manages this framework, in collaboration with the Company’s businesses and functions. The CIO presents updates to the Audit and Finance Committee at least annually and, as necessary, to the full Board of Directors. These reports include detailed updates on the Company’s performance preparing for, preventing, detecting, responding to and recovering from cyber incidents. The CIO also promptly informs and updates the Board of Directors about any information security incidents that may pose significant risk to the Company. The Company’s program is periodically evaluated by external experts, and the results of those reviews are reported to the Audit and Finance Committee and the Board of Directors. Together with management, the Audit and Finance Committee reviews the Company’s risk assessment and risk management practices and discusses major cybersecurity risk exposures as well as steps taken by management to monitor and control such exposures.

The Company’s Vice President and Chief Information Officer has over 24 years of business experience managing risks from cybersecurity threats/developing and implementing cybersecurity policies and procedures, as well as several relevant certifications.

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Item 2: ***Properties***

Waters Corporation operates 21 United States facilities and 71 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 (1)

Location	Function (2)	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
Cambridge, MA	R, S	Leased
Eden Prairie, MN	M, R, S, D, A	Leased
Nixa, MO	M, S, D, A	Leased
Lindon, UT	M, R, S, D, A	Leased
Santa Barbara, CA	M, R, S, D, A	Leased
Beijing, China	S, A	Leased
Shanghai, China	R, S, A	Leased
Solihull, England	M, A	Owned
Wilmslow, England	M, R, S, D, A	Owned
St. Quentin, France	S, A	Leased
Hüllhorst, Germany	M, R, S, D, A	Owned
Wexford, Ireland	M, R, D, A	Owned
Bangalore, India	M, R, S, D, A	Owned/Leased
Etten-Leur, Netherlands	S, D, A	Owned
Brasov, Romania	R, A	Leased
Singapore	R, S, D, A	Leased

(1) The Company operates more than one primary facility within certain states and foreign countries.
(2) M = Manufacturing; R = Research; S = Sales and Service; D = Distribution; A = Administration

The Company operates and maintains 10 field offices in the United States and 58 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 (3)

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

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

Item 3: *Legal Proceedings*

From time to time, the Company and its subsidiaries are involved in various lawsuits, claims, investigations and proceedings covering a wide range of matters that arise 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. However, each of these matters is subject to uncertainties, and it is possible that some of these matters may be resolved unfavorably to the Company.

Item 4: *Mine Safety Disclosures*

Not applicable.

PART II

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

The Company’s common stock is registered under the Exchange Act and is listed on the New York Stock Exchange under the symbol “WAT”. As of February 23, 2024, the Company had 69 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, 2023, 2022 and 2021.

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.

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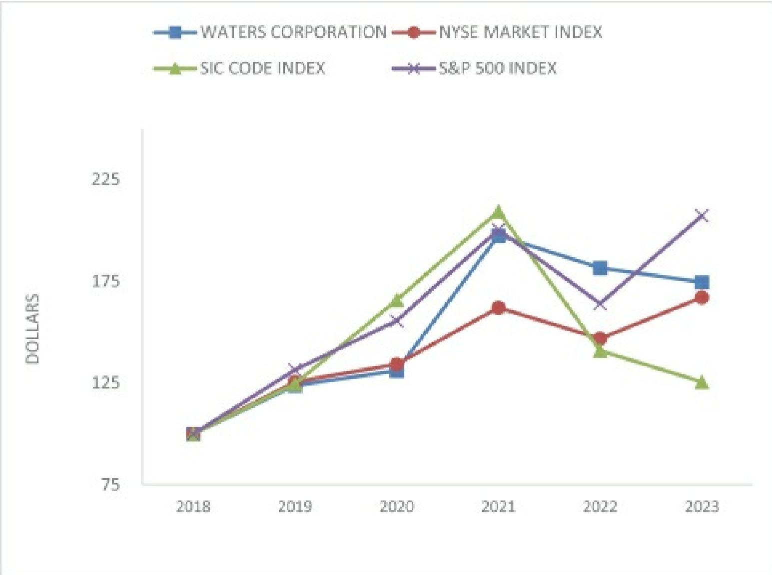
Stock Price Performance Graph

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 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, 2018 (the last day of public trading of the Company's common stock in fiscal year 2018) through December 31, 2023 (the last day of public trading of the common stock in fiscal year 2023) 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, 2018
AMONG WATERS CORPORATION, NYSE MARKET INDEX, SIC CODE 3826 INDEX – LABORATORY ANALYTICAL INSTRUMENTS AND S&P 500 INDEX



	2018	2019	2020	2021	2022	2023
WATERS CORPORATION	100.00	123.85	131.15	197.51	181.60	174.52
NYSE MARKET INDEX	100.00	125.51	134.28	162.04	146.89	167.12
SIC CODE INDEX	100.00	124.58	165.82	209.38	140.93	125.60
S&P 500 INDEX	100.00	131.49	155.68	200.37	164.08	207.21

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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, 2023 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	Maximum Dollar Value of Shares That May Yet Be Purchased Under the Programs (2)
October 1, 2023 to October 28, 2023	—	$ —	—	$ 961,207
October 29, 2023 to November 25, 2023	—	$ —	—	$ 961,207
November 26, 2023 to December 31, 2023	2	$ 317.00	—	$ 961,207
Total	2	$ 317.00	—	$ 961,207

(1) The Company repurchased approximately one thousand shares of common stock at a cost of less than $1 million related to the vesting of restricted stock during the three months ended December 31, 2023.

(2) 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 program replaced the remaining amounts available under the pre-existing authorization. In December 2020, the Company's Board of Directors authorized the extension of the share repurchase program through January 21, 2023. In December 2022, the Company's Board of Directors amended and extended this repurchase program's term by one year such that it shall now expire on January 21, 2024 and increased the total authorization to $4.8 billion, an increase of $750 million. In December 2023, the Company's Board of Directors authorized the extension of the share repurchase program through January 21, 2025. The Company's remaining authorization is $1.0 billion. The size and timing of these purchases, if any, will depend on our stock price and market and business conditions, as well as other factors.

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Item 6: ***Reserved***

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

Business 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 government 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. Operations of the recently acquired Wyatt business are part of the Waters operating segment.

Wyatt Acquisition

On May 16, 2023, the Company completed the acquisition of Wyatt Technology, LLC and its three operating subsidiaries, Wyatt Technology Europe GmbH, Wyatt Technology France and Wyatt Technology UK Ltd. (collectively, "Wyatt"), for a total purchase price of $1.3 billion in cash. Wyatt is a pioneer in innovative light scattering and field-flow fractionation instruments, software, accessories, and services. The acquisition will expand Waters portfolio and increase exposure to large molecule applications. The Company financed this transaction with a combination of cash on its balance sheet and borrowings under its revolving credit facility. The Company's financial results for the year ended December 31, 2023 include the financial results of the Wyatt acquisition from the acquisition date.

Financial Overview

The Company's operating results are as follows for the years ended December 31, 2023, 2022 and 2021 (dollars in thousands, except per share data):

	Year Ended December 31,			*% change*	
	2023	**2022**	**2021**	***2023 vs 2022***	***2022 vs 2021***
Revenues:					
Product sales	$1,903,050	$1,988,169	$1,822,070	*(4%)*	*9%*
Service sales	1,053,366	983,787	963,804	*7%*	*2%*
Total net sales	2,956,416	2,971,956	2,785,874	*(1%)*	*7%*
Costs and operating expenses:					
Cost of sales	1,195,223	1,248,182	1,156,533	*(4%)*	*8%*
Selling and administrative expenses	736,014	658,026	626,968	*12%*	*5%*
Research and development expenses	174,945	176,190	168,358	*(1%)*	*5%*
Purchased intangibles amortization	32,558	6,366	7,143	*411%*	*(11%)*
Acquired in-process research and development	—	9,797	—	**	**
Litigation provision	—	—	5,165	—	**
Operating income	817,676	873,395	821,707	*(6%)*	*6%*
Operating income as a % of sales	*27.7%*	*29.4%*	*29.5%*		
Other income, net	807	2,228	17,203	*(64%)*	*(87%)*
Interest expense, net	(82,240)	(37,777)	(32,717)	*118%*	*15%*
Income before income taxes	736,243	837,846	806,193	*(12%)*	*4%*
Provision for income taxes	94,009	130,091	113,350	*(28%)*	*15%*
Net income	$ 642,234	$ 707,755	$ 692,843	*(9%)*	*2%*
Net income per diluted common share	$ 10.84	$ 11.73	$ 11.17	*(8%)*	*5%*

** Percentage not meaningful

The Company’s net sales decreased 1% in 2023 as compared to 2022 and increased 7% in 2022 as compared to 2021. The Company’s sales in 2023 were negatively impacted by a 22% reduction of sales in China due to lower customer demand for our products. The sales growth in 2022 was driven by strong customer demand across most major geographies, end markets and product categories. Excluding China, the Company’s sales growth increased 5% and 6% in 2023 and 2022, respectively. Foreign currency translation decreased sales growth by 1% and 5% in 2023 and 2022, respectively. The Wyatt acquisition increased sales growth by 3% in 2023.

Instrument system sales decreased 7% in 2023 as compared to 2022 and increased 11% in 2022 as compared to 2021. In 2023, the decrease in instrument system sales resulted from weaker customer demand in China, which was partially offset by sales growth in the U.S. and Europe. Excluding China, the Company’s instrument system sales grew 1%. In addition, Wyatt’s instrument system sales added 4% to the Company’s instrument system sales growth. In 2022, the increase was driven by the broad-based increase in customer demand across all existing and newly introduced LC, LC-MS, and Thermal Analysis instrument system sales. Foreign currency translation decreased instrument system sales growth by 1% and 5% in 2023 and 2022, respectively.

Recurring revenues (combined sales of precision chemistry consumables and services) increased 6% and 3% in 2023 and 2022, respectively. Recurring revenues were negatively impacted by foreign currency translation in 2023 and 2022, which decreased sales by 1% and 6%, respectively.

Operating income was $818 million in 2023, a decrease of 6% as compared to 2022. This decrease in operating income was primarily due to higher salary expenses related to merit compensation, $26 million in severance-related costs associated with a workforce reduction and costs related to the Wyatt acquisition, including $13 million in due diligence costs, $27 million of intangible asset amortization and $19 million of costs associated with retention agreements. The negative effect of foreign currency translation lowered operating income by approximately $23 million during 2023.

In July 2023, the Company made organizational changes to better align its resources with its growth and innovation strategies, resulting in a worldwide workforce reduction that impacted approximately 5% of the Company’s employees. The Company incurred approximately $26 million of severance-related costs and paid approximately $19 million of severance-related costs in 2023, with the remaining costs to be paid in the first half of 2024. The Company estimates that the savings from this reduction in workforce will be approximately $48 million on an annual basis.

Operating income was $873 million in 2022, an increase of 6% as compared to 2021. This increase was primarily a result of the increase in sales volume and pricing increases, partially offset by higher electronic component and freight inflationary costs and the negative effect of foreign currency translation. The effect of foreign currency translation lowered operating income by approximately $71 million during 2022.

Operating income as a percentage of sales was 27.7%, 29.4% and 29.5% in 2023, 2022 and 2021, respectively.

The Company’s effective tax rates were 12.8%, 15.5% and 14.1% for 2023, 2022 and 2021, respectively. Net income per diluted share was $10.84, $11.73 and $11.17 in 2023, 2022 and 2021, respectively.

The Company generated $603 million, $612 million and $747 million of net cash flows provided by operating activities in 2023, 2022 and 2021, respectively. The decrease in 2023 operating cash flow was primarily a result of lower sales volumes, higher income tax payments and higher incentive compensation payments in 2023 as compared to 2022.

Net cash used in investing activities included $1.3 billion for the Wyatt acquisition in 2023 and capital expenditures related to property, plant, equipment and software capitalization of $161 million, $176 million and

$161 million in 2023, 2022 and 2021, respectively. The cash flows used in investing activities in 2023, 2022 and 2021 included $16 million, $32 million, and $49 million, respectively, of capital expenditures related to the major expansion of the Company's precision chemistry consumable operations in the United States.

During 2023, the Company funded the Wyatt acquisition with a combination of cash on hand and borrowings under its revolving credit facility. The Company's outstanding debt on December 31, 2023 was $2.4 billion, a change of $0.8 billion from December 31, 2022, which resulted in the Company's interest expense in 2023 increasing by $50 million to $99 million.

On March 3, 2023, the Company entered into an agreement to amend the credit agreement governing its revolving credit facility (the "2023 Amendment"). The 2023 Amendment increases the borrowing capacity by $200 million to an aggregate total borrowing capacity of $2.0 billion.

In December 2023, the Company's Board of Directors authorized the extension of the existing share repurchase program through January 21, 2025. The Company's remaining authorization is $1.0 billion. During the years ended December 31, 2023, 2022 and 2021, the Company repurchased $58 million, $616 million and $640 million of the Company's outstanding common stock, respectively, under the share repurchase programs. While the Company believes that it has the financial flexibility to fund these share repurchases, as well as to invest in research, technology and business acquisitions, given current cash levels and debt borrowing capacity, it has temporarily suspended its share repurchases due to its acquisition of Wyatt in the second quarter of 2023.

Results of Operations

Sales by Geography

Geographic sales information is presented below for the years ended December 31, 2023, 2022 and 2021 (dollars in thousands):

	Year Ended December 31,			*% change*	
	2023	**2022**	**2021**	***2023 vs. 2022***	***2022 vs. 2021***
Net Sales:					
Asia:					
China	$ 440,707	$ 565,143	$ 521,128	*(22%)*	*8%*
Japan	167,202	167,220	182,597	—	*(8%)*
Asia Other	399,916	399,380	372,040	—	*7%*
Total Asia	1,007,825	1,131,743	1,075,765	*(11%)*	*5%*
Americas:					
United States	927,982	886,140	774,014	*5%*	*14%*
Americas Other	180,591	169,495	151,206	*7%*	*12%*
Total Americas	1,108,573	1,055,635	925,220	*5%*	*14%*
Europe	840,018	784,578	784,889	*7%*	—
Total net sales	$2,956,416	$2,971,956	$2,785,874	*(1%)*	*7%*

In 2023, sales decreased 1% as compared to 2022, primarily as a result of a 22% decrease in China sales during 2023, which was partially offset by broad-based sales growth across most other major regions. The decline in China sales was primarily driven by lower demand for our instrument systems and chemistry products resulting from increased government regulations and lower spending by our customers due to weak economic conditions in China. Excluding China, the Company's sales increased 5% and 6% in 2023 and 2022, respectively. Foreign currency translation decreased sales growth by 1% and 5% in 2023 and 2022, respectively.

In 2023, sales increased 5% in the U.S. and 7% in Europe, while decreasing 11% in Asia, with the effect of foreign currency translation increasing sales growth in Europe by 2% and decreasing sales growth in Asia by 4%, which includes a 9% decrease in sales in Japan resulting from foreign currency translation. Wyatt's sales contributed 5% and 3% of sales growth to the U.S. and Europe in 2023, respectively.

The sales growth in 2022 was broad-based across most major regions. Foreign currency translation decreased total sales growth by 5% in 2022 as the U.S. dollar strengthened significantly against all other major currencies. The geographies that were the most negatively impacted by the strengthening of the U.S. dollar in 2022 were Europe and Japan, as the weakening of the euro and Japanese yen lowered sales growth in Europe and Japan by 10% and 17%, respectively. China sales increased 8% in 2022, with foreign currency translation decreasing China sales growth by 2% in 2022. This increase in China sales was driven by strong customer demand for our products and services despite the negative impact that the COVID-19 pandemic had on our business in China in 2022.

Sales by Trade Class

Net sales by customer class are presented below for the years ended December 31, 2023, 2022 and 2021 (dollars in thousands):

	Year Ended December 31,			*% change*	
	2023	**2022**	**2021**	***2023 vs. 2022***	***2022 vs. 2021***
Pharmaceutical	$1,696,875	$1,751,665	$1,667,061	*(3%)*	*5%*
Industrial	909,003	909,805	829,204	—	*10%*
Academic and government	350,538	310,486	289,609	*13%*	*7%*
Total net sales	$2,956,416	$2,971,956	$2,785,874	*(1%)*	*7%*

In 2023, sales to pharmaceutical customers decreased 3%, primarily driven by weakness in customer demand in China, with foreign currency translation decreasing pharmaceutical sales growth by 1% and Wyatt contributing 3% to the Company's pharmaceutical sales growth. Combined sales to industrial customers, which include material characterization, food, environmental and fine chemical markets, were flat in 2023, with foreign currency translation decreasing industrial sales growth by 1% and Wyatt contributing 1% to industrial sales growth. Combined sales to academic and government customers increased 13% in 2023, with foreign currency translation decreasing academic and government sales growth by 1% and Wyatt contributing 4% to academic and government sales growth. Sales to our academic and government customers are highly dependent on when institutions receive funding to purchase our instrument systems and, as such, sales can vary significantly from period to period.

In 2022, sales to pharmaceutical customers increased 5%, driven by strong growth in most major regions, partially offset by the negative impact from foreign currency translation which decreased pharmaceutical sales by 5%. Combined sales to industrial customers increased 10%, with foreign currency translation decreasing sales growth by 5%. Combined sales to academic and government customers increased 7%, with foreign currency translation decreasing academic and government sales growth by 6%.

Waters Products and Services Net Sales

Net sales for Waters products and services were as follows for the years ended December 31, 2023, 2022 and 2021 (dollars in thousands):

	Year Ended December 31,						% change	
	2023	% of Total	2022	% of Total	2021	% of Total	2023 vs. 2022	2022 vs. 2021
Waters instrument systems	$1,108,702	43%	$1,210,456	46%	$1,089,248	44%	(8%)	11%
Chemistry consumables	541,469	20%	525,399	20%	507,209	21%	3%	4%
Total Waters product sales	1,650,171	63%	1,735,855	66%	1,596,457	65%	(5%)	9%
Waters service	951,419	37%	890,607	34%	876,626	35%	7%	2%
Total Waters net sales	$2,601,590	100%	$2,626,462	100%	$2,473,083	100%	(1%)	6%

Waters products and service sales decreased 1% and 6% in 2023 and 2022, respectively, with the effect of foreign currency translation decreasing Waters sales growth by 1% and 6% in 2023 and 2022, respectively. The Wyatt acquisition increased Waters products and service sales by approximately 3% in 2023. Waters instrument system sales (LC and MS technology-based) decreased 8% in 2023, primarily driven by weaker customer demand in China. Excluding China, the Company's instrument system sales were flat as compared to 2022. In addition, Wyatt's instrument system sales contributed 5% to Waters instrument system sales growth in 2023. Waters chemistry consumables sales were significantly impacted by the lower customer demand in China for our products. Excluding China, the Company's chemistry sales grew 7% in 2023. This sales growth was primarily due to the continued strong demand in most major geographies, driven by the uptake in columns and application-specific testing kits to pharmaceutical customers, partially offset by the negative impact from foreign currency translation, which decreased chemistry sales growth by 1% in 2023. Waters service sales increased 7% in 2023 due to higher service demand billing, partially offset by the negative impact from foreign currency translation, which decreased service sales growth by 1% in 2023. Wyatt service revenues added 2% to Waters service revenue growth in 2023.

In 2022, Waters products and service sales increased 6%, with foreign currency translation decreasing Waters sales growth by 6%. Waters instrument system sales grew 11%, with foreign currency translation lowering sales growth by 5%. The increase in the Waters instrument system sales can be attributed to strong customer demand for our existing products as well as growing contributions made by recent product introductions. The increase in Waters chemistry consumables sales was primarily due to the strong demand in most major geographies, partially offset by the negative impact from foreign currency translation which decreased sales by 5%. Waters service sales increased due to higher service demand billing, particularly in China and the United States, partially offset by the negative impact from foreign currency translation which decreased by 6%.

TA Product and Services Net Sales

Net sales for TA products and services were as follows for the years ended December 31, 2023, 2022 and 2021 (dollars in thousands):

	Year Ended December 31,						% change	
	2023	% of Total	2022	% of Total	2021	% of Total	2023 vs. 2022	2022 vs. 2021
TA instrument systems	$252,879	71%	$252,314	73%	$225,613	72%	—	12%
TA service	101,947	29%	93,180	27%	87,178	28%	9%	7%
Total TA net sales	354,826	100%	345,494	100%	312,791	100%	3%	10%

TA instrument system and service sales increased 3% and 10% in 2023 and 2022, respectively. Foreign currency translation had minimal impact on sales growth in 2023 and decreased sales growth by 6% in 2022. In

2023, sales growth was broad-based across most major geographies, partially offset by weakness in China and the rest of Asia. These increases were primarily driven by strong customer demand for our thermal analysis instruments and services.

Cost of Sales
Cost of sales decreased 4% in 2023 as compared to 2022, primarily due to the change in sales mix and the lower material and freight costs. In 2022, cost of sales increased 8% as compared to 2021, primarily due to the increase in sales volumes during the year as well as an increase in electronic component and freight inflationary costs.

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 foreign currency translation to be neutral to gross profit during 2024.

Selling and Administrative Expenses
Selling and administrative expenses increased 12% and 5% in 2023 and 2022, respectively. The increase in 2023 is primarily driven by severance-related costs in connection with a reduction in workforce, which increased expenses by 4%; the Wyatt acquisition due diligence and integration costs, which increased expenses by 2%; and the Wyatt acquisition-related retention expense, which increased expenses by 3%. These increases were partially offset by lower incentive compensation costs. The increase in selling and administrative expenses in 2022 as compared to 2021 can be attributed to higher salary merit and variable incentive compensation costs due to an increase in the number of employees. The effect of foreign currency translation had minimal impact on selling and administrative expenses in 2023 and decreased expenses by 4% in 2022.

As a percentage of net sales, selling and administrative expenses were 24.9%, 22.1% and 22.5% for 2023, 2022, and 2021, respectively.

Research and Development Expenses
Research and development expenses decreased 1% and increased 5% in 2023 and 2022, respectively. The decrease in research and development expenses in 2023 can be attributed to increases from merit compensation and costs associated with new products and the development of new technology initiatives, being offset by lower incentive compensation costs. The impact of foreign currency exchange decreased expenses by 1% and 3% in 2023 and 2022, respectively.

Purchased Intangibles Amortization
The increase in purchased intangible amortization of $26 million in 2023 can be attributed to the Wyatt acquisition intangible assets.

Acquired In-Process Research & Development
In 2022, the Company completed an asset acquisition in which the CDMS technology assets of Megadalton were acquired for approximately $10 million in total purchase price, of which $5 million was paid at closing and the remaining $4 million will be paid in the future at various dates through 2029.

Other (Expense) Income, net
In 2022, the Company sold equity an equity investment for $10 million in cash and recorded a gain on the sale of approximately $7 million in other income, net on the statement of operations. The Company also incurred $6 million in losses on an equity investment within other income, net on the statement of operations.

In 2021, the Company executed a settlement agreement to resolve patent infringement litigation with Bruker Corporation and Bruker Daltronik GmbH regarding their timsTOF product line. In connection with the settlement, the Company is entitled to receive $10 million in guaranteed payments, including minimum royalty payments. In 2021, the Company recorded an unrealized gain of $10 million due to an observable change in the fair value of an existing investment that the Company does not have the ability to exercise significant influence over.

Interest Expense, net

Net interest expense in 2023 increased $44 million as compared to 2022 due to the additional borrowings by the Company to fund the Wyatt acquisition in 2023. Net interest expense in 2022 increased $5 million as compared to 2021 due to the lower interest income benefit from the lower notional amount of interest rate cross currency swap agreements.

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%, 25% and 17%, respectively, as of December 31, 2023. The Company has a new Development and Expansion Incentive in Singapore that provides a concessionary income tax rate of 5% on certain types of income for the period April 1, 2021 through March 31, 2026. Prior to April 1, 2021, the Company had a tax exemption on income arising from qualifying activities in Singapore based upon the achievement of certain contractual milestones, which the Company met as of December 31, 2020 and maintained through March 2021. The effect of applying the concessionary income tax rates rather than the statutory tax rate to income arising from qualifying activities in Singapore increased the Company's net income by $16 million, $20 million and $20 million, and increased the Company's net income per diluted share by $0.27, $0.33 and $0.32 for the years ended December 31, 2023, 2022 and 2021, respectively.

The Company's effective tax rate for the years ended December 31, 2023, 2022 and 2021 was 12.8%, 15.5% and 14.1%, respectively.

The 2023 effective tax rate differed from the 21% U.S. statutory tax rate primarily due to the jurisdictional mix of earnings, an $18 million recognition of a previously unrecognized tax benefit as a result of the completion of a tax examination, a $15 million provision related to the Global Intangible Low-Taxed Income ("GILTI") tax and a tax benefit of $3 million on stock-based compensation.

The 2022 effective tax rate differed from the 21% U.S. statutory tax rate primarily due to the jurisdictional mix of earnings, an $18 million provision related to the GILTI tax and a tax benefit of $7 million on stock-based compensation.

The 2021 effective tax rate differed from the U.S. federal statutory tax rate primarily due to the jurisdictional mix of earnings, a $10 million provision related to the GILTI tax and a tax benefit of $7 million on stock-based compensation.

Effective starting in 2024, various foreign jurisdictions are beginning to implement aspects of the guidance issued by the Organization for Economic Co-operation and Development related to the new Pillar Two system of global minimum tax rules. The Company does not believe these changes in tax law will have a material impact on the Company's financial position, results of operations and cash flows in 2024. The Company continues to monitor the adoption of the Pillar Two rules in additional jurisdictions.

Liquidity and Capital Resources

Condensed Consolidated Statements of Cash Flows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Net income	$ 642,234	$ 707,755	$ 692,843
Depreciation and amortization	165,905	130,423	131,680
Stock-based compensation	36,868	42,564	29,918
Deferred income taxes	(1,197)	(31,988)	16,633
Observable unrealized gain on investment	—	—	(9,707)
Acquired in-process research and development and other non-cash items	—	10,003	—
Change in accounts receivable	49,179	(137,874)	(62,448)
Change in inventories	(45,443)	(101,902)	(67,250)
Change in accounts payable and other current liabilities	(79,524)	60,984	46,110
Change in deferred revenue and customer advances	10,433	12,862	37,845
Other changes	(175,646)	(81,166)	(68,350)
Net cash provided by operating activities	602,809	611,661	747,274
Net cash used in investing activities	(1,442,265)	(107,967)	(231,630)
Net cash used in financing activities	754,951	(509,633)	(438,275)
Effect of exchange rate changes on cash and cash equivalents	(948)	(14,766)	(12,830)
(Decrease) increase in cash and cash equivalents	$ (85,453)	$ (20,705)	$ 64,539

Cash Flow from Operating Activities

Net cash provided by operating activities was $603 million, $612 million and $747 million in 2023, 2022 and 2021, respectively. The decrease in 2023 operating cash flow was primarily a result of lower net income, higher inventory levels, higher income tax payments and higher incentive compensation payments in 2023 as compared to 2022. 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, in addition to 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 78 days at December 31, 2023, 77 days at December 31, 2022 and 66 days at December 31, 2021.
- The increase in inventory can primarily be attributed to higher material costs as well as an increase in safety stock levels to help mitigate any future supply chain issues.
- The changes in accounts payable and other current liabilities were a result of the timing of payments to vendors, as well as the annual payment of management incentive compensation.
- An increase in income tax payments of $83 million as compared to the prior year and the payment of $26 million in Wyatt acquired liabilities.
- 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 and other liabilities.

Cash Flow from Investing Activities

Net cash used in investing activities totaled $1.4 billion, $108 million and $232 million in 2023, 2022 and 2021, respectively. Additions to fixed assets and capitalized software were $161 million, $176 million and $161 million in 2023, 2022 and 2021, respectively. The cash flows from investing activities in 2023, 2022 and 2021 include $16 million, $32 million and $49 million, respectively, of capital expenditures related to the major expansion of the Company's precision chemistry consumable operations in the United States. The Company has incurred costs of $248 million on this new state-of-the-art facility, which is substantially complete as of December 31, 2023.

During 2023, 2022 and 2021, the Company purchased $2 million, $11 million and $280 million of investments, respectively, while $2 million, $78 million and $218 million of investments matured, respectively, and were used for financing activities described below.

In 2023, the Company completed the acquisition of Wyatt for a total purchase price of $1.3 billion in cash. Wyatt is a pioneer in innovative light scattering and field-flow fractionation instruments, software, accessories, and services. The acquisition will expand Waters' portfolio and increase exposure to large molecule applications.

In 2022, the Company paid $5 million for the CDMS technology and intellectual property right asset from Megadalton, and the Company is required to make an additional $4 million of guaranteed payments at various dates in the future through 2029. The total purchase price of approximately $10 million was accounted for as Acquired In-Process Research and Development and expensed as part of costs and operating expenses in the statement of operations in 2023.

There were no business acquisitions in 2022 and 2021.

In 2022, the Company received $10 million in proceeds and made $1 million of investments in certain equity investments. In 2021, the Company made $2 million of investments in certain equity investments.

Cash Flow from Financing Activities

The Company entered into a credit agreement in September 2021 governing the Company's five-year, $1.8 billion revolving facility that matures in September 2026. On March 3, 2023, in anticipation of closing of the Wyatt acquisition, the Company entered into an agreement to amend the credit agreement governing its revolving credit facility (the "2023 Amendment"). The 2023 Amendment increases the borrowing capacity by $200 million to an aggregate total borrowing capacity of $2.0 billion. As of December 31, 2023, the Company had a total of $2.4 billion in outstanding debt, which consisted of $1.3 billion in outstanding senior unsecured notes and $1.1 billion in borrowings under its credit agreement. The Company's net debt borrowings as of December 31, 2023, 2022 and 2021 were $780 million, $60 million and $160 million higher than as of December 31, 2022, 2021 and 2020, respectively.

As of December 31, 2023, the Company has entered into three-year interest rate cross-currency swap derivative agreements with a notional value $625 million to hedge the variability in the movement of foreign currency exchange rates on a portion of its euro-denominated and yen-denominated net asset investments. As a result of entering into these agreements, the Company lowered net interest expense by approximately $11 million, $9 million and $15 million in 2023, 2022 and 2021, respectively. The Company anticipates that these swap agreements will lower net interest expense by approximately $7 million in 2024.

In December 2023, the Company's Board of Directors authorized the extension of the existing share repurchase program through January 21, 2025. The Company's remaining authorization is $1.0 billion. During 2023, 2022 and 2021, the Company repurchased $58 million, $616 million and $640 million, respectively, of the Company's outstanding common stock under authorized share repurchase programs. In addition, the Company repurchased $12 million, $11 million and $9 million of common stock related to the vesting of restricted stock units during 2023, 2022 and 2021, respectively.

The Company received $30 million, $43 million and $56 million of proceeds from the exercise of stock options and the purchase of shares pursuant to the Company's employee stock purchase plan during 2023, 2022 and 2021, respectively.

The Company had cash, cash equivalents and investments of $396 million as of December 31, 2023. The majority of the Company's cash and cash equivalents are generated from foreign operations, with $321 million held by foreign subsidiaries at December 31, 2023, of which $233 million was held in currencies other than U.S. dollars.

As of December 31, 2023, the Company's material cash requirements include the following contractual and other obligations:

Long-term debt. As of December 31, 2023, the Company had $2.4 billion of cash requirements for the principal on long-term debt that will mature and be paid as follows: $50 million in 2024; $1.5 billion in 2026; $50 million in 2028; $300 million in 2029; $50 million in 2030 and $400 million in 2031.

Interest on Senior Unsecured Notes. As of December 31, 2023, the Company had $189 million of cash requirements for the interest on senior unsecured notes that is to be paid as follows: $39 million in 2024; $38 million in 2025; $32 million in 2026; $25 million in 2027; $23 million in 2028; $20 million in 2029; $10 million in 2030; and $2 million in 2031. See also Note 9 in the Notes to the Consolidated Financial Statements for financial information about interest payable.

2017 Tax Act liabilities. As a result of the 2017 Tax Act, the Company incurred a Transition Toll Tax, that would be paid over an eight-year period, starting in 2018, and will not accrue interest. As of December 31, 2023, the Company had a remaining cash requirement of $216 million of which $96 million and $120 million will be paid in 2024 and 2025, respectively. See also Note 10 in the Notes to the Consolidated Financial Statements for financial information about tax liabilities.

Operating Leases. The Company's cash requirements for future lease payments were approximately $93 million as of December 31, 2023. See also Note 12 in the Notes to the Consolidated Financial Statements for financial information about lease liabilities.

Long-term Software Contract Commitments. For contracts the Company is committed to that are not cancelable without penalties. The Company's contractual obligation with these vendors was approximately $22 million as of December 31, 2023.

Wyatt Retention Agreements. In conjunction with the Wyatt acquisition, the Company entered into retention agreements with certain employees, in which the Company agreed to pay a total of $40 million by the end of the second anniversary of the acquisition date provided the employees remain employed over that period of time.

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.

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 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.

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 the 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 are included in product 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.

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, 2023 of $324 million on the consolidated balance sheets consist of instrument service contract obligations 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 Provision on Inventory
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 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, 2023 was recorded at its net realizable value of $516 million, which is net of write-downs of $41 million.

Long-Lived Assets, Intangible Assets and Goodwill
Goodwill and indefinite-lived intangible assets are not amortized, but are evaluated for impairment on an annual basis, or on an interim basis when events or changes in circumstances indicate that the carrying value may not be recoverable. In assessing the recoverability of goodwill and indefinite-lived intangible assets, we must make assumptions regarding the estimated future cash flows, including forecasted revenue growth and the discount rate to determine the fair value of these assets. If these estimates or their related assumptions change in the future, we may be required to record impairment charges against these assets in the reporting period in which the impairment is determined.

We test goodwill for impairment at the reporting unit level, which is the operating segment or one level below an operating segment. We have the option of performing a qualitative assessment to determine whether further impairment testing is necessary before performing the quantitative assessment. If as a result of the qualitative assessment, it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, a quantitative impairment test will be required. Otherwise, no further testing will be required. If a quantitative impairment test is performed, we compare the fair values of the applicable reporting units with their aggregate carrying values, including goodwill. Estimating the fair value of the reporting units requires significant judgment by management. If the carrying amount of a reporting unit exceeds the fair value of the reporting unit, an impairment charge is recognized for the amount by which the carrying value amount exceeds the reporting unit's fair value up to the total amount of goodwill allocated to the reporting unit. The Company performs an annual goodwill impairment assessment for its reporting units as of December 31 each year. The Company has two reporting units: Waters and TA. Goodwill is allocated to the reporting units at the time of acquisition.

The Company's intangible assets include purchased technology; capitalized software; costs associated with acquiring Company patents, trademarks and intellectual properties, such as licenses; and acquired IPR&D. Purchased intangibles are recorded at their fair market values as of the acquisition date and amortized over their estimated useful lives, ranging from one to fifteen years. Other intangibles are amortized over a period ranging from one to ten years. Acquired IPR&D is amortized from the date of completion of the acquired program over its estimated useful life.

Goodwill totaled $1.3 billion and $430 million as of December 31, 2023 and 2022, respectively. Net intangible assets and long-lived assets amounted to $629 million and $639 million, as of December 31, 2023, respectively, and $227 million and $582 million as of December 31, 2022, respectively.

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 Company continually evaluates 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, 2023, the Company had unrecognized tax benefits, excluding interest and penalties, of $14 million, which represents a decrease of $15 million resulting, primarily, from the completion of a tax examination in 2023. This decrease reduced the income tax expense in the statement of operations and did not impact cash flows.

The Company has a new Development and Expansion Incentive in Singapore that provides a concessionary income tax rate of 5% on certain types of income for the period April 1, 2021 through March 31, 2026. This new incentive has similar requirements for business spending targets, attaining and sustaining employment targets and performance of certain research and manufacturing activities as previous agreements. Prior to April 1, 2021, the Company had a tax exemption on income arising from qualifying activities in Singapore, based upon the achievement of certain contractual milestones, which the Company met as of December 31, 2020 and maintained through March 2021. These milestones include 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 determined that it was more likely than not to realize the tax exemption in Singapore and, accordingly, did not recognize any reserves for unrecognized tax benefits on its balance sheet related to this exemption. In the event that any of the milestone targets were not met, the Company would not be entitled to the tax exemption on income earned in Singapore and all the tax benefits previously recognized would be reversed, resulting in the recognition of income tax expense equal to the statutory tax of 17% on income earned during that period.

The effect of applying these concessionary income tax rates rather than the statutory tax rate to income arising from qualifying activities in Singapore increased the Company’s net income by $16 million, $20 million and $20 million and increased the Company’s net income per diluted share by $0.27, $0.33 and $0.32 for the years ended December 31, 2023, 2022 and 2021, respectively.

Business Combinations and Asset Acquisitions
We use assumptions and estimates in determining the fair value of assets acquired and liabilities assumed in a business combination. The determination of the fair value of intangible assets, which represents a significant portion of the purchase price in our recent acquisition of Wyatt, requires the use of significant judgment with regard to (i) the fair value; and (ii) whether such intangibles are amortizable or non-amortizable and, if the former, the period and the method by which the intangible asset will be amortized. We utilize commonly accepted valuation techniques, such as the income, cost and market approaches, as appropriate, in establishing the fair value of intangible assets. Typically, key assumptions include projections of cash flows that arise from identifiable intangible assets of acquired businesses as well as discount rates based on an analysis of the weighted average cost of capital, adjusted for specific risks associated with the assets.

In our recent acquisition of Wyatt, customer relationship intangible assets have been the most significant identifiable assets acquired. The customer relationships were valued using the multi-period excess earnings method under the income approach. Our cash flow projections for the customer relationships acquired included significant judgments and assumptions related to customer attrition rate, discount rate, and forecasted revenues. The value of the client relationships acquired was $331 million in fiscal year 2023, the majority of which relates to US customer relationships.

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 and yen-denominated net asset investments. The Company presents the derivative transactions in financing activities in the statement of cash flows.

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.

Cash Flow Hedges
The Company's Credit Facility is a variable borrowing and has interest payments based on a contractually specified interest rate index. The contractually specified index on the Credit Facility is the 3-month Term SOFR. The variable rate interest payments create interest risk for the Company as interest payments will fluctuate based on changes in the contractually specified interest rate index over the life of the Credit Facility. In order to reduce interest rate risk, the Company enters into interest rate swaps that will effectively lock-in the forecasted interest payments on the variable rate borrowing over its term. The interest rate swaps represent cash flow hedges and are assessed for hedge effectiveness each reporting period. When the hedge relationship is highly effective at achieving offsetting changes in cash flows, the Company will record the entire change in fair value of the interest rate swaps in accumulated other comprehensive loss. The amount in accumulated other comprehensive loss is reclassified to earnings in the period that the underlying transaction impacts consolidated earnings. If it becomes probable that the forecasted transaction will not occur, the hedge relationship will be de-designated and amounts accumulated in other comprehensive loss will be reclassified to earnings in the current period. Interest settlements due to benchmark interest rate changes are recorded in interest income or interest expense. For the year ended December 31, 2023, the Company did not have any cash flow hedges that were deemed ineffective.

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Interest Rate Cross-Currency Swap Agreements
As of December 31, 2023, the Company had three-year interest rate cross-currency swap derivative agreements with a notional value of $625 million to hedge the variability in the movement of foreign currency exchange rates on a portion of its euro-denominated and yen-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 other 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, interest rate cross-currency swap agreements and interest rate swap agreements designated as cash flow hedges are included in the consolidated balance sheets are classified as follows (in thousands):

	December 31, 2023		December 31, 2022	
	Notional Value	Fair Value	Notional Value	Fair Value
Foreign currency exchange contracts:				
Other current assets	$ 24,155	$ 183	$ 42,047	$ 231
Other current liabilities	$ 16,000	$ 207	$ 13,450	$ 98
Interest rate cross-currency swap agreements:				
Other assets	$220,000	$ 4,835	$400,000	$19,163
Other liabilities	$405,000	$13,384	$185,000	$ 4,783
Accumulated other comprehensive (loss) income		$ (7,975)		$10,026
Interest rate swap cash flow hedges:				
Other liabilities	$100,000	$ 2,974	$ —	$ —
Accumulated other comprehensive (loss) income		$ (2,974)		$ —

The following is a summary of the activity included in the consolidated statements of operations and statements of comprehensive income related to the foreign currency exchange contracts, and interest rate cross-currency swap agreements and interest rate swap agreements designated as cash flow hedges (in thousands):

	Financial Statement Classification	Year Ended December 31,		
		2023	2022	2021
Foreign currency exchange contracts:				
Realized gains (losses) on closed contracts	Cost of sales	$ 224	$ (3,855)	$ (1,973)
Unrealized losses on open contracts	Cost of sales	(156)	(176)	(343)
Cumulative net pre-tax gains (losses)	Cost of sales	$ 68	$ (4,031)	$ (2,316)
Interest rate cross-currency swap agreements:				
Interest earned	Interest income	$ 10,974	$ 8,872	$ 11,084
Unrealized (losses) gains on open contracts	Accumulated other comprehensive loss	$ (18,001)	$ 25,969	$ 29,052
Interest rate swap cash flow hedges:				
Interest earned	Interest income	$ 326	$ —	$ —
Unrealized losses on open contracts	Accumulated other comprehensive loss	$ (2,974)	$ —	$ —

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, 2023 would increase pre-tax earnings by approximately $5 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

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cross-currency swap agreements outstanding as of December 31, 2023 would increase by approximately $1 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, 2023, 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, 2023, 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, 2023 and 2022, $321 million out of $396 million and $472 million out of $481 million, respectively, of the Company's total cash, cash equivalents and investments were held by foreign subsidiaries. In addition, $233 million out of $396 million and $336 million out of $481 million of cash, cash equivalents and investments were held in currencies other than the U.S. dollar at December 31, 2023 and 2022, respectively. As of December 31, 2023, the Company had 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, 2023 would decrease by approximately $23 million, of which the majority would be recorded to foreign currency translation in other comprehensive income within stockholders' equity.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s definitive proxy statement that will be filed for the 2024 Annual Meeting of Stockholders are incorporated by reference in Part III.

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, 2023.

We excluded Wyatt Technology, LLC, and its three operating subsidiaries, (Wyatt Technology Europe GmbH, Wyatt Technology France and Wyatt Technology UK Ltd) (collectively “Wyatt”) from our assessment of internal control over financial reporting as of December 31, 2023, because Wyatt was acquired by the Company in a purchase business combination during 2023. The total assets and total revenues of Wyatt represent 2% and 2%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2023.

The effectiveness of our internal control over financial reporting as of December 31, 2023 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, 2023 and 2022, and the related consolidated statements of operations, of comprehensive income, of stockholders' equity and of cash flows for each of the three years in the period ended December 31, 2023, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2023, 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, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023 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, 2023, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the COSO.

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.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Wyatt Technology, LLC, and its three operating subsidiaries, Wyatt Technology Europe GmbH, Wyatt Technology France, and Wyatt Technology UK Ltd (collectively Wyatt) from its assessment of internal control over financial reporting as of December 31, 2023, because it was acquired by the Company in a purchase business combination during 2023. We have also excluded Wyatt from our audit of internal control over financial reporting. Wyatt is a wholly-owned subsidiary whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent 2% and 2%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2023.

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.

Critical Audit Matters

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

Product Revenue Recognition

As described in Note 2 to the consolidated financial statements, the Company recognizes revenue upon transfer of control of promised products to customers in an amount that reflects the consideration the Company expects to receive in exchange for those products. The Company recognizes revenue on product sales at the time control of the product transfers to the customer. Certain of the Company's customers have terms where control of the product transfers to the customer on shipment, while others have terms where control transfers to the customer on delivery. Product sales totaled $1.9 billion for the year ended December 31, 2023.

The principal consideration for our determination that performing procedures relating to product revenue recognition is a critical audit matter is a high degree of auditor effort in performing procedures related to the Company's product revenue recognition.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to product revenue recognition. These procedures also included, among others, (i) evaluating the recognition of revenue for a sample of transactions by obtaining and inspecting source documents, such as invoices, customer purchase orders, and shipping documents, and (ii) obtaining and inspecting evidence of remittance of cash payment from customers, as applicable, related to product revenue.

Acquisition of Wyatt Technology, LLC—Valuation of U.S. Customer Relationships

As described in Notes 1, 2 and 7 to the consolidated financial statements, on May 16, 2023, the Company completed the Wyatt acquisition for a total purchase price of $1.3 billion. Management allocated the purchase price of the acquisition to identifiable assets acquired and liabilities assumed based on their estimated fair values as of the acquisition date. As disclosed by management, of the $330.6 million of customer relationships recorded in connection with the acquisition, a majority relates to U.S. customer relationships. The customer relationships were valued using the multi-period excess earnings method under the income approach. Management's cash flow projections for the customer relationships acquired included significant judgments and assumptions related to customer attrition rate, discount rate, and forecasted revenues.

The principal considerations for our determination that performing procedures relating to the valuation of U.S. customer relationships acquired in the acquisition of Wyatt Technology, LLC is a critical audit matter are (i) the significant judgment by management when determining the fair value estimate of the U.S. customer relationships acquired; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to the customer attrition rate, discount rate, and forecasted revenues, and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the acquisition accounting, including controls over management's valuation of the U.S. customer relationships acquired. These procedures also included, among others, (i) reading the purchase agreement; (ii) testing management's process for developing the fair value estimate of the U.S. customer relationships acquired; (iii) evaluating the appropriateness of the multi-period excess earnings method used by management; (iv) testing the completeness and accuracy of the underlying data used in the multi-period excess earnings method; and (v) evaluating the reasonableness of the significant assumptions used by management related to the customer attrition rate, discount rate, and forecasted revenues. Evaluating the reasonableness of the significant assumptions used by management related to the customer attrition rate, discount rate and forecasted revenues involved considering (i) the current and past performance of the Wyatt business; (ii) the consistency with external market and industry data; and (iii) whether the assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating (i) the appropriateness of the multi-period excess earnings method under the income approach and (ii) the reasonableness of the customer attrition, discount rate, and forecasted revenue assumptions.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 27, 2024

We have served as the Company's auditor since 1994.

WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	December 31, 2023	December 31, 2022
	(In thousands, except per share data)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 395,076	$ 480,529
Investments	898	862
Accounts receivable, net	702,168	722,892
Inventories	516,236	455,710
Other current assets	138,489	103,910
Total current assets	1,752,867	1,763,903
Property, plant and equipment, net	639,073	582,217
Intangible assets, net	629,187	227,399
Goodwill	1,305,446	430,328
Operating lease assets	84,591	86,506
Other assets	215,690	191,100
Total assets	$ 4,626,854	$ 3,281,453
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Notes payable and debt	$ 50,000	$ 50,000
Accounts payable	84,705	93,302
Accrued employee compensation	69,391	103,300
Deferred revenue and customer advances	256,675	227,908
Current operating lease liabilities	27,825	26,429
Accrued income taxes	120,257	132,545
Accrued warranty	12,050	11,949
Other current liabilities	168,677	140,304
Total current liabilities	789,580	785,737
Long-term liabilities:		
Long-term debt	2,305,513	1,524,878
Long-term portion of retirement benefits	47,559	38,203
Long-term income tax liabilities	137,123	248,496
Long-term operating lease liabilities	58,926	62,108
Other long-term liabilities	137,812	117,543
Total long-term liabilities	2,686,933	1,991,228
Total liabilities	3,476,513	2,776,965
Commitments and contingencies (Notes 9, 10, 11, 12, 13 and 17)		
Stockholders' equity:		
Preferred stock, par value $ 0.01 per share, 5,000 shares authorized, none issued at December 31, 2023 and December 31, 2022	—	—
Common stock, par value $ 0.01 per share, 400,000 shares authorized, 162,709 and 162,425 shares issued, 59,176 and 59,104 shares outstanding at December 31, 2023 and December 31, 2022, respectively	1,627	1,624
Additional paid-in capital	2,266,265	2,199,824
Retained earnings	9,150,821	8,508,587
Treasury stock, at cost, 103,533 and 103,321 shares at December 31, 2023 and December 31, 2022, respectively	(10,134,252)	(10,063,975)
Accumulated other comprehensive loss	(134,120)	(141,572)
Total stockholders' equity	1,150,341	504,488
Total liabilities and stockholders' equity	$ 4,626,854	$ 3,281,453

The accompanying notes are an integral part of the consolidated financial statements.

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WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2023	2022	2021
	(In thousands, except per share data)		
Revenues:			
Product sales	$1,903,050	$1,988,169	$1,822,070
Service sales	1,053,366	983,787	963,804
Total net sales	2,956,416	2,971,956	2,785,874
Costs and operating expenses:			
Cost of product sales	766,374	836,209	752,514
Cost of service sales	428,849	411,973	404,019
Selling and administrative expenses	736,014	658,026	626,968
Research and development expenses	174,945	176,190	168,358
Purchased intangibles amortization	32,558	6,366	7,143
Litigation provision	—	—	5,165
Acquired in-process research and development	—	9,797	—
Total costs and operating expenses	2,138,740	2,098,561	1,964,167
Operating income	817,676	873,395	821,707
Other income, net	807	2,228	17,203
Interest expense	(98,861)	(48,797)	(44,938)
Interest income	16,621	11,020	12,221
Income before income taxes	736,243	837,846	806,193
Provision for income taxes	94,009	130,091	113,350
Net income	$ 642,234	$ 707,755	$ 692,843
Net income per basic common share	$ 10.87	$ 11.80	$ 11.25
Weighted-average number of basic common shares	59,076	59,985	61,575
Net income per diluted common share	$ 10.84	$ 11.73	$ 11.17
Weighted-average number of diluted common shares and equivalents	59,270	60,331	62,028

The accompanying notes are an integral part of the consolidated financial statements.

WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
	2023	2022	2021
		(In thousands)	
Net income	$642,234	$707,755	$692,843
Other comprehensive income (loss):			
Foreign currency translation	17,761	(46,135)	(1,903)
Unrealized losses on derivative instruments before reclassifications	(2,648)	—	—
Amounts reclassified to interest income	(326)	—	—
Unrealized losses on derivative instruments before income taxes	(2,974)	—	—
Income tax benefit	714	—	—
Unrealized losses on derivative instruments, net of tax	(2,260)	—	—
Unrealized gains (losses) on investments before income taxes	—	26	(26)
Income tax (expense) benefit	—	(6)	6
Unrealized gains (losses) on investments, net of tax	—	20	(20)
Retirement liability adjustment before reclassifications	(10,153)	20,953	9,342
Amounts reclassified to other income, net	(98)	574	1,167
Retirement liability adjustment before income taxes	(10,251)	21,527	10,509
Income tax benefit (expense)	2,202	(5,119)	(2,508)
Retirement liability adjustment, net of tax	(8,049)	16,408	8,001
Other comprehensive income (loss)	7,452	(29,707)	6,078
Comprehensive income	$649,686	$678,048	$698,921

The accompanying notes are an integral part of the consolidated financial statements.

WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31, 2023	2022	2021
	(In thousands)		
Cash flows from operating activities:			
Net income	$ 642,234	$ 707,755	$ 692,843
Adjustments to reconcile net income to net cash provided by operating activities:			
Stock-based compensation	36,868	42,564	29,918
Deferred income taxes	(1,197)	(31,988)	16,633
Depreciation	84,625	71,998	71,560
Amortization of intangibles	81,280	58,425	60,120
Observable unrealized gain on investment	—	—	(9,707)
Realized gain on sale of investment	(742)	—	—
In-process research and development and other non-cash charges	—	10,003	—
Change in operating assets and liabilities, net of acquisitions:			
Decrease (increase) in accounts receivable	49,179	(137,874)	(62,448)
Increase in inventories	(45,443)	(101,902)	(67,250)
Increase in other current assets	(43,164)	(23,074)	(20,765)
(Increase) decrease in other assets	(26,264)	(5,514)	4,490
(Decrease) increase in accounts payable and other current liabilities	(79,524)	60,984	46,110
Increase in deferred revenue and customer advances	10,433	12,862	37,845
Decrease in other liabilities	(105,476)	(52,578)	(52,075)
Net cash provided by operating activities	602,809	611,661	747,274
Cash flows from investing activities:			
Additions to property, plant, equipment and software capitalization	(160,632)	(175,921)	(161,266)
Asset and business acquisitions, net of cash acquired	(1,282,354)	—	—
Proceeds from (investments in) equity investments, net	742	8,903	(1,788)
Payments for intellectual property licenses	—	(7,535)	(7,000)
Purchases of investments	(1,791)	(11,407)	(279,660)
Maturities and sales of investments	1,770	77,993	218,084
Net cash used in investing activities	(1,442,265)	(107,967)	(231,630)
Cash flows from financing activities:			
Proceeds from debt issuances	1,450,040	205,000	510,000
Payments on debt	(670,040)	(145,000)	(350,000)
Payments of debt issuance costs	(400)	—	(8,537)
Proceeds from stock plans	29,792	42,801	55,643
Purchases of treasury shares	(70,277)	(626,061)	(648,930)
Proceeds from derivative contracts	15,836	13,627	3,549
Net cash provided by (used in) financing activities	754,951	(509,633)	(438,275)
Effect of exchange rate changes on cash and cash equivalents	(948)	(14,766)	(12,830)
(Decrease) increase in cash and cash equivalents	(85,453)	(20,705)	64,539
Cash and cash equivalents at beginning of period	480,529	501,234	436,695
Cash and cash equivalents at end of period	$ 395,076	$ 480,529	$ 501,234
Supplemental cash flow information:			
Income taxes paid	$ 243,316	$ 160,082	$ 153,504
Interest paid	$ 94,099	$ 48,083	$ 42,408

The accompanying notes are an integral part of the consolidated financial statements.

WATERS CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

	Number of Common Shares	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
				(In thousands)			
Balance December 31, 2020	161,666	$ 1,617	$2,029,465	$7,107,989	$ (8,788,984)	$ (117,943)	$ 232,144
Net income	—	—	—	692,843	—	—	692,843
Other comprehensive income	—	—	—	—	—	6,078	6,078
Issuance of common stock for employees:							
Employee Stock Purchase Plan	40	—	9,578	—	—	—	9,578
Stock options exercised	282	3	46,062	—	—	—	46,065
Treasury stock	—	—	—	—	(648,930)	—	(648,930)
Stock-based compensation	96	1	29,775	—	—	—	29,776
Balance December 31, 2021	162,084	$ 1,621	$2,114,880	$7,800,832	$ (9,437,914)	$ (111,865)	$ 367,554
Net income	—	—	—	707,755	—	—	707,755
Other comprehensive loss	—	—	—	—	—	(29,707)	(29,707)
Issuance of common stock for employees:							
Employee Stock Purchase Plan	37	—	10,952	—	—	—	10,952
Stock options exercised	192	2	31,676	—	—	—	31,678
Treasury stock	—	—	—	—	(626,061)	—	(626,061)
Stock-based compensation	112	1	42,316	—	—	—	42,317
Balance December 31, 2022	162,425	$ 1,624	$2,199,824	$8,508,587	$(10,063,975)	$ (141,572)	$ 504,488
Net income	—	—	—	642,234	—	—	642,234
Other comprehensive income	—	—	—	—	—	7,452	7,452
Issuance of common stock for employees:							
Employee Stock Purchase Plan	41	—	11,124	—	—	—	11,124
Stock options exercise d	100	1	17,635	—	—	—	17,636
Treasury stock	—	—	—	—	(70,277)	—	(70,277)
Stock-based compensation	143	2	37,682	—	—	—	37,684
Balance December 31, 2023	162,709	$ 1,627	$2,266,265	$9,150,821	$(10,134,252)	$ (134,120)	$ 1,150,341

The accompanying notes are an integral part of the consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1 Description of Business and Organization

Waters Corporation (the “Company,” “we,” “our,” or “us”), a global leader in analytical instruments and software, has pioneered innovations in chromatography, mass spectrometry and thermal analysis serving life, materials and food sciences for more than 65 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. 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. In addition, the Company designs, manufactures, sells and services thermal analysis, rheometry and calorimetry instruments through its TA Instruments product line. These 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. 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.

On May 16, 2023, the Company completed the acquisition of Wyatt Technology, LLC and its three operating subsidiaries, Wyatt Technology Europe GmbH, Wyatt Technology France and Wyatt Technology UK Ltd. (collectively, “Wyatt”), for a total purchase price of $ 1.3 billion in cash. Wyatt is a pioneer in innovative light scattering and field-flow fractionation instruments, software, accessories and services. The acquisition will expand Waters’ portfolio and increase exposure to large molecule applications. The Company financed this transaction with a combination of cash on its balance sheet and borrowings under its revolving credit facility.

2 Basis of Presentation and Summary of Significant Accounting Policies

Use of Estimates

The preparation of consolidated financial statements in conformity with generally accepted accounting principles (“GAAP”) 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. On an ongoing basis, the Company evaluates its estimates, including those related to revenue recognition, goodwill and intangible assets, income taxes, litigation and inventory valuation. 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.

Risks and Uncertainties

The Company is subject to risks common to companies in the analytical instrument industry, including, but not limited to, global economic and financial market conditions, fluctuations in foreign currency exchange rates, fluctuations in customer demand, development by its competitors of new technological innovations, costs of developing new technologies, levels of debt and debt service requirements, risk of disruption, dependence on key personnel, protection and litigation of proprietary technology, shifts in taxable income between tax jurisdictions and compliance with regulations of the U.S. Food and Drug Administration and similar foreign regulatory authorities and agencies.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its subsidiaries, which are wholly owned. The Company consolidates entities in which it owns or controls 50% or more of the voting shares. All inter-company balances and transactions have been eliminated.

Translation of Foreign Currencies

The functional currency of each of the Company’s foreign operating subsidiaries is the local currency of its country of domicile, except for the Company’s subsidiaries in Hong Kong, Singapore and the Cayman Islands, where the underlying transactional cash flows are denominated in currencies other than the respective local currency of domicile. The functional currency of the Hong Kong, Singapore and Cayman Islands subsidiaries is the U.S. dollar, based on the respective entity’s cash flows.

For the Company’s foreign operations, assets and liabilities are translated into U.S. dollars at exchange rates prevailing on the balance sheet date, while revenues and expenses are translated at average exchange rates prevailing during the respective period. Any resulting translation gains or losses are included in accumulated other comprehensive loss in the consolidated balance sheets.

The Company’s net sales derived from operations outside the United States were 69 %, 70 % and 72 % in 2023, 2022 and 2021, respectively. Gains and losses from foreign currency transactions are included primarily in cost of sales in the consolidated statements of operations. In 2023, 2022 and 2021, foreign currency transactions resulted in net losses of $ 16 million, $ 31 million and $ 5 million, respectively.

Seasonality of Business

The Company typically experiences seasonality in its orders that is reflected as an increase in sales in the fourth quarter, as a result of purchasing habits for capital goods of customers that tend to exhaust their spending budgets by calendar year-end.

Cash, Cash Equivalents and Investments

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. Investments with longer maturities are classified as investments, and are held primarily in U.S. treasury bills, U.S. dollar-denominated treasury bills and commercial paper, bank deposits and corporate debt securities.

Investments are classified as available-for-sale (“AFS”) debt securities. If the AFS debt security’s fair value exceeds the security’s amortized cost the unrealized gain is recognized in accumulated other comprehensive loss in stockholders’ equity (deficit), net of the related tax effects. If the AFS debt security’s fair value declines below its amortized cost the Company considers all available evidence to evaluate the extent to which the decline is due to credit-related factors or noncredit-related factors. If the decline is due to noncredit-related factors then no credit loss is recorded and the unrealized loss is recognized in accumulated other comprehensive income in stockholders’ equity, net of the related tax effects. If the decline is considered to be a credit-related impairment, it is recognized as an allowance on the consolidated balance sheet with a corresponding charge to the statement of operations. The credit allowance is limited to the difference between the fair value and the amortized cost basis. No credit-related allowances or impairments have been recognized on the Company’s investments in available-for-sale debt securities. The Company classifies its investments exclusive of those categorized as cash equivalents.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

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, 2023 and 2022, $ 321 million out of $ 396 million and $ 472 million out of $ 481 million, respectively, of the Company's total cash, cash equivalents and investments were held by foreign subsidiaries. In addition, $ 233 million out of $ 396 million and $ 336 million out of $ 481 million of cash, cash equivalents and investments were held in currencies other than the U.S. dollar at December 31, 2023 and 2022, respectively.

Accounts Receivable and Allowance for Credit Losses

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. The Company has very limited use of rebates and other cash considerations payable to customers and, as a result, the transaction price determination does not have any material variable consideration. The Company does not consider there to be significant concentrations of credit risk with respect to trade receivables due to the short-term nature of the balances, the Company having a large and diverse customer base, and the Company having a strong historical experience of collecting receivables with minimal defaults. As a result, credit risk is considered low across territories and trade receivables are considered to be a single class of financial asset. The allowance for credit losses is based on a number of factors and is calculated by applying a historical loss rate to trade receivable aging balances to estimate a general reserve balance along with an additional adjustment for any specific receivables with known or anticipated issues affecting the likelihood of recovery. Past due balances with a probability of default based on historical data as well as relevant available forward-looking information are included in the specific adjustment. The historical loss rate is reviewed on at least an annual basis and the allowance for credit losses is reviewed quarterly for any required adjustments. The Company does not have any off-balance sheet credit exposure related to its customers.

Trade receivables related to instrument sales are collateralized by the instrument that is sold. If there is a risk of default related to a receivable that is collateralized, then the fair value of the collateral is calculated and adjusted for the cost to re-possess, refurbish and re-sell the instrument. This adjusted fair value is compared to the receivable balance and the difference would be recorded as the expected credit loss.

The following is a summary of the activity of the Company's allowance for credit losses for the twelve months ended December 31, 2023, 2022 and 2021 (in thousands):

	Balance at Beginning of Period	Additions	Deductions	Balance at End of Period
Allowance for Credit Losses				
December 31, 2023	$ 14,311	$ 8,120	$ (3,096)	$ 19,335
December 31, 2022	$ 13,228	$ 6,509	$ (5,426)	$ 14,311
December 31, 2021	$ 14,381	$ 5,380	$ (6,533)	$ 13,228

Concentration of Credit Risk

The Company sells its products and services to a significant number of large and small customers throughout the world, with net sales to the pharmaceutical industry of approximately 57 %, 59 % and 60 % in 2023, 2022 and 2021, respectively. None of the Company's individual customers accounted for more than 2 % of annual Company sales in 2023, 2022 or 2021. The Company performs continuing credit evaluations of its customers and generally does not require collateral, but in certain circumstances may require letters of credit or deposits. Historically, the Company has not experienced significant credit losses.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Inventory

The Company values all of its inventories at the lower of cost or net realizable value on a first-in, first-out basis (“FIFO”).

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.

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.

Leases

The Company’s lease portfolio consists primarily of operating leases. The Company’s operating leases consist of property leases for sales, demonstration, laboratory, warehouse and office spaces, automotive leases for sales and service personnel and equipment leases, primarily used in our manufacturing and distribution operations. The Company categorizes leases as either operating or finance leases at the commencement date of the lease. The Company does not have any material financing leases.

The Company makes variable lease payments that do not depend on a rate or index, primarily for items such as real estate taxes and other expenses. These expenses are recorded as variable costs in the period incurred. For the years ended December 31, 2023, 2022 and 2021, variable costs incurred were not material.

The Company’s lease agreements may include tenant improvement allowances, rent holidays, and/or contingent rent provisions as well as a certain number of these leases contain rental escalation clauses that are either fixed or adjusted periodically for inflation of market rates which are factored into our determination of lease payments at lease inception. The Company’s leases also sometimes include renewal options and/or termination options which are included in the determination of the lease term when they are reasonably certain to be exercised.

The Company has lease agreements which contain lease and non-lease components, which are accounted for as a single lease component for all underlying classes of assets.

For leases with terms greater than 12 months, the Company records a right-of-use asset and lease liability at the present value of lease payments over the term of the leases and records rent expense on a straight-line basis over the lease term. The Company has elected not to apply the recognition requirements to short-term leases with terms less than 12 months. For short-term leases, the Company recognizes lease payments in net income on a straight-line basis over the term of the lease. For the years ended December 31, 2023, 2022 and 2021, costs incurred related to short-term leases were not material.

When available, the Company uses the rate implicit in the lease to discount lease payments to determine the present value of the lease liabilities; however, most of the leases do not provide a readily determinable implicit rate and, as required by the accounting guidance, the Company estimates its incremental secured borrowing rate to discount the lease payments based on information available at lease commencement (or, for the leases in existence on the adoption date, the January 1, 2019 information). The Company's incremental borrowing rate reflects the estimated rate of interest that the Company would pay to borrow on a collateralized basis over a similar term to the lease payments in a similar economic environment.

Property, Plant and Equipment

Property, plant and equipment are recorded at cost. Expenditures for maintenance and repairs are charged to expense, while the costs of significant improvements are capitalized. Depreciation is provided using the straight-line method over the following estimated useful lives: buildings — fifteen to thirty-nine years; building improvements — five to ten years ; leasehold improvements — the shorter of the economic useful life or life of lease; and production and other equipment — three to ten years . Upon retirement or sale, the cost of the assets disposed of and the related accumulated depreciation are eliminated from the consolidated balance sheets and related gains or losses are reflected in the consolidated statements of operations.

Asset Impairments

The Company reviews its long-lived assets for impairment in accordance with the accounting standards for property, plant and equipment. Whenever events or circumstances indicate that the carrying amount of an asset may not be recoverable, the Company evaluates the recoverability of the carrying value of the asset based on the expected future cash flows, relying on a number of factors, including, but not limited to, operating results, business plans, economic projections and anticipated future cash flows. If the asset is deemed not recoverable, it is written down to fair value and the impairment is recorded in the consolidated statements of operations.

During 2022, the Company recorded a total non-cash charge of $ 6 million in other income (expense), net in the consolidated statement of operations for the impairment of various equity investments without readily determinable fair values accounted for under the measurement alternative or the equity method of accounting. The impairments resulted from the substantial doubt of the investees ability to continue as a going concern.

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. We use assumptions and estimates in determining the fair value of assets acquired and liabilities assumed. The determination of the fair value of intangible assets, which represents a significant portion of the purchase price in our recent acquisition of Wyatt, requires the use of significant judgment with regard to (i) the fair value; and (ii) whether such intangibles are amortizable or non-amortizable and, if the former, the period and the method by which the intangible asset will be amortized. We utilize commonly accepted valuation techniques, such as the income, cost and market approaches, as appropriate, in establishing the fair value of intangible as sets. Typically, key assumptions include projections of cash flows that arise from identifiable intangible assets of acquired businesses as well as discount rates based on an analysis of the weighted average cost of capital, adjusted for specific risks associated with the assets.

In our recent acquisition of Wyatt, customer relationship intangible assets have been the most significant identifiable assets acquired. The customer relationships were valued using the multi-period excess earnings method under the income approach. Our cash flow projections for the customer relationships acquired included significant judgments and assumptions related to customer attrition rate, discount rate, and forecasted revenues.

Goodwill and Other Intangible Assets

Goodwill and indefinite-lived intangible assets are not amortized, but are evaluated for impairment on an annual basis, or on an interim basis when events or changes in circumstances indicate that the carrying value may not be recoverable. In assessing the recoverability of goodwill and indefinite-lived intangible assets, we must make assumptions regarding the estimated future cash flows, including forecasted revenue growth and the discount rate to determine the fair value of these assets. If these estimates or their related assumptions change in the future, we may be required to record impairment charges against these assets in the reporting period in which the impairment is determined.

We test goodwill for impairment at the reporting unit level, which is the operating segment or one level below an operating segment. We have the option of performing a qualitative assessment to determine whether further impairment testing is necessary before performing the quantitative assessment. If as a result of the qualitative assessment, it is more-likely-than-not that the fair value of a reporting unit is less than its carrying amount, a quantitative impairment test will be required. Otherwise, no further testing will be required. If a quantitative impairment test is performed, we compare the fair values of the applicable reporting units with their aggregate carrying values, including goodwill. Estimating the fair value of the reporting units requires significant judgment by management. If the carrying amount of a reporting unit exceeds the fair value of the reporting unit, an impairment charge is recognized for the amount by which the carrying value amount exceeds the reporting unit's fair value up to the total amount of goodwill allocated to the reporting unit. The Company performs an annual goodwill impairment assessment for its reporting units as of December 31 each year. The Company has two reporting units: Waters and TA. Goodwill is allocated to the reporting units at the time of acquisition.

The Company's intangible assets include purchased technology; capitalized software; costs associated with acquiring Company patents, trademarks and intellectual properties, such as licenses; and acquired IPR&D. Purchased intangibles are recorded at their fair market values as of the acquisition date and amortized over their estimated useful lives, ranging from one to fifteen years . Other intangibles are amortized over a period ranging from one to ten years . Acquired IPR&D is amortized from the date of completion of the acquired program over its estimated useful life.

Goodwill totaled $ 1.3 billion and $ 430 million as of December 31, 2023 and 2022, respectively. Net intangible assets and long-lived assets amounted to $ 629 million and $ 639 million, as of December 31, 2023, respectively, and $ 227 million and $ 582 million as of December 31, 2022, respectively.

Software Development Costs

The Company capitalizes internal and external software development costs for products offered for sale in accordance with the accounting standards for the costs of software to be sold, leased, or otherwise marketed. Capitalized costs are amortized to cost of sales over the period of economic benefit, which approximates a straight-line basis over the estimated useful lives of the related software products, generally three to ten years . The Company capitalized $ 44 million, $ 46 million and $ 36 million of direct expenses that were related to the development of software in 2023, 2022 and 2021, respectively. Net capitalized software included in intangible assets totaled $ 165 million and $ 148 million at December 31, 2023 and 2022, respectively. See Note 8, Goodwill and Other Intangibles.

The Company capitalizes software development costs for internal use. Capitalized internal software development costs are amortized over the period of economic benefit, which approximates a straight-line basis over ten years . Net capitalized internal software included in property, plant and equipment totaled $ 14 million and $ 15 million at December 31, 2023 and 2022, respectively.

Other Investments

The Company accounts for its investments that represent less than twenty percent ownership, and for which the Company does not have the ability to exercise significant influence, using the accounting standards for investments in equity securities. Investments for which the Company does not have the ability to exercise significant influence, and for which there is not a readily determinable market value, are accounted for at cost, adjusted for subsequent observable price changes as applicable. The Company periodically evaluates the carrying value of its investments for which the Company does not have the ability to exercise significant influence, and for which there is not a readily determinable fair value and carries them at cost, less impairment, adjusted for subsequent observable price changes. For equity investments in which the Company has the ability to exercise significant influence over operating and financial policies of the investee, the equity method of accounting is used. The Company's share of net income or losses of equity method investments is included in the consolidated statements of operations and was not material in any period presented.

During the year ended 2023, the Company received $ 1 million in proceeds from, and made no investments in, unaffiliated companies. During the year ended December 31, 2022 the Company received $ 10 million in proceeds from unaf f iliated companies. During the years ended December 31, 2022 and 2021, the Company made investments of $ 1 million and $ 2 million in unaffiliated companies, respectively.

In 2022, the Company recorded a realized gain of $ 7 million in other income (expense), net in the consolidated statement of operations due to the sales of various equity investments as well as incurring $ 6 million in impairment losses. The Company also recognized an additional $ 2 million non-cash gain on the cashless exercise of a warrant.

In 2021, the Company recorded an unrealized gain of $ 10 million due to an observable change in the fair value of an existing investment the Company does not have the ability to exercise significant influence over.

Fair Value Measurements

In accordance with the accounting standards for fair value measurements and disclosures, certain of the Company's assets and liabilities are measured at fair value on a recurring basis as of December 31, 2023 and 2022. Fair values determined by Level 1 inputs utilize observable data, such as quoted prices in active markets. Fair values determined by Level 2 inputs utilize data points other than quoted prices in active markets that are observable either directly or indirectly. Fair values determined by Level 3 inputs utilize unobservable data points for which there is little or no market data, which require the reporting entity to develop its own assumptions.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table represents the Company's assets and liabilities measured at fair value on a recurring basis at December 31, 2023 (in thousands):

	Total at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Time deposits	$ 898	$ —	$ 898	$ —
Waters 401(k) Restoration Plan assets	28,995	28,995	—	—
Foreign currency exchange contracts	183	—	183	—
Interest rate cross-currency swap agreements	4,835	—	4,835	—
Total	$ 34,911	$ 28,995	$ 5,916	$ —
Liabilities:				
Foreign currency exchange contracts	$ 207	$ —	$ 207	$ —
Interest rate cross-currency swap agreements	13,384	—	13,384	—
Interest rate swap cash flow hedge	2,974	—	2,974	—
Total	$ 16,565	$ —	$ 16,565	$ —

The following table represents the Company's assets and liabilities measured at fair value on a recurring basis at December 31, 2022 (in thousands):

	Total at December 31, 2022	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Assets:				
Time deposits	$ 862	$ —	$ 862	$ —
Waters 401(k) Restoration Plan assets	25,532	25,532	—	—
Foreign currency exchange contracts	231	—	231	—
Interest rate cross-currency swap agreements	19,163	—	19,163	—
Total	$ 45,788	$ 25,532	$ 20,256	$ —
Liabilities:				
Contingent consideration	$ 1,509	$ —	$ —	$ 1,509
Foreign currency exchange contracts	98	—	98	—
Interest rate cross-currency swap agreements	4,783	—	4,783	—
Total	$ 6,390	$ —	$ 4,881	$ 1,509

Fair Value of 401(k) Restoration Plan Assets

The 401(k) Restoration Plan is a nonqualified defined contribution plan and the assets were held in registered mutual funds and have been classified as Level 1. The fair values of the assets in the plan are determined through market and observable sources from daily quoted prices on nationally recognized securities exchanges.

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Fair Value of Cash Equivalents, Investments, Foreign Currency Exchange Contracts, Interest Rate Cross-Currency Swaps Agreements and Interest Rate Swap Cash Flow Hedges

The fair values of the Company’s cash equivalents, investments, foreign currency exchange contracts, interest rate cross-currency swap agreements and interest rate swap cash flow hedges are determined through market and observable sources and have been classified as Level 2. These assets and liabilities have been initially valued at the transaction price and subsequently valued, typically utilizing third-party pricing services. The pricing services use many inputs to determine value, including reportable trades, benchmark yields, credit spreads, broker/dealer quotes, current spot rates and other industry and economic events. The Company validates the prices provided by third-party pricing services by reviewing their pricing methods and obtaining market values from other pricing sources.

Fair Value of Contingent Consideration

The fair value of the Company’s liability for contingent consideration is determined using a probability-weighted discounted cash flow model, which uses significant unobservable inputs, and has been classified as Level 3. Subsequent changes in the fair value of the contingent consideration liability are recorded in the results of operations.

Fair Value of Other Financial Instruments

The Company’s accounts receivable and accounts payable are recorded at cost, which approximates fair value due to their short-term nature. The carrying value of the Company’s variable interest rate debt approximates fair value due to the variable nature of the interest rate. The carrying value of the Company’s fixed interest rate debt was $ 1.3 billion at both December 31, 2023 and 2022. The fair value of the Company’s fixed interest rate debt was estimated using discounted cash flow models, based on estimated current rates offered for similar debt under current market conditions for the Company. The fair value of the Company’s fixed interest rate debt was estimated to be $ 1.2 billion and $ 1.1 billion at December 31, 2023 and 2022, respectively, using Level 2 inputs.

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 and yen-denominated net asset investments. The Company presents the derivative transactions in financing activities in the statement of cash flows.

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 its 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.

Cash Flow Hedges

The Company’s Credit Facility is a variable borrowing and has interest payments based on a contractually specified interest rate index. The contractually specified index on the Credit Facility is the 3-month Term SOFR. The variable rate interest payments create interest risk for the Company as interest payments will fluctuate based on changes in the contractually specified interest rate index over the life of the Credit Facility. In order to reduce interest rate risk, the Company enters into interest rate swaps that will effectively lock-in the forecasted interest payments on the variable rate borrowing over its term. The interest rate swaps represent cash flow hedges and are assessed for hedge effectiveness each reporting period. When the hedge relationship is highly effective at achieving offsetting changes in cash flows, the Company will record the entire change in fair value of the interest rate swaps in accumulated other comprehensive loss. The amount in accumulated other comprehensive loss is reclassified to earnings in the period that the underlying transaction impacts consolidated earnings. If it becomes probable that the forecasted transaction will not occur, the hedge relationship will be de-designated and amounts accumulated in other comprehensive loss will be reclassified to earnings in the current period. Interest settlements due to benchmark interest rate changes are recorded in interest income or interest expense. For the year ended December 31, 2023, the Company did not have any cash flow hedges that were deemed ineffective.

Interest Rate Cross-Currency Swap Agreements

As of December 31, 2023, the Company had entered into interest rate cross-currency swap derivative agreements with durations up to three years with an aggregate notional value of $ 625 million to hedge the variability in the movement of foreign currency exchange rates on a portion of its euro-denominated and yen-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 other comprehensive loss 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.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

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

	December 31, 2023		December 31, 2022	
	Notional Value	Fair Value	Notional Value	Fair Value
Foreign currency exchange contracts:				
Other current assets	$ 24,155	$ 183	$ 42,047	$ 231
Other current liabilities	$ 16,000	$ 207	$ 13,450	$ 98
Interest rate cross-currency swap agreements:				
Other assets	$ 220,000	$ 4,835	$ 400,000	$ 19,163
Other liabilities	$ 405,000	$ 13,384	$ 185,000	$ 4,783
Accumulated other comprehensive (loss) income		$ (7,975)		$ 10,026
Interest rate swap cash flow hedges:				
Other liabilities	$ 100,000	$ 2,974	$ —	$ —
Accumulated other comprehensive (loss) income		$ (2,974)		$ —

The following is a summary of the activity included in the consolidated statements of operations and statements of comprehensive income related to the foreign currency exchange contracts, interest rate cross-currency swap agreements and interest rate swap agreements designated as cash flow hedges (in thousands):

	Financial Statement Classification	Year Ended December 31,		
		2023	2022	2021
Foreign currency exchange contracts:				
Realized gains (losses) on closed contracts	Cost of sales	$ 224	$ (3,855)	$ (1,973)
Unrealized losses on open contracts	Cost of sales	(156)	(176)	(343)
Cumulative net pre-tax gains (losses)	Cost of sales	$ 68	$ (4,031)	$ (2,316)
Interest rate cross-currency swap agreements:				
Interest earned	Interest income	$ 10,974	$ 8,872	$ 11,084
Unrealized (losses) gains on open contracts	Accumulated other comprehensive loss	$ (18,001)	$ 25,969	$ 29,052
Interest rate swap cash flow hedges:				
Interest earned	Interest income	$ 326	$ —	$ —
Unrealized losses on open contracts	Accumulated other comprehensive loss	$ (2,974)	$ —	$ —

Stockholders’ Equity

In December 2023, the Company’s Board of Directors authorized the extension of the existing share repurchase program through January 21, 2025. The Company’s remaining authorization is $ 1.0 billion. During 2023, 2022 and 2021, the Company repurchased 0.2 million, 2.0 million and 2.0 million shares of the Company’s outstanding common stock at a cost of $ 58 million, $ 616 million and $ 640 million, respectively, under the January 2019 authorization and other previously announced programs. In addition, the Company repurchased $ 12 million, $ 11 million and $ 9 million of common stock related to the vesting of restricted stock units during the years ended December 31, 2023, 2022 and 2021, respectively. As of December 31, 2023, the Company has a total of $ 1.0 b illion authorized for future repurchases.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Revenue Recognition

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. Certain of the Company's customers have terms where control of the product transfers to the customer on shipment, while others have terms where control transfers to the customer on delivery. 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 the 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 are included in product 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 their 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 (1) service and software maintenance contracts and (2) 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.

Product Warranty Costs

The Company accrues estimated product warranty costs at the time of sale, which are included in cost of sales in the consolidated statements of operations. 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. The amount of the accrued warranty liability is based on historical information, such as past experience, product failure rates, number of units repaired and estimated costs of material and labor. The liability is reviewed for reasonableness at least quarterly.

The following is a summary of the activity of the Company's accrued warranty liability for the twelve months ended December 31, 2023, 2022 and 2021 (in thousands):

	Balance at Beginning of Period	Accruals for Warranties	Settlements Made	Balance at End of Period
Accrued warranty liability:				
December 31, 2023	$ 11,949	$ 7,727	$ (7,626)	$ 12,050
December 31, 2022	$ 10,718	$ 10,067	$ (8,836)	$ 11,949
December 31, 2021	$ 10,950	$ 8,799	$ (9,031)	$ 10,718

Advertising Costs

All advertising costs are expensed as incurred and are included in selling and administrative expenses in the consolidated statements of operations. Advertising expenses were $ 7 million for the years ended December 31, 2023, 2022 and 2021.

Research and Development Expenses

Research and development expenses are comprised of costs incurred in performing research and development activities, including salaries and benefits, facilities costs, overhead costs, contract services and other outside costs. Research and development expenses are expensed as incurred.

Stock-Based Compensation

The Company has two stock-based compensation plans, which are described in Note 14, "Stock-Based Compensation".

Earnings Per Share

In accordance with the earnings per share accounting standards, the Company presents two earnings per share ("EPS") amounts. Income per basic common share is based on income available to common shareholders and the weighted-average number of common shares outstanding during the periods presented. Income per diluted common share includes additional dilution from potential common stock, such as stock issuable pursuant to the exercise of stock options outstanding.

Retirement Plans

The Company sponsors various retirement plans, which are described in Note 17, “Retirement Plans”.

Comprehensive Income

The Company accounts for comprehensive income in accordance with the accounting standards for comprehensive income, which establish the accounting rules for reporting and displaying comprehensive income. These standards require that all components of comprehensive income be reported in a financial statement that is displayed with the same prominence as other financial statements.

Restructuring

In July 2023, the Company made organizational changes to better align its resources with its growth and innovation strategies, resulting in a worldwide workforce reduction, that has impacted approximately 5 % of the Company’s employees. During 2023, the Company incurred $ 26 million of severance-related costs in connection with this reduction, which was recorded in selling and administrative expenses in the consolidated statement of operations. During 2023, the Company paid $ 19 million of these costs with the majority of the remaining costs to be paid in the first half of 2024.

Recently Adopted Accounting Standards

In October 2021, accounting guidance was issued that requires acquirers in a business combination to recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606. The new guidance requires that at the acquisition date, the acquirer should account for the related revenue contracts in accordance with 606 as if it had originated the contracts. This guidance differs from current GAAP which requires an acquirer to recognize assets acquired and liabilities assumed in a business combination, including contract assets and contract liabilities arising from revenue contracts with customers and other similar contracts that are accounted for in accordance with 606, at fair value on the acquisition date. This guidance is effective for public business entities for fiscal years beginning after December 15, 2022, including interim periods within those years. The Company adopted this standard on January 1, 2023. The adoption of this standard did not have a material impact on the Company’s financial position, results of operations and cash flows.

Recently Issued Accounting Standards

In March 2020, accounting guidance was issued that facilitates the effects of reference rate reform on financial reporting. The amendments in the update provide optional guidance for a limited period of time to ease the potential burden in accounting for or recognizing the effects of reference rate reform on financial reporting and apply to all entities, subject to meeting certain criteria, that have contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform. In January of 2021, an update was issued to clarify that certain optional expedients and exceptions under the reference rate reform guidance for contract modifications and hedge accounting apply to derivatives that are affected by the discounting transition. Specifically, certain provisions in the reference rate reform guidance, if elected by an entity, apply to derivative instruments that use an interest rate for margining, discounting, or contract price alignment that is modified as a result of reference rate reform. This temporary guidance is effective for all entities as of March 12, 2020, through December 31, 2022. In December 2022, an update was issued because the cessation date for overnight LIBOR rates being published was extended to June 30, 2023, which was beyond the current expiration date of this guidance. The update extended the sunset date to December 31, 2024. The Company may elect to apply this guidance for all contract modifications or eligible hedging relationships during that time period subject to certain criteria. The Company does not believe that it has material reference rate exposure which would require utilizing the guidance under this accounting pronouncement and if adopted does not believe that this standard would have a material impact on the Company's financial position, results of operations and cash flows.

In November 2023, accounting guidance was issued that requires additional disclosures of reportable segment information. The guidance requires that public entities disclose, on an annual and interim basis (1) significant segment expenses that are regularly provided to the chief operating decision maker ("CODM") and included within each reported measure of segment profit or loss, (2) an amount for other segment items by reportable segment and a description of its composition (the other segment items category is the difference between segment revenue less the segment expenses disclosed under the significant expense principle and each reported measure of segment profit or loss), (3) provide all annual disclosures about a reportable segment's profit or loss and assets currently required by Topic 280 in interim periods, (4) clarify that if the CODM uses more than one measure of a segment's profit or loss in assessing segment performance and deciding how to allocate resources, a public entity may report one or more of those additional measures of segment profit. However, at least one of the reported segment profit or loss measures (or the single reported measure, if only one is disclosed) should be the measure that is most consistent with the measurement principles used in measuring the corresponding amounts in the public entity's consolidated financial statements, (5) the title and position of the CODM and an explanation of how the CODM uses the reported measure(s) of segment profit or loss in assessing segment performance and deciding how to allocate resources, and (6) if a public entity has a single reportable segment to provide all the disclosures required by the amendments in this update and all existing segment disclosures in Topic 280. The amendments in this update do not change how operating segments are identified or aggregated nor how the quantitative thresholds are applied to determine its reportable segments. The amendments in this update are effective for fiscal years beginning after December 15, 2023, and interim periods within fiscal years beginning after December 15, 2024. Early adoption is permitted. The amendments in this update should be applied retrospectively to all prior periods presented in the financial statements. Upon transition, the segment expense categories and amounts disclosed in the prior periods should be based on the significant segment expense categories identified and disclosed in the period of adoption. The Company does not believe this accounting standard update will have material impact on the Company's financial position, results of operations and cash flows. The Company is currently evaluating the impact the adoption of this accounting standard update will have on our footnote disclosures.

In December 2023, accounting guidance was issued to enhance the transparency and decision usefulness of income tax disclosures. The amendments in this update change disclosure requirements related to the rate reconciliation, income taxes paid and other disclosures. For the rate reconciliation the amendments require that public business entities on an annual basis (1) disclose specific categories in the rate reconciliation and (2) provide additional information for reconciling items that meet a quantitative threshold. For income taxes paid the amendments require that all entities disclose on an annual basis the following information; (1) the amount of income taxes paid (net of refunds received) disaggregated by federal (national), state, and foreign taxes, (2) the amount of income taxes paid (net of refunds received) disaggregated by individual jurisdictions in which income taxes paid (net of refunds received) is equal to or greater than 5 percent of total income taxes paid (net of refunds received). Finally, for other disclosures the amendments require that all entities disclose the following information: (1) income (or loss) from continuing operations before income tax expense (or benefit) disaggregated between domestic and foreign, and (2) income tax expense (or benefit) from continuing operations disaggregated by federal (national), state, and foreign. This update also eliminates the requirement for all entities to (1) disclose the nature and estimate of the range of the reasonably possible change in the unrecognized tax benefits balance in the next 12 months or (2) make a statement that an estimate of the range cannot be made. As well as removing the requirement to disclose the cumulative amount of each type of temporary difference when a deferred tax liability is not recognized because of the exceptions to comprehensive recognition of deferred taxes related to subsidiaries and corporate joint ventures. The amendments in this update are effective for annual periods beginning after December 15, 2024. Early adoption is permitted for annual financial statements that have not yet been issued or made available for issuance. The amendments in this update should be applied on a prospective basis and retrospective application is permitted. The Company does not believe this accounting standard update will have material impact on the Company's financial position, results of operations and cash flows. The Company is currently evaluating the impact the adoption of this accounting standard update will have on our footnote disclosures.

3 Revenue Recognition

The Company's deferred revenue liabilities in the consolidated balance sheets consist 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.

The following is a summary of the activity of the Company's deferred revenue and customer advances for the twelve months ended December 31, 2023, 2022 and 2021 (in thousands):

	December 31,		
	2023	2022	2021
Balance at the beginning of the period	$ 285,175	$ 273,598	$ 239,759
Recognition of revenue included in balance at beginning of the period	(240,808)	(230,615)	(216,920)
Revenue deferred during the period, net of revenue recognized	279,149	242,192	250,759
Balance at the end of the period	$ 323,516	$ 285,175	$ 273,598

The Company classified $ 67 million and $ 57 million of deferred revenue and customer advances in other long-term liabilities at December 31, 2023 and 2022, respectively.

The amount of deferred revenue and customer advances equals the transaction price allocated to unfulfilled performance obligations for the period presented. Such amounts are expected to be recognized in the future as follows (in thousands):

	December 31, 2023
Deferred revenue and customer advances expected to be recognized in:	
One year or less	$ 256,675
13 - 24 months	39,326
25 months and beyond	27,515
Total	$ 323,516

4 Marketable Securities

The Company's marketable securities within cash equivalents and investments included in the consolidated balance sheets consist of time deposits that mature in one year or less with an amortized cost and a fair value of $ 0.9 million at both December 31, 2023 and 2022.

5 Inventories

Inventories are classified as follows (in thousands):

	December 31, 2023	December 31, 2022
Raw materials	$ 233,952	$ 205,760
Work in progress	20,198	19,899
Finished goods	262,086	230,051
Total inventories	$ 516,236	$ 455,710

During 2023, 2022 and 2021, the Company recorded inventory-related excess and obsolescence provisions of $ 11 million, $ 14 million and $ 9 million, respectively.

6 Property, Plant and Equipment

Property, plant and equipment consist of the following (in thousands):

	December 31,	
	2023	2022
Land and land improvements	$ 35,635	$ 34,663
Buildings and leasehold improvements	488,667	444,994
Production and other equipment	748,411	640,460
Construction in progress	118,492	164,222
Total property, plant and equipment	1,391,205	1,284,339
Less: accumulated depreciation and amortization	(752,132)	(702,122)
Property, plant and equipment, net	$ 639,073	$ 582,217

During 2023, 2022 and 2021, the Company retired and disposed of approximately $ 48 million, $ 24 million and $ 23 million of property, plant and equipment, respectively, most of which was fully depreciated and no longer in use. Gains or losses on disposals were immaterial for the years ended December 31, 2023, 2022 and 2021.

7 Acquisitions

On May 16, 2023, the Company acquired all of the issued and outstanding equity interests of Wyatt for $ 1.3 billion, net of cash acquired. Wyatt is a pioneer in innovative light scattering and field-flow fractionation instruments, software, accessories and services. The acquisition will expand Waters portfolio and increase exposure to large molecule applications. As a result of the acquisition, the results of Wyatt are included in the Company’s consolidated financial statements from the acquisition date.

The Company allocated the purchase price of the acquisition to identifiable assets acquired and liabilities assumed based on their estimated fair values as of the acquisition date. The purchase price allocation was based upon preliminary information and is subject to change if additional information about the facts and circumstances that existed at the acquisition date becomes available. The Company is in the ongoing process of conducting a valuation of the assets acquired and liabilities assumed related to the acquisition. The final fair value of the net assets acquired may result in adjustments to these assets and liabilities, including goodwill.

The intangible assets were valued with input from valuation specialists. The Company used variations of the income approach, which uses Level 3 inputs, in determining the fair value of intangible assets acquired in the

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Wyatt acquisition. Specifically, the customer relationships were valued using the multi-period excess earnings method under the income approach. The Company utilized the relief from royalty method to determine the fair value of the tradename and the developed technology. The following table presents the preliminary allocation of the purchase price to the estimated fair values of the assets acquired and liabilities assumed on the closing date of May 16, 2023 (in thousands):

Purchase Price	
Cash paid	$1,307,978
Less: cash acquired	(25,624)
Net cash consideration	1,282,354
Identifiable Net Assets (Liabilities) Acquired	
Accounts receivable	20,099
Inventory	14,706
Deferred tax assets	11,335
Prepaid and other assets	1,096
Property, plant and equipment	9,056
Operating lease assets	5,204
Intangible assets	418,100
Accounts payable and accrued expenses	(31,664)
Operating lease liabilities	(5,204)
Tax liabilities	(3,917)
Deferred revenue	(15,219)
Other liabilities	(5,728)
Total identifiable net assets acquired	417,864
Goodwill	864,490
Cash consideration paid	$1,282,354

The details of the purchase price allocated to the intangible assets acquired and the estimated useful lives are as follows (dollars in thousands):

	Amount	Weighted-Average Life
Developed technology	$ 80,000	10 years
Customer relationships	330,600	10 years
Trade name	7,500	5 years
Total	$ 418,100	

The Company allocated $ 864 million of the purchase price to goodwill which is primarily deductible for tax purposes and has been allocated to the Waters Division operating segment. The goodwill arising from the acquisition consists largely of the value of intangible assets that do not qualify for separate recognition such as workforce in place and cash flows from the integration of acquired technology, distribution channels and products with the Company's products, which are higher than if the acquired companies' technology, customer access or products were utilized on a stand-alone basis.

During the twelve months ended December 31, 2023, the Company's consolidated results included net sales of $ 73 million, and a net operating loss of $ 18 million since the acquisition closed on May 16, 2023. The Company also incurred transaction related costs of $ 13 million during the twelve months ended December 31, 2023, which are recorded in selling and administrative expenses in the consolidated statement of operations.

Unaudited Pro Forma Financial Information

The following unaudited pro forma information is presented for illustrative purposes only. It is not necessarily indicative of the actual results of operations that actually would have been realized had the entities been a single company as of January 1, 2022 or the future operating results of the combined entity. The unaudited pro forma information does not give effect to the potential impact of current financial conditions, regulatory matters or any anticipated synergies that may be associated with the acquisition. The unaudited pro forma information also does not include any integration costs that the Company may incur related to the acquisition as part of combining the operations of the companies.

The following unaudited pro forma information shows the results of the Company's operations for the twelve months ended December 31, 2023 and 2022, as if the acquisition had occurred on January 1, 2022 (in thousands):

	December 31, 2023	December 31, 2022
Revenue	$ 2,995,001	$ 3,086,281
Net income	658,431	651,869

To reflect the acquisition of Wyatt as if it had occurred on January 1, 2022, the unaudited pro forma information includes adjustments to reflect, among other things, the incremental intangible asset amortization to be incurred based on the preliminary values of each identifiable intangible asset of Wyatt and the interest expense from debt financings obtained to partially fund the cash consideration transferred. Pro forma adjustments were tax effected at the Company's historical statutory rates in effect for the respective periods.

Pro forma net income for the twelve months ended December 31, 2023, was adjusted to exclude certain non-recurring expenses related to transaction costs incurred and the fair value adjustment of inventory. These non-recurring expenses were reclassified to the prior period and included in the pro forma net income for the twelve months ended December 31, 2022.

In conjunction with the Wyatt acquisition, the Company entered into retention agreements with certain employees, in which the Company agreed to pay a total of $ 40 million, in two equal installments upon the first and second anniversary of the acquisition date. As these employees are earning their individual cash award by providing service over the two-year period that benefit the Company, the $ 40 million will be recognized within total costs and operating expenses in the consolidated statements of operations over the two-year service period. The Company has recorded $ 19 million of expense in the consolidated statement of operations for the year ended December 31, 2023.

On January 31, 2022, the Company completed an asset acquisition in which the charge detection mass spectrometry technology ("CDMS technology") assets of Megadalton Solutions, Inc. ("Megadalton") were acquired for approximately $ 10 million in total purchase price, of which $ 5 million was paid at closing and the remaining $ 4 million will be paid in the future at various dates through 2029. This CDMS technology makes it possible to analyze extremely large proteins and protein complexes used in cell and gene therapies that would otherwise be difficult to analyze with conventional mass spectrometry. Once this technology is further developed, it will extend the capabilities of our mass spectrometry portfolio for a broader set of applications, and as such, the cost of this technology asset has been accounted for as Acquired In-Process Research and Development and expensed in costs and operating expenses in the statement of operations.

8 Goodwill and Other Intangibles

The carrying amount of goodwill was $ 1.3 billion and $ 430 million at December 31, 2023 and 2022, respectively. The acquisition of Wyatt increased goodwill by $ 864 million, while the effect of foreign currency translation increased goodwill by $ 10 million.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company's intangible assets included in the consolidated balance sheets are detailed as follows (dollars in thousands):

	December 31, 2023			December 31, 2022		
	Gross Carrying Amount	Accumulated Amortization	Weighted-Average Amortization Period	Gross Carrying Amount	Accumulated Amortization	Weighted-Average Amortization Period
Capitalized software	$ 660,273	$ 495,317	5 years	$589,604	$ 441,414	5 years
Purchased intangibles	614,357	197,154	10 years	197,805	166,735	11 years
Trademarks	9,680	—	—	9,680	—	—
Licenses	14,798	8,429	7 years	14,070	6,729	6 years
Patents and other intangibles	111,962	80,983	8 years	104,139	73,021	8 years
Total	$1,411,070	$ 781,883	7 years	$915,298	$ 687,899	7 years

The Company capitalized $ 468 million, $ 54 million and $ 55 million of intangible assets for the years ended December 31, 2023, 2022 and 2021, respectively. The gross carrying value of intangible assets and accumulated amortization for intangible assets increased by $ 32 million and $ 18 million, respectively, in the year ended December 31, 2023 due to the effects of foreign currency translation. Amortization expense for intangible assets was $ 81 million, $ 58 million and $ 60 million for the years ended December 31, 2023, 2022 and 2021, respectively. In addition, in the year ended December 31, 2023, the company wrote off a $ 4 million intangible asset that was fully amortized. Amortization expense for intangible assets is estimated to be $ 98 million per year for each of the next five years.

9 Debt

On May 16, 2023, the Company financed the Wyatt acquisition with a combination of cash on its balance sheet and borrowings under its revolving credit facility. As a result of the Wyatt transaction, the Company's outstanding debt on December 31, 2023 was $ 2.4 billion.

On May 11, 2023, the Company issued the following senior unsecured notes:

Senior Unsecured Notes	Term	Interest Rate	Face Value (in millions)	Maturity Date
Series P	5 years	4.91 %	$ 50	May 2028
Series Q	7 years	4.91 %	$ 50	May 2030

The Company used the proceeds from the issuance of these senior unsecured notes to repay other outstanding debt and for general corporate purposes. Interest on the Series P and Q Senior Notes is payable semi-annually in arrears. The Company may prepay some or all of the Senior Notes, at any time and from time to time, in an amount not less than 10 % of the aggregate principal amount of the Senior Notes then outstanding, plus the applicable make-whole amount for Series P and Q Senior Notes, in each case, upon no more than 60 nor less than 20 days' written notice to the holders of the Senior Notes. In the event of a change in control (as defined in the note purchase agreement) of the Company, the Company may be required to prepay the Senior Notes at a price equal to 100% of the principal amount thereof, plus accrued and unpaid interest. Other provisions for these senior unsecured notes are similar to the existing senior unsecured notes, as described below.

The Company ha s a five-year , $ 1.8 billion revolving facility (the "Credit Facility") that expires in September 2026. On March 3, 2023, the Company amended the Credit Facility to increase the borrowing capacity by $ 200 million to an aggregate total borrowing capacity of $ 2.0 billion, which did not affect the maturity date of September 17, 2026. The amendment also replaced all references in the Credit Facility to LIBOR with Term SOFR as the benchmark rate. As of December 31, 2023 and December 31, 2022, the Credit Facility had a total of $ 1.1 billion and $ 270 million outstanding, respectively.

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The interest rates applicable under the Credit Facility are, at the Company's option, equal to either the alternate base rate (which is a rate per annum equal to the greatest of (1) the prime rate in effect on such day, (2) the Federal Reserve Bank of New York Rate on such day plus 1/2 of 1% per annum and (3) the adjusted Term SOFR rate for a one-month interest period as published two U.S. Government Securities Business Days prior to such day (or if such day is not a U.S. Government Securities Business Day, the immediately preceding U.S. Government Securities Business Day), plus 1% annum) or the applicable 1, 3 or 6 month adjusted Term SOFR 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 Term SOFR or EURIBO rate loans. The facility fee on the Credit Facility 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 Credit Facility 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 Credit Facility includes negative covenants, affirmative covenants, representations and warranties and events of default that are customary for investment grade credit facilities.

As of both December 31, 2023 and 2022, the Company had a total of $ 1.3 billion of outstanding senior unsecured notes. Interest on the 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. 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.

The Company had the following outstanding debt at December 31, 2023 and 2022 (in thousands):

	December 31, 2023	December 31, 2022
Senior unsecured notes - Series I - 3.13 %, due May 2023	$ —	$ 50,000
Senior unsecured notes - Series G - 3.92 %, due June 2024	50,000	—
Total notes payable and debt, current	50,000	50,000
Senior unsecured notes - Series G - 3.92 %, due June 2024	—	50,000
Senior unsecured notes - Series H - floating rate*, due June 2024	—	50,000
Senior unsecured notes - Series K - 3.44 %, due May 2026	160,000	160,000
Senior unsecured notes - Series L - 3.31 %, due September 2026	200,000	200,000
Senior unsecured notes - Series M - 3.53 %, due September 2029	300,000	300,000
Senior unsecured notes - Series N - 1.68 %, due March 2026	100,000	100,000
Senior unsecured notes - Series O - 2.25 %, due March 2031	400,000	400,000
Senior unsecured notes - Series P - 4.91 %, due May 2028	50,000	—
Senior unsecured notes - Series Q - 4.91 %, due May 2030	50,000	—
Credit agreement	1,050,000	270,000
Unamortized debt issuance costs	(4,487)	(5,122)
Total long-term debt	2,305,513	1,524,878
Total debt	$ 2,355,513	$ 1,574,878

* Series H senior unsecured notes bear interest at a 3-month LIBOR for that floating rate interest period plus 1.25 %.

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As of December 31, 2023 and 2022, the Company had a total amount available to borrow under the Credit Facility of $ 0.9 billion and $ 1.5 billion, respectively, after outstanding letters of credit. The weighted-average interest rates applicable to the senior unsecured notes and credit agreement borrowings collectively were 4.69 % and 3.54 % at December 31, 2023 and 2022, respectively. As of December 31, 2023, the Company was in compliance with all debt covenants.

The Company and its foreign subsidiaries also had available short-term lines of credit totaling $ 114 million and $ 113 million at December 31, 2023 and December 31, 2022, respectively, for the purpose of short-term borrowing and issuance of commercial guarantees. None of the Company's foreign subsidiaries had outstanding short-term borrowings as of December 31, 2023 or December 31, 202 2.

Annual maturities of debt outstanding at December 31, 2023 are as follows (in thousands):

	Total
2024	$ 50,000
2025	—
2026	1,510,000
2027	—
2028	50,000
Thereafter	750,000
Total	$ 2,360,000

10 Income Taxes

Income tax data for the years ended December 31, 2023, 2022 and 2021 is as follows (in thousands):

	Year Ended December 31,		
	2023	2022	2021
The components of income before income taxes are as follows:			
Domestic	$ 74,119	$133,816	$144,410
Foreign	662,124	704,030	661,783
Total	$736,243	$837,846	$806,193

	Year Ended December 31,		
	2023	2022	2021
The components of the income tax provision were as follows:			
Federal	$ 178	$ 62,153	$ 16,302
State	6,427	8,025	3,691
Foreign	88,601	91,901	76,724
Total current tax provision	$95,206	$162,079	$ 96,717
Federal	$(2,457)	$ (26,551)	$ 10,491
State	(3,029)	(4,420)	345
Foreign	4,289	(1,017)	5,797
Total deferred tax provision	(1,197)	(31,988)	16,633
Total provision	$94,009	$130,091	$113,350

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The differences between income taxes computed at the United States statutory rate and the provision for income taxes are summarized as follows for the years ended December 31, 2023, 2022 and 2021 (in thousands):

	Year Ended December 31,		
	2023	2022	2021
Federal tax computed at U.S. statutory income tax rate	$154,611	$175,948	$169,300
GILTI, net of foreign tax credits	15,103	17,812	10,476
Uncertain tax positions	(16,211)	1,051	508
State income tax, net of federal income tax benefit	2,880	3,605	4,037
Net effect of foreign operations	(48,587)	(55,273)	(56,214)
Effect of stock-based compensation	(2,262)	(7,341)	(6,682)
Other, net	(11,525)	(5,711)	(8,075)
Provision for income taxes	$ 94,009	$130,091	$113,350

The Company's effective tax rate was 12.8 %, 15.5 % and 14.1 % for the years ended December 31, 2023, 2022 and 2021, respectively. The decrease in the Company's effective tax rate in 2023 can primarily be attributed to the recognition of a previously unrecognized tax benefit of $ 18 million as a result of the completion of a tax examination, decreasing the Company's 2023 effective tax rate by approximately 2.5 %.

The Company's effective income tax rate differs from the U.S. federal statutory rate each year due to differences in the proportionate amounts of pre-tax income recognized in jurisdictions with different effective tax rates and the items discussed below.

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 %, 25 % and 17 %, respectively, as of December 31, 2023. The Company has a new Development and Expansion Incentive in Singapore that provides a concessionary income tax rate of 5 % on certain types of income for the period April 1, 2021 through March 31, 2026. Prior to April 1, 2021, the Company had a tax exemption on income arising from qualifying activities in Singapore based upon the achievement of certain contractual milestones, which the Company met as of December 31, 2020 and maintained through March 2021. The effect of applying these concessionary income tax rates rather than the statutory tax rate to income arising from qualifying activities in Singapore increased the Company's net income by $ 16 million, $ 20 million and $ 20 million and increased the Company's net income per diluted share by $ 0.27 , $ 0.33 and $ 0.32 for the year s ended December 31, 2023, 2022 and 2021, respectively.

During 2023, the Company's effective tax rate differed from the 21 % U.S. statutory tax rate primarily due to the jurisdictional mix of earnings, an $ 18 million recognition of a previously unrecognized tax benefit as a result of the completion of a tax examination, a $ 15 million provision related to the GILTI tax, including the impact of capitalizing research and development expenditures pursuant to IRC Section 174, and a tax benefit of $ 3 million on stock-based compensation.

The 2022 effective tax rate differed from the 21 % U.S. statutory tax rate primarily due to the jurisdictional mix of earnings, a $ 18 million provision related to the GILTI tax and a tax benefit of $ 7 million on stock-based compensation.

The 2021 effective tax rate differed from the 21 % U.S. statutory tax rate primarily due to the jurisdictional mix of earnings, an $ 10 million provision related to the GILTI tax and a tax benefit of $ 7 million on stock-based compensation.

The Company recorded a tax provision of $ 4 million, $ 4 million and $ 3 million for 2023, 2022 and 2021, respectively, for future withholding taxes and U.S. state taxes on the repatriation of 2023, 2022 and 2021 undistributed earnings.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The tax effects of temporary differences and carryforwards which give rise to deferred tax assets and deferred tax liabilities are summarized as follows (in thousands):

	December 31, 2023	December 31, 2022
Deferred tax assets:		
Net operating losses and credits	$ 54,901	$ 51,945
Depreciation	1,517	18
Operating leases	20,307	19,771
Amortization	5,905	2,713
Stock-based compensation	7,754	7,947
Deferred compensation	14,886	23,488
Deferred revenue	17,127	13,555
Revaluation of equity investments and licenses	1,884	23
Inventory	7,534	6,463
Accrued liabilities and reserves	5,720	4,815
Capitalized interest	12,586	—
Unrealized foreign currency gain/loss	700	1,858
Capitalized Section 174 Expenditures	34,487	34,234
Other	5,086	1,098
Total deferred tax assets	190,394	167,928
Valuation allowance	(57,873)	(54,300)
Deferred tax assets, net of valuation allowance	132,521	113,628
Deferred tax liabilities:		
Capitalized software	(29,281)	(25,429)
Operating leases	(20,117)	(19,543)
Indefinite-lived intangibles	(14,824)	(16,057)
Deferred tax liability on foreign earnings	(20,374)	(18,677)
Total deferred tax liabilities	(84,596)	(79,706)
Net deferred tax assets	$ 47,925	$ 33,922

The Company has gross foreign net operating losses of $ 231 million, of which $ 192 million do not expire under current laws and $ 39 million start expiring in 2024. As of December 31, 2023, the Company has provided a deferred tax valuation allowance of $ 58 million, of which $ 52 million relates to certain foreign net operating losses. The Company's net deferred tax assets associated with net operating losses and tax credit carryforwards are approximately $ 3 million as of December 31, 2023, which represent the future tax benefit of foreign net operating loss carryforwards that do not expire under current law.

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 reporting positions on the presumption that all concerned tax authorities possess full knowledge of those tax reporting positions, as well as all of the pertinent facts and circumstances, but prohibit any discounting of unrecognized tax benefits associated with those reporting positions for the time value of money. The Company continues to classify interest and penalties related to unrecognized tax benefits as a component of the provision for income taxes.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	2023	2022	2021
Balance at the beginning of the period	$ 29,019	$28,692	$28,666
Net reductions for settlement of tax audits	(17,651)	—	(1,300)
Net reductions for lapse of statutes taken during the period	(512)	(818)	(433)
Net additions for tax positions taken during the prior period	2,473	—	—
Net additions for tax positions taken during the current period	994	1,145	1,759
Balance at the end of the period	$ 14,323	$29,019	$28,692

As of 2023, the total amount of gross unrecognized tax benefits was $ 14 million, all of which, if recognized, would impact the Company's effective tax rate. This represents a decrease of $ 18 million resulting from the completion of a tax audit in 2023. This decrease reduced the income tax expense in the statement of operations and did not impact cash flows. The Company is subject to various foreign audits and inquiries, and we currently do not expect any material adjustments.

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, 2018. 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.

As of December 31, 2023, the Company expects to record additional reductions in the measurement of its unrecognized tax benefits and related net interest and penalties of approximately $ 2 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 following is a summary of the activity of the Company's valuation allowance for the years ended December 31, 2023, 2022 and 2021 (in thousands):

	Balance at Beginning of Period	Charged to Provision for Income Taxes*	Other**	Balance at End of Period
Valuation allowance for deferred tax assets:				
2023	$ 54,300	$ 1,467	$ 2,106	$ 57,873
2022	$ 58,834	$ (1,647)	$(2,887)	$ 54,300
2021	$ 60,101	$ 2,919	$(4,186)	$ 58,834

* These amounts have been recorded as part of the income statement provision for income taxes. The income statement effects of these amounts have largely been offset by amounts related to changes in other deferred tax balance sheet accounts.

** The changes in the valuation allowance during the years ended December 31, 2023, 2022 and 2021 are primarily due to the effect of foreign currency translation on a valuation allowance related to a net operating loss carryforward.

11 Litigation

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, results of operations or cash flows. During the year ended December 31, 2021, the Company executed a settlement agreement to resolve patent infringement litigation with Bruker Corporation and Bruker Daltronik

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GmbH regarding their timsTOF product line. In connection with the settlement, the Company is entitled to receive $ 10 million in guaranteed payments, including minimum royalty payments, which was recognized within other income (expense), net in the consolidated statement of operations for the year ended December 31, 2021. During the years ended December 31, 2023, 2022 and 2021, the Company received $ 2 million, $ 1 million and $ 3 million, respectively, in guaranteed payments, net of applicable withholding taxes. The Company also recorded a litigation provision of $ 5 million during the year ended December 31, 2021, related to a legal settlement.

12 Leases

As of December 31, 2023 and 2022, the Company had lease agreements that expire at various dates through 2034, with weighted-average remaining lease terms of 4.5 years and 4.4 years, respectively. Rental expense was $ 38 million, $ 36 million and $ 34 million for the years ended December 31, 2023, 2022 and 2021, respectively. As of December 31, 2023 and 2022, the weighted-average discount rates used to determine the present value of lease liabilities were 4.15 % and 3.24 %, respectively. During the years ended December 31, 2023, 2022 and 2021, cash paid for amounts included in the measurement of lease liabilities in operating activities in the statement of cash flows was $ 38 million, $ 36 million and $ 34 million, respectively. T he Company recorded $ 2 million , $ 12 million and $ 3 million of right-of-use assets in exchange for new operating lease liabilities during the years ended December 31, 2023, 2022 and 2021, respectively.

The Company’s right-of-use lease assets and lease liabilities included in the consolidated balance sheets are classified as follows (in thousands):

	Financial Statement Classification	December 31, 2023	December 31, 2022
Assets:			
Property operating lease assets	Operating lease assets	$55,006	$54,930
Automobile operating lease assets	Operating lease assets	28,675	30,582
Equipment operating lease assets	Operating lease assets	910	994
Total lease assets		$84,591	$86,506
Liabilities:			
Current operating lease liabilities	Current operating lease liabilities	$27,825	$26,429
Long-term operating lease liabilities	Long-term operating lease liabilities	58,926	62,108
Total lease liabilities		$86,751	$88,537

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Undiscounted future minimum rents payable as of December 31, 2023 under non-cancelable leases with initial terms exceeding one year reconcile to lease liabilities included in the consolidated balance sheet as follows (in thousands):

2024	$ 30,344
2025	24,570
2026	18,321
2027	10,752
2028	3,848
2029 and thereafter	5,215
Total future minimum lease payments	93,050
Less: amount of lease payments representing interest	(6,299)
Present value of future minimum lease payments	86,751
Less: current operating lease liabilities	(27,825)
Long-term operating lease liabilities	$ 58,926

13 Other Commitments and Contingencies

The Company licenses certain technology and software from third parties in the course of ordinary business. Future minimum license fees payable under existing license agreements as of December 31, 2023 are immaterial for the years ended December 31, 2023 and thereafter.

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.

14 Stock-Based Compensation

In May 2020, the Company’s shareholders approved the Company’s 2020 Equity Incentive Plan (“2020 Plan”). As of December 31, 2023, the 2020 Plan has 6.3 million shares available for grant in the form of incentive or non-qualified stock options, stock appreciation rights (“SARs”), restricted stock or other types of awards (e.g. restricted stock units and performance stock units). The Company issues new shares of common stock upon exercise of stock options, restricted stock unit conversion or performance stock unit conversion. Under the 2020 Plan, the exercise price for stock options may not be less than the fair market value of the underlying stock at the date of grant. The 2020 Plan is scheduled to terminate on May 13, 2030. Options generally will expire no later than ten years after the date on which they are granted and will become exercisable as directed by the Compensation Committee of the Board of Directors and generally vest in equal annual installments over a five-year period. A SAR may be granted alone or in conjunction with an option or other award. Shares of restricted stock, restricted stock units and performance stock units may be issued under the 2020 Plan for such consideration as is determined by the Compensation Committee of the Board of Directors. As of December 31, 2023, the Company had stock options , restricted stock and restricted and performance stock unit awards o utstanding.

In May 2009, the Company’s shareholders approved the 2009 Employee Stock Purchase Plan, under which eligible employees may contribute up to 15 % of their earnings toward the quarterly purchase of the Company’s common stock. The plan makes available 0.8 million shares of the Company's common stock, which includes the remaining shares available under the 1996 Employee Stock Purchase Plan. As of December 31, 2023, 1.7 million shares have been issued under both the 2009 and 1996 Employee Stock Purchase Plans. Each plan period lasts three months beginning on January 1 , April 1, July 1 and October 1 of each year. The purchase price for each share of stock is the lesser of 90% of the market price on the first day of the plan period or 100% of the market price on the last day of the plan period. Stock-based compensation expense related to this plan was $ 1 million for each of the years ended December 31, 2023, 2022 and 2021.

The Company accounts for stock-based compensation costs in accordance with the accounting standards for stock-based compensation, which require that all share-based payments to employees be recognized in the statements of operations, based on their grant date fair values. The Company recognizes the expense using the straight-line attribution method. The stock-based compensation expense recognized in the consolidated statements of operations is based on awards that ultimately are expected to vest; therefore, the amount of expense has been reduced for estimated forfeitures. Forfeitures are estimated based on historical experience. If actual results differ significantly from these estimates, stock-based compensation expense and the Company's results of operations could be materially impacted. In addition, if the Company employs different assumptions in the application of these standards, the compensation expense that the Company records in the future periods may differ significantly from what the Company has recorded in the current period.

The consolidated statements of operations for the years ended December 31, 2023, 2022 and 2021 include the following stock-based compensation expense related to stock option awards, restricted stock awards, restricted stock unit awards, performance stock unit awards and the employee stock purchase plan (in thousands):

	2023	2022	2021
Cost of sales	$ 2,014	$ 3,498	$ 2,500
Selling and administrative expenses	31,012	32,192	21,727
Research and development expenses	3,842	6,874	5,691
Total stock-based compensation	$36,868	$42,564	$29,918

Stock Options

In determining the fair value of the stock options, the Company makes a variety of assumptions and estimates, including volatility measures, expected yields and expected stock option lives. The fair value of each option grant was estimated on the date of grant using the Black-Scholes option pricing model. The Company uses implied volatility on its publicly-traded options as the basis for its estimate of expected volatility. The Company believes that implied volatility is the most appropriate indicator of expected volatility because it is generally reflective of historical volatility and expectations of how future volatility will differ from historical volatility. The expected life assumption for grants is based on historical experience for the population of non-qualified stock option exercises. The risk-free interest rate is the yield currently available on U.S. Treasury zero-coupon issues with a remaining term approximating the expected term used as the input to the Black-Scholes model. The relevant data used to determine the value of the stock options granted during the twelve months ended December 31, 2023, 2022 and 2021 are as follows:

Options Issued and Significant Weighted-Average Assumptions Used to Estimate Option Fair Values	2023	2022	2021
Options issued in thousands	132	138	160
Risk-free interest rate	3.9%	2.0%	0.8%
Expected life in years	6	6	6
Expected volatility	31.1%	30.7%	32.4%
Expected dividends	—	—	—

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Weighted-Average Exercise Price and Fair Value of Options on the Date of Grant	2023	2022	2021
Exercise price	$331.76	$321.15	$281.33
Fair value	$126.73	$107.99	$ 91.48

The following table summarizes stock option activity for the plans for the twelve months ended December 31, 2023 (in thousands, except per share data):

	Number of Shares	Exercise Price per Share			Weighted-Average Exercise Price per Share
Outstanding at December 31, 2022	597	$ 99.22	to	$371.64	$ 238.43
Granted	132	$253.64	to	$345.59	$ 331.76
Exercised	(99)	$ 99.22	to	$314.98	$ 178.31
Canceled	(43)	$195.75	to	$345.59	$ 291.54
Outstanding at December 31, 2023	587	$113.88	to	$371.64	$ 265.17

The following table details the options outstanding at December 31, 2023 by range of exercise prices (in thousands, except per share data):

Exercise Price Range	Number of Shares Outstanding	Weighted-Average Exercise Price	Remaining Contractual Life of Options Outstanding	Number of Shares Exercisable	Weighted-Average Exercise Price
$ 113.88 to $ 235.06	192	$ 187.37	4.7	150	$ 181.57
$ 235.07 to $ 303.64	166	$ 267.95	6.8	80	$ 262.92
$ 303.65 to $ 371.64	229	$ 328.38	8.6	29	$ 331.66
Total	587	$ 265.17	6.8	259	$ 223.37

During 2023, 2022 and 2021, the total intrinsic value of the stock options exercised (i.e., the difference between the market price at exercise and the price paid by the employee to exercise the options) was $ 11 million, $ 31 million and $ 43 million, respectively. The total cash received from the exercise of these stock options was $ 18 million, $ 32 million and $ 46 million for the year s ended December 31, 2023, 2022 and 2021, respectively.

The aggregate intrinsic value of the outstanding stock options at December 31, 2023 was $ 39 million. There were 0.3 million options exercisable at December 31, 2023, 2022 and 2021. The weighted-average exercise prices of options exercisable at December 31, 2023, 2022 and 2021 were $ 223.37 , $ 188.21 and $ 162.09 , respectively. The weighted-average remaining contractual life of the exercisable outstanding stock options at December 31, 2023 was 5.1 years. The aggregate intrinsic value of stock options exercisable as of December 31, 2023 was $ 28 million.

At December 31, 2023, the Company had 0.6 million stock options that are vested and expected to vest. The intrinsic value, weighted-average exercise price and remaining contractual life of the vested and expected to vest stock options were $ 39 million, $ 264.78 and 6.7 years, respectively, at December 31, 2023.

The amount of compensation costs recognized for the year s ended December 31, 2023, 2022 and 2021 on the stock options expected to vest were $ 10 million, $ 8 million and $ 7 million, respectively. As of December 31, 2023, there were $ 25 million of total unrecognized compensation costs related to unvested stock option awards that are expected to vest. These costs are expected to be recognized over a weighted-average period of 3.4 years.

Restricted Stock

During the years ended December 31, 2023, 2022 and 2021, the Company granted three thousand, three thousand and four thousand shares of restricted stock, respectively. The weighted-average fair value per share on the grant date of the restricted stock granted in 2023, 2022 and 2021 was $ 341.04 , $ 363.44 and $ 256.28 , respectively. The Company has recorded $ 1 million of compensation expense in each of the years ended December 31, 2023, 2022 and 2021 related to the restricted stock grants. As of December 31, 2023, the Company had three thousand unvested shares of restricted stock outstanding, which have been fully expensed.

Restricted Stock Units

The following table summarizes the unvested restricted stock unit award activity for the twelve months ended December 31, 2023 (in thousands, except per share data):

	Shares	Weighted-Average Grant Date Fair Value per Share
Unvested at December 31, 2022	238	$ 273.60
Granted	100	$ 319.28
Vested	(74)	$ 254.61
Forfeited	(29)	$ 288.50
Unvested at December 31, 2023	235	$ 297.18

Restricted stock units are generally granted annually in February and vest in equal annual installments over a five-year period. The amount of compensation costs recognized for the years ended December 31, 2023, 2022 and 2021 on the restricted stock units expected to vest were $ 19 million, $ 19 million and $ 17 million, respectively. As of December 31, 2023, there were $ 50 million of total unrecognized compensation costs related to the restricted stock unit awards that are expected to vest. These costs are expected to be recognized over a weighted-average period of 3.3 years .

Performance Stock Units

The Company's performance stock units are equity compensation awards with a market vesting condition based on the Company's Total Shareholder Return ("TSR") relative to the TSR of the components of the S&P Health Care Index. TSR is the change in value of a stock price over time, including the reinvestment of dividends. The vesting schedule ranges from 0 % to 200 % of the target shares awarded. Beginning with the grants made in 2020, the vesting conditions for performance stock units now include a performance condition based on future sales growth.

In determining the fair value of the performance stock units, the Company makes a variety of assumptions and estimates, includ ing vola tility measures, expected yields and expected terms. The fair value of each performance stock unit grant was estimated on the date of grant using the Monte Carlo simulation model. The Company uses implied volatility on its publicly traded options as the basis for its estimate of expected volatility. The Company believes that implied volatility is the most appropriate indicator of expected volatility because it is generally reflective of historical volatility and expectations of how future volatility will differ from historical volatility. The expected life assumption for grants is based on the performance period of the underlying performance stock units. The risk-free interest rate is the yield currently available on U.S. Treasury zero-coupon issues with a remaining term approximating the expected term used as the input to the Monte Carlo simulation model. The correlation coefficient is used to model the way in which each company in the S&P Health Care Index tends to move in relation to each other during the performance period. The relevant data used to determine

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the value of the performance stock units granted during the years ended December 31, 2023, 2022 and 2021 are as follows:

Performance Stock Units Issued and Significant Assumptions Used to Estimate Fair Values	2023	2022	2021
Performance stock units issued in thousands	45	40	41
Risk-free interest rate	4.8%	1.6%	0.2%
Expected life in years	2.9	2.9	2.9
Expected volatility	33.3%	25.4%	38.7%
Average volatility of peer companies	32.8%	34.5%	34.7%
Correlation Coefficient	38.2%	43.0%	45.8%
Expected dividends	—	—	—

The following table summarizes the unvested performance stock unit award activity for the twelve months ended December 31, 2023 (in thousands, except per share data):

	Shares	Weighted-Average Fair Value per Share
Unvested at December 31, 2022	111	$ 297.55
Granted	45	$ 338.02
Vested	(46)	$ 208.35
Forfeited	(17)	$ 307.03
Change in performance shares in the year due to exceeding performance targets	15	$ 205.72
Unvested at December 31, 2023	108	$ 337.22

The amount of compensation costs recognized for the years ended December 31, 2023, 2022 and 2021 on the performance stock units expected to vest were $ 5 million, $ 13 million and $ 3 million, respectively. As of December 31, 2023, there were $ 15 million of total unrecognized compensation costs related to the performance stock unit awards that are expected to vest. These costs are expected to be recognized over a weighted-average period of 1.9 years.

15 Earnings Per Share

Basic and diluted EPS calculations are detailed as follows (in thousands, except per share data):

	Year Ended December 31, 2023		
	Net Income (Numerator)	Weighted-Average Shares (Denominator)	Per Share Amount
Net income per basic common share	$ 642,234	59,076	$ 10.87
Effect of dilutive stock option, restricted stock, performance stock unit and restricted stock unit securities	—	194	(0.03)
Net income per diluted common share	$ 642,234	59,270	$ 10.84

	Year Ended December 31, 2022		
	Net Income (Numerator)	Weighted-Average Shares (Denominator)	Per Share Amount
Net income per basic common share	$ 707,755	59,985	$ 11.80
Effect of dilutive stock option, restricted stock, performance stock unit and restricted stock unit securities	—	346	(0.07)
Net income per diluted common share	$ 707,755	60,331	$ 11.73

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	Year Ended December 31, 2021		
	Net Income (Numerator)	Weighted-Average Shares (Denominator)	Per Share Amount
Net income per basic common share	$ 692,843	61,575	$ 11.25
Effect of dilutive stock option, restricted stock, performance stock unit and restricted stock unit securities	—	453	(0.08)
Net income per diluted common share	$ 692,843	62,028	$ 11.17

For the year s ended December 31, 2023, 2022 and 2021, the Company had 245 thousand, 66 thousand and 3 thousand stock options that were antidilutive, respectively, due to having higher exercise prices than the Company's average stock price during the period. These securities were not included in the computation of diluted EPS. The effect of dilutive securities was calculated using the treasury stock method.

16 Accumulated Other Comprehensive Loss

The components of accumulated other comprehensive loss are detailed as follows (in thousands):

	Currency Translation	Unrealized Gain (Loss) on Retirement Plans	Unrealized Gain (Loss) on Investments	Unrealized Loss on Derivative Instruments	Accumulated Other Comprehensive Loss
Balance at December 31, 2021	$ (99,985)	$ (11,860)	$ (20)	$ —	$ (111,865)
Other comprehensive (loss) income, net of tax	(46,135)	16,408	20	—	(29,707)
Balance at December 31, 2022	$(146,120)	$ 4,548	$ —	$ —	$ (141,572)
Other comprehensive (loss) income, net of tax	17,761	(8,049)	—	(2,260)	7,452
Balance at December 31, 2023	$(128,359)	$ (3,501)	$ —	$ (2,260)	$ (134,120)

17 Retirement Plans

U.S. employees are eligible to participate in the Waters Employee Investment Plan, a 401(k) defined contribution plan, immediately upon hire. Employees may contribute up to 60 % of eligible pay on a pre-tax or post-tax basis and the Company makes matching contributions of 100 % for contributions up to 6 % of eligible pay. The Company also sponsors a 401(k) Restoration Plan, which is a nonqualified defined contribution plan. Employees are 100 % vested in employee and Company matching contributions for both plans. For the year s ended December 31, 2023, 2022 and 2021, the Company's matching contributions amounted to $ 22 million, $ 21 million and $ 19 million, respectively.

The Company also sponsors other employee benefit plans in the U.S., including a retiree healthcare plan, which provides reimbursement for medical expenses and is contributory. There are various employee benefit plans outside the United States (both defined benefit and defined contribution plans). Certain non-U.S. defined benefit plans ("Non-U.S. Pension Plans") are included in the disclosures below, which are required under the accounting standards for retirement benefits.

The Company contributed $ 18 million, $ 16 million and $ 17 million in the year s ended December 31, 2023, 2022 and 2021, respectively, to the non-U.S. plans (primarily defined contribution plans) which are currently outside of the scope of the required disclosures. The eligibility and vesting of non-U.S. plans are consistent with local laws and regulations.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The net periodic pension cost is made up of several components that reflect different aspects of the Company's financial arrangements as well as the cost of benefits earned by employees. These components are determined using the projected unit credit actuarial cost method and are based on certain actuarial assumptions. The Company's accounting policy is to reflect in the projected benefit obligation all benefit changes to which the Company is committed as of the current valuation date; use a market-related value of assets to determine pension expense; amortize increases in prior service costs on a straight-line basis over the expected future service of active participants as of the date such costs are first recognized; and amortize cumulative actuarial gains and losses in excess of 10% of the larger of the market-related value of plan assets and the projected benefit obligation over the expected future service of active participants.

Summary data for the U.S. Retiree Healthcare Plan and Non-U.S. Pension Plans are presented in the following tables, using the measurement dates of December 31, 2023 and 2022, respectively.

The reconciliation of the projected benefit obligations for the plans at December 31, 2023 and 2022 is as follows (in thousands):

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Projected benefit obligation, January 1	$ 22,583	$74,025	$ 25,958	$106,924
Service cost	275	3,073	775	4,018
Employee contributions	1,105	601	1,139	536
Interest cost	1,262	2,797	706	1,360
Actuarial losses (gains)	2,166	11,387	(4,657)	(27,494)
Benefits paid	(1,649)	(2,051)	(1,338)	(3,567)
Plan amendments	—	(500)	—	—
Plan settlements	—	(488)	—	(812)
Currency impact	—	3,547	—	(6,940)
Projected benefit obligation, December 31	$ 25,742	$92,391	$ 22,583	$ 74,025

The reconciliation of the fair value of the plan assets at December 31, 2023 and 2022 is as follows (in thousands):

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Fair value of plan assets, January 1	$ 15,724	$77,697	$ 18,314	$91,169
Actual return on plan assets	2,444	4,144	(2,895)	(6,497)
Company contributions	529	3,224	504	2,500
Employee contributions	1,105	601	1,139	536
Plan settlements	—	(488)	—	(812)
Benefits paid	(1,649)	(2,051)	(1,338)	(3,567)
Currency impact	—	3,460	—	(5,632)
Fair value of plan assets, December 31	$ 18,153	$86,587	$ 15,724	$77,697

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The summary of the funded status for the plans at December 31, 2023 and 2022 is as follows (in thousands):

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Projected benefit obligation	$(25,742)	$(92,391)	$(22,583)	$(74,025)
Fair value of plan assets	18,153	86,587	15,724	77,697
Funded status	$ (7,589)	$(5,804)	$ (6,859)	$ 3,672

The change in the Company's projected benefit obligation for the year ended December 31, 2023 was primarily due to net actuarial losses that arose during the year driven by a decrease in discount rates, differences between expected and actual return on plan assets, and fluctuations in foreign currency exchange rates during the year. The change in the Company's projected benefit obligation for the year ended December 31, 2022 was primarily due to net actuarial gains that arose during the year driven by an increase in discount rates, differences between expected and actual return on plan assets, and fluctuations in foreign currency exchange rates during the year.

The summary of the amounts recognized in the consolidated balance sheets for the plans at December 31, 2023 and 2022 is as follows (in thousands):

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Long-term assets	$ —	$ 5,220	$ —	$ 9,554
Long-term liabilities	(7,589)	(11,024)	(6,859)	(5,882)
Net amount recognized at December 31	$ (7,589)	$ (5,804)	$ (6,859)	$ 3,672

The accumulated benefit obligation for all defined benefit pension plans was $ 81 million and $ 64 million at December 31, 2023 and 2022, respectively.

The summary of the Non-U.S. Pension Plans that have accumulated benefit obligations in excess of plan assets at December 31, 2023 and 2022 is as follows (in thousands):

	2023	2022
Accumulated benefit obligations	$60,815	$16,962
Fair value of plan assets	$52,894	$13,616

The summary of the Non-U.S. Pension Plans that have projected benefit obligations in excess of plan assets at December 31, 2023 and 2022 is as follows (in thousands):

	2023	2022
Projected benefit obligations	$63,918	$19,498
Fair value of plan assets	$52,894	$13,616

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The summary of the components of net periodic pension costs for the plans for the years ended December 31, 2023, 2022 and 2021 is as follows (in thousands):

	2023		2022		2021	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Service cost	$ 275	$ 3,073	$ 775	$ 4,018	$ 884	$ 4,577
Interest cost	1,262	2,797	706	1,360	559	1,247
Expected return on plan assets	(978)	(2,653)	(1,138)	(1,972)	(1,011)	(1,835)
Settlement loss	—	221	—	73	—	77
Net amortization:						
Prior service credit	(19)	(105)	(19)	(129)	(19)	(87)
Net actuarial (gain) loss	—	(195)	—	649	10	1,186
Net periodic pension cost	$ 540	$ 3,138	$ 324	$ 3,999	$ 423	$ 5,165

The summary of the changes in amounts recognized in other comprehensive income (loss) for the plans for the years ended December 31, 2023, 2022 and 2021 is as follows (in thousands):

	2023		2022		2021	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Prior service credit	$ —	$ —	$ —	$ —	$ —	$ (69)
Net (loss) gain arising during the year	(699)	(9,396)	623	19,025	1,524	6,708
Amortization:						
Prior service credit	(19)	(105)	(19)	(129)	(19)	(87)
Net loss	—	26	—	722	10	1,263
Currency impact	—	(58)	—	1,305	—	1,179
Total recognized in other comprehensive (loss) income	$ (718)	$(9,533)	$ 604	$20,923	$ 1,515	$ 8,994

The components of net periodic benefit cost other than the service cost component are included in other income, net in the consolidated statements of operations.

The summary of the amounts included in accumulated other comprehensive loss in stockholders' equity for the plans at December 31, 2023 and 2022 is as follows (in thousands):

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Net actuarial (loss) gain	$ (964)	$(3,241)	$ (266)	$ 6,157
Prior service credit (cost)	17	(156)	36	(20)
Total	$ (947)	$(3,397)	$ (230)	$ 6,137

The plans' investment asset mix is as follows at December 31, 2023 and 2022:

	2023		2022	
	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans	U.S. Retiree Healthcare Plan	Non-U.S. Pension Plans
Equity securities	70%	4%	77%	5%
Debt securities	30%	18%	23%	18%
Cash and cash equivalents	0%	2%	0%	2%
Insurance contracts and other	0%	76%	0%	75%
Total	100%	100%	100%	100%

The plans' investment policies include the following asset allocation guidelines:

	U.S. Retiree Healthcare Plan		Non-U.S. Pension Plans
	Policy Target	Range	Policy Target
Equity securities	60%	30 % - 90 %	13%
Debt securities	35%	20 % - 50 %	19%
Cash and cash equivalents	0%	0 % - 10 %	8%
Insurance contracts and other	5%	0 % - 10 %	60%

The asset allocation policy for the U.S. Retiree Healthcare Plan was developed in consideration of the following long-term investment objectives: achieving a return on assets consistent with the investment policy, achieving portfolio returns which compare favorably with those of other similar plans, professionally managed portfolios and of appropriate market indexes and maintaining sufficient liquidity to meet the obligations of the plan. Within the equity portfolio of the U.S. Retiree Healthcare Plan, investments are diversified among market capitalization and investment strategy, and targets a 45% allocation of the equity portfolio to be invested in financial markets outside of the United States. The Company does not invest in its own stock within the U.S. Retiree Healthcare Plan's assets.

Plan assets are measured at fair value using the following valuation techniques and inputs:

Level 1: The fair value of these types of investments is based on market and observable sources from daily quoted prices on nationally recognized securities exchanges.

Level 2: The fair value of these types of investments utilizes data points other than quoted prices in active markets that are observable either directly or indirectly.

Level 3: These bank and insurance investment contracts are issued by well-known, highly-rated companies. The fair value disclosed represents the present value of future cash flows under the terms of the respective contracts. Significant assumptions used to determine the fair value of these contracts include the amount and timing of future cash flows and counterparty credit risk.

There have been no changes in the above valuation techniques associated with determining the value of the plans' assets during the years ended December 31, 2023 and 2022.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The fair value of the Company's retirement plan assets are as follows at December 31, 2023 (in thousands):

	Total at December 31, 2023	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
U.S. Retiree Healthcare Plan:				
Mutual funds [(a)]	18,153	18,153	—	—
Total U.S. Retiree Healthcare Plan	18,153	18,153	—	—
Non-U.S. Pension Plans:				
Cash equivalents [(b)]	1,611	1,611	—	—
Mutual funds [(c)]	18,785	18,785	—	—
Bank and insurance investment contracts [(d)]	66,191	—	—	66,191
Total Non-U.S. Pension Plans	86,587	20,396	—	66,191
Total fair value of retirement plan assets	$ 104,740	$ 38,549	$ —	$ 66,191

The fair value of the Company's retirement plan assets are as follows at December 31, 2022 (in thousands):

	Total at December 31, 2022	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
U.S. Retiree Healthcare Plan:				
Mutual funds [(e)]	15,724	15,724	—	—
Total U.S. Retiree Healthcare Plan	15,724	15,724	—	—
Non-U.S. Pension Plans:				
Cash equivalents [(b)]	1,527	1,527	—	—
Mutual funds [(f)]	18,176	18,176	—	—
Bank and insurance investment contracts [(d)]	57,994	—	—	57,994
Total Non-U.S. Pension Plans	77,697	19,703	—	57,994
Total fair value of retirement plan assets	$ 93,421	$ 35,427	$ —	$ 57,994

a) The mutual fund balance in the U.S. Retiree Healthcare Plan is invested in the following categories: 41 % in the common stock of large-cap U.S. companies, 29 % in the common stock of international growth companies and 30 % in fixed income bonds of U.S. companies and the U.S. government.

b) Primarily represents deposit account funds held with various financial institutions.

c) The mutual fund balance in the Non-U.S. Pension Plans is primarily invested in the following categories: 76 % in international bonds, 18 % in the common stock of international companies and 7 % in various other global investments.

d) Amount represents bank and insurance guaranteed investment contracts.

e) The mutual fund balance in the U.S. Retiree Healthcare Plan is invested in the following categories: 49 % in the common stock of large-cap U.S. companies, 28 % in the common stock of international growth companies and 23 % in fixed income bonds of U.S. companies and the U.S. government.

f) The mutual fund balance in the Non-U.S. Pension Plans is invested in the following categories: 59 % in international bonds, 22 % in the common stock of international companies and 19 % in various other global investments.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table summarizes the changes in fair value of the Level 3 retirement plan assets for the years ended December 31, 2023 and 2022 (in thousands) :

	Insurance Guaranteed Investment Contracts
Fair value of assets, December 31, 2021	$ 65,945
Net purchases (sales) and appreciation (depreciation)	(7,951)
Fair value of assets, December 31, 2022	57,994
Net purchases (sales) and appreciation (depreciation)	8,197
Fair value of assets, December 31, 2023	$ 66,191

The weighted-average assumptions used to determine the benefit obligation in the consolidated balance sheets at December 31, 2023, 2022 and 2021 are as follows:

	2023		2022		2021	
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
Discount rate	5.18%	2.97%	5.42%	3.82%	2.70%	1.40%
Increases in compensation levels	**	2.90%	**	3.14%	**	2.74%
Interest crediting rate	5.25%	2.05%	5.25%	1.57%	5.25%	0.99%

** Not applicable

The weighted-average assumptions used to determine the net periodic pension cost for the years ended December 31, 2023, 2022 and 2021 are as follows:

	2023		2022		2021	
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
Discount rate	5.42%	4.70%	2.70%	2.09%	2.25%	1.40%
Return on plan assets	6.25%	3.95%	6.25%	3.07%	6.25%	2.58%
Increases in compensation levels	**	4.32%	**	3.58%	**	3.11%
Interest crediting rate	5.25%	1.47%	5.25%	1.55%	5.25%	0.77%

** Not applicable

To develop the expected long-term rate of return on assets assumption, the Company considered historical returns and future expectations for returns for each asset class, as well as the target asset allocation of the pension portfolio and historical expenses paid by the plan. A one-quarter percentage point increase in the assumed long-term rate of return on assets 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 .

During fiscal year 2024, the Company expects to contribute a total of approximately $ 3 million to $ 6 million to the Company’s defined benefit plans. Estimated future benefit payments from the plans as of December 31, 2023 are as follows (in thousands):

	U.S. Retiree Healthcare Plans	Non-U.S. Pension Plans	Total
2024	$ 1,959	$ 4,018	$ 5,977
2025	2,068	4,062	6,130
2026	2,153	3,376	5,529
2027	2,251	4,192	6,443
2028	2,444	5,420	7,864
2029 - 2033	13,807	26,732	40,539

18 Business Segment Information

The accounting standards for segment reporting establish standards for reporting information about operating segments in annual financial statements and require selected information for those segments to be presented in interim financial reports of public business enterprises. They also establish standards for related disclosures about products and services, geographic areas and major customers. 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 instruments, 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. Please refer to the consolidated financial statements for financial information regarding the one reportable segment of the Company.

Net sales for the Company’s products and services are as follows for the years ended December 31, 2023, 2022 and 2021 (in thousa nd s):

	2023	2022	2021
Product net sales:			
Waters instrument systems	$ 1,108,702	$ 1,210,456	$ 1,089,248
Chemistry consumables	541,469	525,399	507,209
TA instrument systems	252,879	252,314	225,613
Total product sales	1,903,050	1,988,169	1,822,070
Service net sales:			
Waters service	951,419	890,607	876,626
TA service	101,947	93,180	87,178
Total service sales	1,053,366	983,787	963,804
Total net sales	$ 2,956,416	$ 2,971,956	$ 2,785,874

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Net sales are attributable to geographic areas based on the region of destination. Geographic sales information is presented below for the ye a rs ended December 31, 2023, 2022 and 2021 (in thousands):

	2023	2022	2021
Net Sales:			
Asia:			
China	$ 440,707	$ 565,143	$ 521,128
Japan	167,202	167,220	182,597
Asia Other	399,916	399,380	372,040
Total Asia	1,007,825	1,131,743	1,075,765
Americas:			
United States	927,982	886,140	774,014
Americas Other	180,591	169,495	151,206
Total Americas	1,108,573	1,055,635	925,220
Europe	840,018	784,578	784,889
Total net sales	$ 2,956,416	$ 2,971,956	$ 2,785,874

None of the Company’s individual customers accounts for more than 2 % of annual Company sales. Net sales by customer class are as follows for the years ended December 31, 2023, 2022 and 2021 (in thousands):

	2023	2022	2021
Pharmaceutical	$ 1,696,875	$ 1,751,665	$ 1,667,061
Industrial	909,003	909,805	829,204
Academic and government	350,538	310,486	289,609
Total net sales	$ 2,956,416	$ 2,971,956	$ 2,785,874

Net sales for the Company recognized at a point in time versus over time are as follows for the years ended December 31, 2023, 2022 and 2021 (in thousands):

	2023	2022	2021
Net sales recognized at a point in time:			
Instrument systems	$ 1,361,581	$ 1,462,770	$ 1,314,861
Chemistry consumables	541,469	525,399	507,209
Service sales recognized at a point in time (time & materials)	372,530	367,501	354,666
Total net sales recognized at a point in time	2,275,580	2,355,670	2,176,736
Net sales recognized over time:			
Service and software maintenance sales recognized over time (contracts)	680,836	616,286	609,138
Total net sales	$ 2,956,416	$ 2,971,956	$ 2,785,874

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Long-lived assets information at December 31, 2023, 2022 and 2021 is presented below (in thousands):

	December 31, 2023	2022	2021
Long-lived assets:			
United States	$440,993	$429,469	$395,446
Americas Other	2,632	1,663	1,662
Total Americas	443,625	431,132	397,108
Europe	167,948	133,465	130,806
Asia	27,500	17,620	19,999
Total long-lived assets	$639,073	$582,217	$547,913

The Americas Other category includes Canada, Latin America and Puerto Rico. Long-lived assets exclude goodwill, other intangible assets and other assets.

19 Unaudited Quarterly Results

The Company's unaudited quarterly results are summarized below (in thousands, except per share data):

2023	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
Net sales	$684,674	$740,576	$711,692	$819,474	$2,956,416
Costs and operating expenses:					
Cost of sales	284,380	301,076	291,407	318,360	1,195,223
Selling and administrative expenses	181,956	186,953	186,748	180,357	736,014
Research and development expenses	42,691	45,873	41,995	44,386	174,945
Purchased intangibles amortization	1,479	6,815	12,116	12,148	32,558
Total costs and operating expenses	510,506	540,717	532,266	555,251	2,138,740
Operating income	174,168	199,859	179,426	264,223	817,676
Other income (expense), net	1,388	(352)	328	(557)	807
Interest expense	(14,444)	(23,272)	(30,442)	(30,703)	(98,861)
Interest income	4,061	4,040	3,883	4,637	16,621
Income before income taxes	165,173	180,275	153,195	237,600	736,243
Provision for income taxes	24,250	29,721	18,643	21,395	94,009
Net income	$140,923	$150,554	$134,552	$216,205	$ 642,234
Net income per basic common share	2.39	2.56	2.28	3.66	10.87
Weighted-average number of basic common shares	59,023	58,857	59,093	59,142	59,076
Net income per diluted common share	2.38	2.55	2.27	3.65	10.84
Weighted-average number of diluted common shares and equivalents	59,317	59,010	59,225	59,311	59,270

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

2022	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
Net sales	$690,572	$714,319	$708,555	$858,510	$2,971,956
Costs and operating expenses:					
Cost of sales	285,685	307,206	307,101	348,190	1,248,182
Selling and administrative expenses	157,475	161,877	164,417	174,257	658,026
Research and development expenses	40,472	44,006	43,435	48,277	176,190
Purchased intangibles amortization	1,673	1,598	1,592	1,503	6,366
Acquired in-process research and development	9,797	—	—	—	9,797
Total costs and operating expenses	495,102	514,687	516,545	572,227	2,098,561
Operating income	195,470	199,632	192,010	286,283	873,395
Other income (expense), net	170	1,535	895	(372)	2,228
Interest expense	(11,059)	(11,419)	(12,420)	(13,899)	(48,797)
Interest income	2,114	2,526	2,896	3,484	11,020
Income before income taxes	186,695	192,274	183,381	275,496	837,846
Provision for income taxes	26,864	27,410	27,383	48,434	130,091
Net income	$159,831	$164,864	$155,998	$227,062	$ 707,755
Net income per basic common share	2.64	2.74	2.61	3.83	11.80
Weighted-average number of basic common shares	60,580	60,206	59,801	59,329	59,985
Net income per diluted common share	2.62	2.72	2.60	3.81	11.73
Weighted-average number of diluted common shares and equivalents	60,952	60,510	60,081	59,644	60,331

The Company typically experiences an increase in sales in the fourth quarter, as a result of purchasing habits for capital goods of customers that tend to exhaust their spending budgets by calendar year-end. Selling and administrative expenses are typically higher after the first quarter in each year as the Company’s annual payroll merit increases take effect.

The C ompany experienced significant increases in purchased intangibles amortization and interest expense beginning in Q2 of 2023 as a result of the Wyatt acquisition.

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

None.

Item 9A: *Controls and Procedures*

Evaluation of Disclosure Controls and Procedures

The Company's chief executive officer and chief financial officer (principal executive officer and principal financial officer), with the participation of management, evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this annual report on Form 10-K. Based on this evaluation, the Company's chief executive officer and chief financial officer concluded that the Company's disclosure controls and procedures were effective as of December 31, 2023 (1) to ensure that information required to be disclosed by the Company, including its consolidated subsidiaries, in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including its chief executive officer and chief financial officer, to allow timely decisions regarding the required disclosure and (2) to provide reasonable assurance that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

Management's Annual Report on Internal Control Over Financial Reporting

See Management's Report on Internal Control Over Financial Reporting in Item 8 on page 50 of this Annual Report.

Report of the Independent Registered Public Accounting Firm

See the report of PricewaterhouseCoopers LLP in Item 8 beginning on page 51 of this Annual Report.

Changes in Internal Control Over Financial Reporting

No change was identified in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended December 31, 2023 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

Item 9B: *Other Information*

Insider Trading Arrangements and Related Disclosures

None.

Amendment and Restatement of Bylaws

On February 23, 2024, the Board of Directors of the Company approved an amendment and restatement of the bylaws of the Company (the "Amended Bylaws"), effective as of such date.

Among other matters, the Amended Bylaws:

(1) revise procedures and disclosure requirements for the nomination of directors and the submission of proposals for consideration at meetings of the stockholders of the Company, including, among other things, limiting the scope of persons to whom such disclosure requirements apply and adding a requirement that a stockholder seeking to nominate director(s) at an annual meeting deliver to the Company reasonable evidence that it has complied with the requirements of Rule 14a-19 of the Exchange Act, no less than seven business days prior to the meeting;

(2) clarify the applicability of the majority voting standard for contested elections of directors;

(3) clarify the position, duties and powers of the Chairman and Vice Chairman within the Company structure;

(4) make certain administrative, modernizing, clarifying and conforming changes, including making updates to reflect recent amendments to the General Corporation Law of the State of Delaware; and

(5) adopt gender-neutral terms when referring to particular positions, offices or title holders, including the adoption of the title Chair in place of Chairman.

The foregoing description of the Amended Bylaws does not purport to be complete and is qualified in its entirety by reference to the full text of the Amended Bylaws, a copy of which is attached hereto as Exhibit 3.5 and incorporated herein by reference.

Item 9C: *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

None.

PART III

Item 10: *Directors, Executive Officers and Corporate Governance*

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

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:

Dr. Udit Batra, 53, was appointed a Director of the Company as well as President and CEO on September 1, 2020. He most recently served as Chief Executive Officer of the Life Science business of Merck KGaA, Darmstadt, Germany, which operates as MilliporeSigma in the United States and Canada, and as a member of its Executive Board, roles he held from 2014 and 2016, respectively, through July 2020. Prior to that, Dr. Batra served as President and Chief Executive Officer of Merck KGaA, Darmstadt, Germany's Consumer Health business. Dr. Batra oversaw the company's Bioethics Advisory Panel and had Board responsibility for the global Information Technology function. Before joining Merck KGaA, Darmstadt, Germany, Dr. Batra held several positions of increasing responsibility at Novartis, including Global Head of Corporate Strategy in Switzerland, Country President for the Pharma Business of Novartis in Australia and New Zealand and the Global Head of Public Health and Market Access in Cambridge, Massachusetts. Dr. Batra also served at the global consultancy McKinsey & Company across the healthcare, consumer and non-profit sectors. Dr. Batra started his career at Merck Research Labs in West Point, Pennsylvania as a research engineer.

Jianqing Bennett, 54, was appointed Senior Vice President of TA Instruments Division on May 1, 2021. Previously, Ms. Bennett served as Senior Vice President, High Growth Markets at Beckman Coulter Diagnostics from November 2017 to March 2021. Prior to that, from 2007-2017, she held various senior management positions at Carestream Health Inc, including serving as President, Medical Digital Solutions from August 2015 to November 2017.

Amol Chaubal, 48, was appointed Chief Financial Officer of Waters Corporation on May 12, 2021. Previously, Mr. Chaubal was Chief Financial Officer of Quanterix Corporation, a life sciences company, where he served as Chief Financial Officer since April 2019. Before Quanterix, Mr. Chaubal served as Chief Financial Officer, Global Operations at Smith & Nephew, a global medical devices company, from October 2017 to April 2019. Prior to his time at Smith & Nephew, he served as Corporate Vice President and Head of Finance for the Clinical Research Services and Access business at Parexel from July 2015 to October 2017.

Information regarding the Company’s directors, any material changes to the process by which security holders may recommend nominees to the Board of Directors and the information required by the Item will be contained in our definitive proxy statement for the 2024 Annual Meeting of Stockholders, to be filed with the SEC not later than 120 days after the close of business of the fiscal year and is incorporated in this report by reference (the “2024 Proxy Statement”), under the headings “Election of Directors”, “Directors Meetings and Board Committees”, “Corporate Governance”, “Report of the Audit and Finance Committee of the Board of Directors” and “Compensation of Directors and Executive Officers”. Information regarding compliance with Section 16(a) of the Exchange Act will be contained in the 2024 Proxy Statement, under the heading “Delinquent Section 16(a) Reports”. Information regarding the Company’s Audit and Finance Committee and Audit and Finance Committee Financial Expert will be contained in the 2024 Proxy Statement, under the headings “Report of the Audit and Finance Committee of the Board of Directors” and “Directors Meetings and Board Committees”. Such information is incorporated herein by reference.

The Company has adopted a Global Code of Business Conduct & Ethics (the “Code”) that applies to all of the Company’s employees (including its executive officers) and directors and that is in compliance with Item 406 of Regulation S-K. The Code has been distributed to all employees of the Company. In addition, the Code is available on the Company’s website, https://www.waters.com, under the caption “Corporate Governance”. The Company intends to satisfy the disclosure requirement regarding any amendment to, or waiver of a provision of, the Code applicable to any executive officer or director by posting such information on its website. The Company shall also provide to any person without charge, upon request, a copy of the Code. Any such request must be made in writing to the Secretary of the Company, c/o Waters Corporation, 34 Maple Street, Milford, MA 01757.

The Company’s corporate governance guidelines and the charters of the audit committee, compensation committee and nominating and corporate governance committee of the Board of Directors are available on the Company’s website, https://www.waters.com, under the caption “Corporate Governance”. The Company shall provide to any person without charge, upon request, a copy of any of the foregoing materials. Any such request must be made in writing to the Secretary of the Company, c/o Waters Corporation, 34 Maple Street, Milford, MA 01757.

Item 11: *Executive Compensation*

This information will be contained in the 2024 Proxy Statement, under the headings “Compensation of Directors and Executive Officers”, “Compensation Committee Interlocks and Insider Participation” and “Compensation Committee Report”. Such information is incorporated herein by reference.

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

Except for the Equity Compensation Plan information set forth below, this information will be contained in the 2024 Proxy Statement, under the heading “Security Ownership of Certain Beneficial Owners and Management”. Such information is incorporated herein by reference.

Equity Compensation Plan Information

The following table provides information as of December 31, 2023 about the Company's common stock that may be issued upon the exercise of options, warrants and rights under its existing equity compensation plans (in thousands):

	A	B	C
	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (1)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (1)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (excluding securities reflected in column (A))
Equity compensation plans approved by security holders	939	$ 265.17	6,680
Equity compensation plans not approved by security holders	—	—	—
Total	939	$ 265.17	6,680

(1) Column (a) includes an aggregate of 352 shares of common stock to be issued upon settlement of restricted stock, restricted stock units and performance stock units. The weighted-average share price in column (b) does not take into account restricted stock, restricted stock units or performance stock units, which do not have an exercise price.

See Note 14, Stock-Based Compensation, in the Notes to Consolidated Financial Statements for a description of the material features of the Company's equity compensation plans.

Item 13: ***Certain Relationships and Related Transactions and Director Independence***

This information is contained in the 2024 Proxy Statement, under the headings "Directors Meetings and Board Committees", "Corporate Governance" and "Compensation of Directors and Executive Officers". Such information is incorporated herein by reference.

Item 14: ***Principal Accountant Fees and Services***

This information is contained in the 2024 Proxy Statement, under the headings "Ratification of Selection of Independent Registered Public Accounting Firm" and "Report of the Audit and Finance Committee of the Board of Directors". Such information is incorporated herein by reference.

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PART IV

Item 15: *Exhibits, Financial Statement Schedules*

(a) Documents filed as part of this report:

(1) Financial Statements:

The consolidated financial statements of the Company and its subsidiaries are filed as part of this Annual Report and are set forth on pages 54 to 100. The report of PricewaterhouseCoopers LLP (PCAOB ID: 238), an independent registered public accounting firm, dated February 27, 2024, is set forth beginning on page 51 of this Annual Report.

(2) Exhibits:

Exhibit Number	Description of Document
2.1	Share Purchase Agreement, dated as of February 14, 2023, by and among Wyatt Technology Corporation, Waters Technologies Corporation, the shareholders named therein and Geofrey Wyatt in his capacity as representative of the shareholders (Incorporated by reference to the Registrant's Report on Form 8-K dated February 15, 2023 (File No. 001-14010)).
3.1	Second Amended and Restated Certificate of Incorporation of Waters Corporation (Incorporated by reference to the Registrant's Report on Form 10-K dated March 29, 1996 (File No. 001-14010)).+
3.2	Certificate of Amendment of Second Amended and Restated Certificate of Incorporation of Waters Corporation, dated as of May 12, 1999 (Incorporated by reference to the Registrant's Report on Form 10-Q dated August 11, 1999 (File No. 001-14010)).
3.3	Certificate of Amendment of Second Amended and Restated Certificate of Incorporation of Waters Corporation, dated as of July 27, 2000 (Incorporated by reference to the Registrant's Report on Form 10-Q dated August 8, 2000 (File No. 001-14010)).
3.4	Certificate of Amendment of Second Amended and Restated Certificate of Incorporation of Waters Corporation, dated as of May 25, 2001 (Incorporated by reference to the Registrant's Report on Form 10-K dated March 28, 2002 (File No. 001-14010)).
3.5	Amended and Restated Bylaws of Waters Corporation, dated as of February 23, 2024.
4.1	Description of Registrant's Securities. (Incorporated by reference to Exhibit 4.1 of the Registrant's Report on Form 10-K dated February 24, 2021 (File No. 001-14010)).
10.1	Waters Corporation Retirement Plan. (Incorporated by reference to the Registrant's Registration Statement on Form S-1 dated October 24, 1996 (File No. 333-96934)).*+
10.2	Amended and Restated Waters 401(k) Restoration Plan, effective January 1, 2008. (Incorporated by reference to the Registrant's Report on Form 10-Q dated November 2, 2007 (File No. 001-14010)).*
10.3	Amended and Restated Waters Retirement Restoration Plan, effective January 1, 2008 (Incorporated by reference to the Registrant's Report on Form 10-Q dated February 27, 2009 (File No. 001-14010)).*
10.4	Amended and Restated Waters Corporation 1996 Non-Employee Director Deferred Compensation Plan, Effective January 1, 2008. (Incorporated by reference to the Registrant's Report on Form 10-Q dated February 27, 2009 (File No. 001-14010)).*
10.5	2014 Waters Corporation Management Incentive Plan. (Incorporated by reference to the Registrant's Report on Form 10-Q dated February 27, 2015 (File No. 001-14010)).*
10.6	Waters Corporation 2009 Employee Stock Purchase Plan (Incorporated by reference to the Registrant's Report on Form S-8 dated July 10, 2009 (File No. 333-160507)).*

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Exhibit Number	Description of Document
10.7	Waters Corporation 2012 Equity Incentive Plan. (Incorporated by reference to the Registrant's Report on Form S-8 dated September 5, 2012 (File No. 333-183721)).*
10.8	Form of Waters 2012 Stock Option Agreement - Executive Officers (Incorporated by reference to the Registrant's Report on Form 8-K dated December 11, 2012 (File No. 001-14010)).*
10.9	Form of Waters 2012 Stock Option Agreement - Directors (Incorporated by reference to the Registrant's Report on Form 8-K dated December 11, 2012 (File No. 001-14010)).*
10.10	Form of Waters 2012 Restricted Stock Agreement - Directors (Incorporated by reference to the Registrant's Report on Form 8-K dated December 11, 2012 (File No. 001-14010)).*
10.11	Form of Waters 2012 Restricted Stock Unit Agreement for Executive Officers - Five Year Vesting. (Incorporated by reference to the Registrant's Report on Form 8-K dated December 11, 2013 (File No. 001-14010)).*
10.12	Form of Waters 2012 Restricted Stock Unit Agreement for Executive Officers - One Year Vesting (Incorporated by reference to the Registrant's Report on Form 8-K dated December 11, 2013 (File No. 001-14010)).*
10.13	Note Purchase Agreement, dated June 30, 2014, between Waters Corporation and the purchases named therein (Incorporated by reference to the Registrant's Report on Form 10-Q dated August 1, 2014 (File No. 001-14010)).
10.14	First Amendment to the Note Purchase Agreement, dated as of June 30, 2014 (Incorporated by reference to the Registrant's Report on Form 10-K/A dated March 1, 2019 (File No. 001-14010)).
10.15	Note Purchase Agreement, dated as of May 12, 2016, between Waters Corporation and the purchasers named therein (Incorporated by reference to the Registrant's Report on Form 10-Q dated August 5, 2016 (File No. 001-14010)).
10.16	First Amendment to the Note Purchase Agreement, dated as of May 12, 2016 (Incorporated by reference to the Registrant's Report on Form 10-K/A dated March 1, 2019 (File No. 001-14010)).
10.17	Form of Waters 2012 Performance Stock Unit Award Agreement (Incorporated by reference to the Registrant's Report on Form 8-K dated December 15, 2016 (File No. 001-14010)).*
10.18	Form of Change of Control/Severance Agreement (Incorporated by reference to the Registrant's Report on Form 8-K dated March 27, 2017 (File No. 001-14010)).*
10.19	Credit Agreement, dated as of November 30, 2017, among Waters Corporation, JPMorgan Chase Bank, N.A., JP Morgan Europe Limited and other Lenders party thereto (Incorporated by reference to the Registrant's Report on Form 10-K dated February 27, 2018 (File No. 001-14010)).
10.20	First Amendment to the Credit Agreement, dated as of November 30, 2017, among Waters Corporation, JPMorgan Chase Bank, N.A., JP Morgan Europe Limited and other Lenders party thereto (Incorporated by reference to the Registrant's Report on Form 10-K/A dated March 1, 2019 (File No. 001-14010)).
10.21	Amendment and Restatement Agreement to the Credit Agreement, dated as of September 17, 2021, by and among the lenders and issuing banks party thereto and JPMorgan Chase Bank, N.A., as administrative agent (Incorporated by reference to the Registrant's Report on Form 8-K dated September 20, 2021 (File No. 001-14010)).
10.22	Amendment and Incremental Commitment Agreement, dated as of March 3, 2023, by and among the Company, Waters Technologies Corporation, TA Instruments - Waters L.L.C., Waters Asia Limited, Environmental Resource Associates, Inc., the lenders party thereto, the issuing banks party thereto and JPMorgan Chase Bank, N.A., as administrative agent (Incorporated by reference to the Registrant's Report on Form 8-K dated March 7, 2023 (File No. 001-14010)).

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Exhibit Number	Description of Document
10.23	Note Purchase Agreement, dated as of September 12, 2019, between Waters Corporation and the purchasers named therein (Incorporated by reference to the Registrant's Report on Form 8-K dated September 16, 2019 (File No. 001-14010)).
10.24	Form of Performance Stock Unit Award Agreement under the Waters Corporation 2012 Equity Incentive Plan. (Incorporated by reference to the Registrant's Report on Form 10-K dated February 25, 2020 (File No. 001-14010)).*
10.25	President and Chief Executive Employment Agreement, dated July 14, 2020, between Waters Corporation and Udit Batra (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.26	Change of Control/Severance Agreement, dated as of July 14, 2020, between Waters Corporation and Udit Batra (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.27	Waters Corporation 2020 Equity Incentive Plan (Incorporated by reference to Exhibit 4.2 of the Registration Statement filed on Form S-8 dated June 8, 2020 (File No. 333-239020)).*
10.28	Employee Form of Stock Option Award Agreement under the Waters Corporation 2020 Equity Incentive Plan (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.29	Director Form of Stock Option Award Agreement under the Waters Corporation 2020 Equity Incentive Plan. (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.30	Form of RSU Agreement under the Waters Corporation 2020 Equity Incentive Plan. (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.31	CEO Form of PSU Agreement under the Waters Corporation 2020 Equity Incentive Plan (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.32	Employee (Non-CEO) PSU Agreement under the Waters Corporation 2020 Equity Incentive Plan (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.33	Director Form of RSA Agreement under the Waters Corporation 2020 Equity Incentive Plan (Incorporated by reference to the Registrant's Report on Form 10-Q dated July 29, 2020 (File No. 001-14010)).*
10.34	Note Purchase Agreement, dated as of March 2, 2021, by and among the Company and the purchasers signatory thereto, including the forms of notes (Incorporated by reference to the Registrant's Report on Form 8-K dated March 4, 2021 (File No. 001-14010)).
10.35	Employment Offer Letter, dated April 16, 2021, between Waters Corporation and Amol Chaubal (Incorporated by reference to the Registrant's Report on Form 10-Q dated May 6, 2021 (File No. 001-14010)).*
10.36	Change of Control and Severance Agreement, dated April 16, 2021, between Waters Corporation and Amol Chaubal (Incorporated by reference to the Registrant's Report on Form 10-Q dated May 6, 2021 (File No. 001-14010)).*
10.37	Multi-Currency Note Purchase and Private Shelf Agreement, dated as of May 11, 2023, between Waters Corporation, PGIM, Inc. and each of the purchasers listed on Schedules A-1 and A-2 attached thereto (Incorporated by reference to the Registrant's Report on Form 8-K dated May 11, 2023 (File No. 001-14010)).

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Exhibit Number	Description of Document
21.1	Subsidiaries of Waters Corporation.
23.1	Consent of PricewaterhouseCoopers LLP, an independent registered public accounting firm.
31.1	Chief Executive Officer Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Chief Financial Officer Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Chief Executive Officer Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**
32.2	Chief Financial Officer Certification Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.**
97	Waters Mandatory Clawback Policy
101	The following materials from Waters Corporation's Annual Report on Form 10-K for the year ended December 31, 2023, formatted in iXBRL (Inline eXtensible Business Reporting Language): (i) the Consolidated Balance Sheets, (ii) the Consolidated Statements of Operations, (iii) the Consolidated Statements of Comprehensive Income, (iv) the Consolidated Statements of Cash Flows, (v) the Consolidated Statements of Stockholders' Equity (Deficit) and (vi) Notes to Consolidated Financial Statements.
104	Cover Page Interactive Date File (formatted in iXBRL and contained in Exhibit 101).

+ Paper Filing
* Management contract or compensatory plan required to be filed as an Exhibit to this Annual Report.
** This exhibit shall not be deemed "filed" for purposes of Section 18 of the Exchange Act, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act, or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any filing, except to the extent the Company specifically incorporates it by reference.

(b) See Item 15 (a) (2) above.

Item 16: ***Form 10-K Summary***

The optional summary in Item 16 has not been included in this Annual Report.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

WATERS CORPORATION

/s/ Amol Chaubal
Amol Chaubal
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)
(Principal Accounting Officer)

Date: February 27, 2024

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed by the following persons on behalf of the registrant and in the capacities indicated on February 27, 2024.

/s/ Dr. Flemming Ornskov, M.D., M.P.H. Dr. Flemming Ornskov, M.D., M.P.H.	Chairman of the Board of Directors
/s/ Udit Batra, Ph.D. Udit Batra, Ph.D.	President and Chief Executive Officer Director (Principal Executive Officer)
/s/ Amol Chaubal Amol Chaubal	Senior Vice President and Chief Financial Officer (Principal Financial Officer) (Principal Accounting Officer)
/s/ Linda Baddour Linda Baddour	Director
/s/ Dan Brennan Dan Brennan	Director
/s/ Richard Fearon Richard Fearon	Director
/s/ Pearl S. Huang, Ph.D. Pearl S. Huang, Ph.D.	Director
/s/ Wei Jiang Wei Jiang	Director
/s/ Christopher A. Kuebler Christopher A. Kuebler	Director
/s/ Mark Vergnano Mark Vergnano	Director

Exhibit 3.5

Amended and Restated Bylaws

Of

Waters Corporation

ARTICLE I

Stockholders

SECTION 1. **Annual Meeting**. The annual meeting of the stockholders of the Corporation shall be held on such date, at such time and at such place within or without the State of Delaware as may be designated by the Board of Directors, for the purpose of electing Directors and for the transaction of such other business as may be properly brought before the meeting.

SECTION 2. **Special Meetings**. Except as otherwise provided in the Certificate of Incorporation, a special meeting of the stockholders of the Corporation may be called at any time by the Board of Directors, the Chair of the Board of Directors or the President and shall be called by the Chair of the Board of Directors, the President or the Secretary at the request in writing of stockholders holding together at least 50% of the number of shares of stock outstanding and entitled to vote at such meeting. Any special meeting of the stockholders shall be held on such date, at such time and at such place within or without the State of Delaware as the Board of Directors or the officer calling the meeting may designate. At a special meeting of the stockholders, no business shall be transacted and no corporate action shall be taken other than that stated in the notice of the meeting unless all of the stockholders are present in person or by proxy, in which case any and all business may be transacted at the meeting even though the meeting is held without notice.

SECTION 3. **Notice of Meetings**. Except as otherwise provided in these Bylaws or by law, a written notice of each meeting of the stockholders shall be given not less than ten nor more than 60 days before the date of the meeting to each stockholder of the Corporation entitled to vote at such meeting at each stockholder’s address as it appears on the records of the Corporation. The notice shall state the place, date and hour of the meeting and, in the case of a special meeting, the purpose or purposes for which the meeting is called.

SECTION 4. **Quorum**. At any meeting of the stockholders, the holders of a majority in number of the total outstanding shares of stock of the Corporation entitled to vote at such meeting, present in person or represented by proxy, shall constitute a quorum of the stockholders for all purposes, unless the representation of a larger number of shares shall be required by law, by the Certificate of Incorporation or by these Bylaws, in which case the representation of the number of shares so required shall constitute a quorum; *provided* that, at any meeting of the stockholders at which the holders of any class of stock of the Corporation shall be entitled to vote separately as a class, the holders of a majority in number of the total outstanding shares of such class, present in person or represented by proxy, shall constitute a quorum for the purposes of such class vote unless the representation of a larger number of shares of such class shall be required by law, by the Certificate of Incorporation or by these Bylaws.

SECTION 5. **Adjourned Meetings**. Whether or not a quorum shall be present in person or represented at any meeting of the stockholders, the Chair of the meeting, as determined by Section 6, or the holders of a majority in number of the shares of stock of the Corporation present in person or represented by proxy and entitled to vote at such meeting may adjourn from time to time; *provided*, *however*, that if the holders of any class of stock of the Corporation are entitled to vote separately as a class upon any matter at such meeting, any adjournment of the meeting in respect of action by such class upon such matter shall be determined by the holders of a majority of the shares of such class present in person or represented by proxy and entitled to vote at such meeting. When a meeting is adjourned to another time or place, notice need not be given of the adjourned meeting if the time and place thereof are announced at the meeting at which the adjournment is taken, displayed during the time scheduled for the meeting on the same electronic network used to enable stockholders and proxyholders to participate in the meeting by means of remote communication or set forth in the notice of meetings given in accordance with this Section 5. At the adjourned meeting, the stockholders, or the holders of any class of stock entitled to vote separately as a class, as the case may be, may transact any business which might have been transacted by them at the original meeting. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the adjourned meeting.

SECTION 6. **Organization; Conduct of Meetings**. The Chair of the Board of Directors or, in such person's absence, the Vice Chair of the Board of Directors shall call all meetings of the stockholders to order, and shall act as Chair of such meetings. In the absence of the Chair of the Board of Directors and the Vice Chair of the Board of Directors, the holders of a majority in number of the shares of stock of the Corporation present in person or represented by proxy and entitled to vote at such meeting shall elect a Chair. The Secretary of the Corporation shall act as Secretary of all meetings of the stockholders; but in the absence of the Secretary, the Chair may appoint any person to act as Secretary of the meeting. It shall be the duty of the Secretary to prepare, no later than the 10th day before each meeting of stockholders, a complete list of stockholders entitled to vote at said meeting, arranged in alphabetical order and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder for any purpose germane to the meeting for a period of 10 days ending on the day before the meeting date in the manner provided by law.

The Board of Directors may to the extent not prohibited by law adopt such rules and regulations for the conduct of any meetings of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the Chair of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such Chair, are appropriate for the proper conduct of such meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the Chair of the meeting, may to the extent not prohibited by law, include, without limitation, the following: (a) the establishment of an agenda or order of business for the meeting; (b) rules and procedures for maintaining order at the meeting and the safety of those present; (c) limitations on attendance at or participation in the meeting to stockholders of record of the Corporation, their duly authorized and constituted proxies or such other persons as the Chair of the meeting shall determine; (d) restrictions on entry to the meeting after the time fixed for the commencement thereof; (e) limitations on the time allotted to questions or comments by participants; and (f) restricting the use of cell phones, audio or video recording devices and similar devices at the meeting. The Chair of the meeting's rulings on procedural matters shall be final. Unless and to the extent determined by the Board of Directors or the Chair of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

SECTION 7. **Voting**. Except as otherwise provided in the Certificate of Incorporation or by these Bylaws, each stockholder shall be entitled to one vote for each share of the capital stock of the Corporation registered in the name of such stockholder upon the books of the Corporation. Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for him by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. When directed by the presiding officer or upon the demand of any stockholder, the vote upon any matter before a meeting of stockholders shall be by ballot. Except as otherwise provided by law or by the Certificate of Incorporation, Directors shall be elected as specified in Article II, Section 1(b) of these Bylaws and, whenever any corporate action other than the election of Directors is to be taken, it shall be authorized by a majority of the votes cast at a meeting of stockholders by the stockholders entitled to vote thereon.

Shares of the capital stock of the Corporation belonging to the Corporation or to another corporation, if a majority of the shares entitled to vote in the election of Directors of such other corporation is held, directly or indirectly, by the Corporation, shall neither be entitled to vote nor be counted for quorum purposes.

SECTION 8. **Inspectors**. When required by law or directed by the presiding officer or upon the demand of any stockholder entitled to vote, but not otherwise, the polls shall be opened and closed, the proxies and ballots shall be received and taken in charge, and all questions touching the qualification of voters, the validity of proxies and the acceptance or rejection of votes shall be decided at any meeting of the stockholders by two or more Inspectors who may be appointed by the Board of Directors before the meeting, or if not so appointed, shall be appointed by the presiding officer at the meeting. If any person so appointed fails to appear or act, the vacancy may be filled by appointment in like manner.

SECTION 9. Consent of Stockholders in Lieu of Meeting. Unless otherwise provided in the Certificate of Incorporation, any action required to be taken or which may be taken at any annual or special meeting of the stockholders of the Corporation may be taken without a meeting, without prior notice and without a vote, if a consent in writing, setting forth the action so taken, shall be signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted. Prompt notice of the taking of any such corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing.

SECTION 10. Advance Notice for Election of Directors and Other Business.

(a) Nominations of persons for election to the Board of Directors and the proposal of any other business to be considered by the stockholders may be made at any annual meeting of stockholders, or at any special meeting of stockholders called for such purpose, only (i) by or at the direction of the Board of Directors (or any duly authorized committee thereof), (ii) by any stockholder of the Corporation who (A) is a stockholder of record on the date of the giving of the notice provided for in this Section 10(a), on the record date for the determination of stockholders entitled to vote at such meeting, and at the time of the meeting, (B) is entitled to vote at such meeting and (C) complies with the notice procedures set forth in this Section 10 or (iii) solely with respect to nominations of persons for election to the Board of Directors, by an Eligible Stockholder whose Stockholder Nominee is included in the Corporation's proxy materials for the annual meeting pursuant to Article I, Section 11. Clause (ii) of this Section 10(a) shall be the exclusive means for a stockholder to make nominations (other than pursuant to Clause (iii) of this Section 10(a) and Article I, Section 11) or submit other business before an annual meeting of stockholders (other than pursuant to Rule 14a-8 under the Securities Exchange Act of 1934, as amended (the "Exchange Act")).

(b) Without qualification, in addition to any other applicable requirements, for a nomination to be made or any other business to be properly brought before an annual or special meeting by a stockholder pursuant to Article I, Section 10(a)(ii), such stockholder must have given timely notice thereof in proper written form to the Secretary of the Corporation in accordance with Article I, Section 10(c). To be timely, a stockholder's notice must be delivered to the Secretary (i) in the case of an annual meeting, not earlier than the Close of Business on the 120th calendar day prior to the first anniversary of the date of the preceding year's annual meeting nor later than the Close of Business on the 90th calendar day prior to the first anniversary of the date of the preceding year's annual meeting; *provided, however*, that in the event that the date of the annual meeting is more than 30 calendar days before or more than 70 calendar days after the anniversary date of the preceding year's annual meeting, or if no annual meeting was held in the preceding year, notice by the stockholder to be timely must be so delivered not earlier than the Close of Business on the 120th calendar day prior to the date of such annual meeting and not later than the Close of Business on the later of the 90th calendar day prior to the date of such annual meeting or the tenth calendar day following the calendar day on which public announcement of the date of such meeting is first made by the Corporation; and (ii) in the case of a special meeting of stockholders, not later than the Close of Business on the tenth day following the day on which notice of the date of the special meeting was mailed or public disclosure of the date of the special meeting was made, whichever first occurs. In no event shall the public announcement of an adjournment or postponement of an annual or a special meeting commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. For the avoidance of doubt, a stockholder shall not be entitled to make additional or substitute nominations following the expiration of the time periods set forth in these Bylaws.

(c) To be in proper form, a stockholder's notice to the Secretary must:

(i) set forth, as to the stockholder of record giving the notice (the "Noticing Stockholder") and the beneficial owner, if any, on whose behalf the nomination or proposal is made (collectively with the Noticing Stockholder, the "Holders" and each, a "Holder"): (A) the name and address as they appear on the Corporation's books of each Holder and the name and address of any Stockholder Associated Person (as defined herein), (B) (1) the class or series and number of shares of the Corporation which are, directly or indirectly, owned beneficially and of record by each Holder and any Stockholder Associated Person (*provided, however*, that for purposes of this Section 10(c), any such person shall in all events be deemed to beneficially own any shares of the Corporation as to which such person has a right to acquire beneficial ownership of at any time in the future), (2) any option, warrant, convertible security, stock appreciation right, or similar right with an exercise or conversion privilege or a settlement payment or mechanism at a price related to any class or series of shares of the Corporation or with a value derived, in whole or in part, from the value of any class or series of shares of the Corporation, whether or not such instrument or right shall be subject to settlement in the underlying class or series of capital stock of the Corporation or otherwise (a "Derivative Instrument") directly or indirectly owned beneficially by each Holder and any Stockholder Associated Person and any other direct or indirect opportunity to profit or share in any profit derived from any increase or decrease in the value of shares of the Corporation, (3) any proxy, contract, arrangement, understanding or relationship pursuant to which each Holder and any Stockholder Associated Person has a right to vote or has granted a right to vote any shares of any security of the Corporation, (4) any Short Interest held by each Holder and any Stockholder Associated Person presently or within the last 12 months in any security of the Corporation (for purposes of this Section 10, a person shall be deemed to have a "Short Interest" in a security if such person, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has the opportunity to profit or share in any profit derived from any decrease in the value of the subject security), (5) any direct or indirect legal, economic or financial interest (including Short Interest) of each Holder and any Stockholder Associated Person in the outcome of any vote to be taken at any annual or special meeting of stockholders of the Corporation or any other entity with respect to any matter that is substantially related, directly or indirectly, to any nomination or business proposed by any Holder under this Section 10, (6) any rights to dividends on the shares of the Corporation owned beneficially by each Holder and any Stockholder Associated Person that are separated or separable from the underlying shares of the Corporation, and (7) any proportionate interest in shares of the Corporation or Derivative Instruments held, directly or indirectly, by a general or limited partnership or limited liability company or similar entity in which any Holder and any Stockholder Associated Person is a general partner or, directly or indirectly, beneficially owns any interest in a general partner or is the manager or managing member or, directly or indirectly, beneficially owns any interest in the manager or managing member of a limited liability company or similar entity (Sub-clauses (1) through (7) above of this Section 10(c)(i)(B) shall be referred, collectively, as the "Ownership Information"), (C) a representation by the Noticing Stockholder that such stockholder is a holder of record of stock of the Corporation entitled to vote at such meeting, will continue to be a stockholder of record of the Corporation entitled to vote at such meeting through the date of such meeting and intends to appear in person or by proxy at the meeting to propose such business or nomination, (D) a representation whether any Holder and/or any Stockholder Associated Person intends or is part of a group which intends (1) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock required to approve or adopt the proposal or elect the nominee and/or (2) otherwise to solicit proxies from stockholders in support of such proposal or nomination, (E) a certification that each Holder and any Stockholder Associated Person has complied with all applicable federal, state and other legal requirements in connection with its acquisition of shares or other securities of the Corporation and such person's acts or omissions as a stockholder of the Corporation, (F) a representation as to the accuracy of the information set forth in the notice, and (G) with respect to each person nominated for election to the Board of Directors, include (1) a completed and signed questionnaire, representation and agreement and any and all other information required by Article I, Section 10(g) and (2) the information and statement required by Rule 14a-19(b) of the Exchange Act (or any successor provision);

(ii) if the notice relates to any business other than a nomination of a Director or Directors that the stockholder proposes to bring before the meeting, set forth (A) a brief description of the business desired to be brought before the meeting, (B) the text, if any, of the proposal or business (including the text of any resolutions proposed for consideration and in the event that such business includes a proposal to amend the Bylaws of the Corporation, the language of the proposed amendment), (C) the reasons for conducting such business at the meeting and any material interest of each Holder and any Stockholder Associated Person in such business and (D) a description of all agreements, arrangements and understandings between each Holder and any Stockholder Associated Person and any other person or persons (including their names) in connection with the proposal of such business by such stockholder; and

(iii) set forth, as to each person, if any, whom the Noticing Stockholder proposes to nominate for election to the Board of Directors (A) the name, age, business address and residence address of such person, (B) the principal occupation or employment of such person (present and for the past five years), (C) the Ownership Information for such person and any member of the immediate family of such person, or any Affiliate or Associate of such person, (D) all information relating to such person that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for election of Directors in a contested election pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder (including such person's written consent to being named in a proxy statement as a nominee and to serving as a Director if elected), and (E) a complete and accurate description of all agreements, arrangements and understandings between such person, on the one hand, and each Holder and any Stockholder Associated Person, on the one hand, during the prior three years, including, without limitation, a complete and accurate description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings (whether written or oral) during the past three years between such person and such parties (including, without limitation all biographical and related party transaction and other information that would be required to be disclosed pursuant to Rule 404 promulgated under Regulation S-K of the Exchange Act if the Holder or any Stockholder Associated Person were the "registrant" for purposes of such rule and such person were a director or executive officer of such registrant).

(d) A Noticing Stockholder shall further update and supplement its notice of any nomination or other business proposed to be brought before a meeting, if necessary, so that the information provided or required to be provided in such notice pursuant to this Section 10 shall be true and correct (i) as of the record date for the meeting and (ii) as of the date that is ten Business Days prior to the meeting or any adjournment, recess, rescheduling or postponement thereof. Such update and supplement shall be delivered to the Secretary not later than three Business Days after the later of the record date or the date notice of the record date is first publicly announced (in the case of the update and supplement required to be made as of the record date for the meeting) and not later than seven Business Days prior to the date for the meeting, if practicable (or, if not practicable, on the first practicable date prior to the meeting), or any adjournment, recess, rescheduling or postponement thereof (in the case of the update and supplement required to be made as of ten Business Days prior to the meeting or any adjournment, recess, rescheduling or postponement thereof). In addition, if the Noticing Stockholder has delivered to the Corporation a notice relating to any nomination, the Noticing Stockholder shall deliver to the Corporation no later than seven Business Days prior to the date of the annual meeting or, if practicable, any adjournment or postponement thereof (and, if not practicable, on the first practicable date prior to the date to which the annual meeting has been adjourned or postponed) reasonable evidence that it has complied with the requirements of Rule 14a-19 of the Exchange Act.

(e) The Corporation may also, as a condition to any such nomination or business being deemed properly brought before an annual meeting, require any Holder or any proposed nominee to deliver to the Secretary, within five Business Days of any such request, such other information as may reasonably be requested by the Corporation, including, without limitation, such other information as may be reasonably required by the Board of Directors, in its sole discretion, to determine (i) the eligibility of such proposed nominee to serve as a Director of the Corporation, (ii) whether such nominee qualifies as an "independent director" or "audit committee financial expert" under applicable law, securities exchange rule or regulation, or any publicly disclosed corporate governance guideline or committee charter of the Corporation and (iii) such other information that the Board of Directors determines, in its sole discretion, could be material to a reasonable stockholder's understanding of the independence, or lack thereof, of such nominee.

(f) General.

(i) Only such persons who are nominated in accordance with the procedures set forth in this Section 10 or Article I, Section 11, shall be eligible to be elected at an annual or special meeting of stockholders of the Corporation to serve as Directors and only such business shall be conducted at a meeting of stockholders as shall have been brought before the meeting in accordance with the procedures set forth in this Section 10. Except as otherwise provided by law, the Chair of the meeting shall have the power and duty (A) to determine whether a nomination or any business proposed to be brought before the meeting was made or proposed, as the case may be, in accordance with the procedures set forth in this Section 10 (including whether the stockholder or beneficial owner, if any, on whose behalf the nomination or proposal is made solicited (or is part of a group which solicited) or did not so solicit, as the case may be, proxies in support of such stockholder's nominee or proposal in compliance with such stockholder's representation as required by Article I, Section 10(c)(i)(D)) and (B) if any proposed nomination or business was not made or proposed in compliance with this Section 10, to declare that such nomination shall be disregarded or that such proposed business shall not be transacted.

(ii) Notwithstanding the foregoing provisions of this Section 10, unless otherwise required by law, if the Noticing Stockholder (or a qualified representative thereof) does not appear at the annual or special meeting of stockholders of the Corporation to present a nomination or proposed business, such nomination shall be disregarded and such proposed business shall not be transacted, notwithstanding that proxies in respect of such vote may have been received by the Corporation.

(iii) For purposes of this Section 10 and Article I, Section 11, as applicable,

(A) "Affiliate(s)" and "Associate(s)" shall have the meanings attributed to such terms in Rule 12b-2 under the Exchange Act and the rules and regulations promulgated thereunder.

(B) "Business Day" shall mean each Monday, Tuesday, Wednesday, Thursday and Friday that is not a day on which banking institutions in New York, NY are authorized or obligated by law or executive order to close.

(C) "Close of Business" shall mean 5:00 p.m. local time at the principal executive offices of the Corporation, and if an applicable deadline falls on the Close of Business on a day that is not a Business Day, then the applicable deadline shall be deemed to be the Close of Business on the immediately preceding Business Day.

(D) "delivery" of any notice or materials by a stockholder as required to be "delivered" under this Section 10 shall be made by both (1) hand delivery, overnight courier service, or by certified or registered mail, return receipt required, in each case, to the Secretary at the principal executive offices of the Corporation, and (2) electronic mail to the Secretary at CorporateSecretary@Waters.com or such other email address for the Secretary as may be specified in the Corporation's proxy statement for the annual meeting of stockholders immediately preceding such delivery of notice or materials.

(E) "public announcement" shall mean any method (or combination of methods) of disclosure that is reasonably designed to provide broad, non-exclusionary distribution of the information to the public or the furnishing or filing of any document publicly filed by the Corporation with the Securities and Exchange Commission (the "SEC") pursuant to Section 13, 14 or 15(d) of the Exchange Act and the rules and regulations promulgated thereunder.

(F) "Stockholder Associated Person" shall mean as to any Holder (1) any Affiliate or Associate of such Holder, (2) any person controlling, controlled by or under common control with such Holder, and (3) any member of the immediate family of such Holder.

(iv) Notwithstanding the foregoing provisions of this Section 10, a stockholder must also comply with all applicable requirements of the Exchange Act and the rules and regulations promulgated thereunder with respect to the matters set forth in this Section 10; *provided*, *however*, that any references in the Corporation's Bylaws to the Exchange Act or the rules promulgated thereunder are not intended to and shall not limit the requirements applicable to nominations or proposals as to any other business to be considered pursuant to this Section 10. Nothing in this Section 10 shall be deemed to affect any rights (A) of stockholders to request inclusion of proposals in the Corporation's proxy statement pursuant to Rule 14a-8 under the Exchange Act or any other applicable federal or state securities law with respect to that stockholder's request to include proposals in the Corporation's proxy statement, or (B) of the holders of any series of Preferred Stock to elect Directors under an applicable Preferred Stock designation.

(g) Submission of Questionnaire. Representation and Agreement. To be eligible to be a nominee for election as a Director of the Corporation pursuant to Article I, Section 10(a)(ii), a proposed nominee must deliver in writing (in accordance with the time periods prescribed for delivery of notice under this Section 10) to the Secretary (i) a written questionnaire with respect to the background and qualification of such person and the background of any other person or entity on whose behalf the nomination is being made (which questionnaire shall be provided by the Secretary upon written request of any stockholder of record identified by name within five Business Days of such written request), (ii) an irrevocable, contingent resignation to the Board of Directors, in a form acceptable to the Board of Directors, and (iii) a written representation and agreement (in the form provided by the Secretary upon written request of any stockholder of record identified by name within five Business Days of such request) that such person (A) is not and will not become a party to (1) any agreement, arrangement or understanding (whether written or oral) with, and has not given any commitment or assurance to, any person or entity as to how such person, if elected as a Director of the Corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the Corporation or (2) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a Director of the Corporation, with such person's fiduciary duties under applicable law, (B) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a Director that has not been disclosed therein, (C) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a Director of the Corporation, and will comply with all applicable rules of the exchanges upon which the securities of the Corporation are listed and all applicable publicly disclosed corporate governance, conflict of interest, confidentiality and stock ownership and trading policies and guidelines of the Corporation and (D) in such person's individual capacity and on behalf of any Holder on whose behalf the nomination is being made, intends to serve a full term if elected as a Director of the Corporation.

SECTION 11. Proxy Access for Director Nominations.

(a) **Proxy Access**. Whenever the Board of Directors solicits proxies with respect to the election of Directors at an annual meeting of stockholders, subject to the provisions of this Section 11, the Corporation shall include in its proxy statement for such annual meeting, in addition to any persons nominated for election by the Board of Directors, including through a committee thereof, the name, together with the Required Information (defined below), of any person nominated for election (the "Stockholder Nominee") to the Board of Directors by any stockholder or group of no more than 20 stockholders (*provided* that a group of funds that are (i) under common management and investment control, (ii) under common management and funded primarily by the same employer or (iii) a "group of investment companies," as such term is defined in Section 12(d)(1)(G)(ii) of the Investment Company Act of 1940, as amended, shall be treated as one stockholder) that satisfies the requirements of this Section 11 (the "Eligible Stockholder"), and who expressly elects at the time of providing a notice that names the Stockholder Nominee and otherwise satisfies the requirements of this Section 11 (the "Notice of Proxy Access Nomination") to have the Stockholder Nominee included in the Corporation's proxy materials (including the proxy card) pursuant to this Section 11. For purposes of this Section 11, the "Required Information" that the Corporation will include in its proxy statement is the information provided to the Secretary of the Corporation concerning the Stockholder Nominee and the Eligible Stockholder that is required to be disclosed in the Corporation's proxy statement by the Exchange

Act, and, if the Eligible Stockholder so elects, a written statement, not to exceed 500 words and which may include a chart, graph or other image, in support of the Stockholder Nominee(s)' candidacy (the "Statement"), *provided* that any words appearing in such chart, graph or other image shall be counted in calculating the 500-word limit. An Eligible Stockholder (including any group of stockholders together constituting an Eligible Stockholder) may submit one Statement for each of its Stockholder Nominees. Notwithstanding anything to the contrary contained in this Section 11, the Corporation may (A) omit from its proxy materials any information or Statement (or portion thereof) that it, in good faith, believes would violate any applicable law, rule or regulation, and (B) solicit against any Stockholder Nominee or include in the Corporation's proxy statement its own statement or other information relating to any Eligible Stockholder or Stockholder Nominee.

(b) **Timeliness of Notice**. To nominate a Stockholder Nominee, the Eligible Stockholder must timely submit to the Secretary of the Corporation at the principal executive offices of the Corporation the Notice of Proxy Access Nomination. To be timely, the Notice of Proxy Access Nomination must be delivered to, or mailed to and received by, the Secretary of the Corporation no earlier than 150 days and no later than 120 days before the anniversary of the date that the Corporation issued its proxy statement for the previous year's annual meeting of stockholders, or, if the date of the annual meeting of stockholders is more than 30 days earlier or more than 60 days later than the anniversary date of the most recent annual meeting of stockholders, then not later than the Close of Business on the tenth day after public announcement of the meeting date. In no event shall the public announcement of an adjournment or postponement of an annual meeting of stockholders commence a new time period (or extend any time period) for the giving of a Notice of Proxy Access Nomination.

(c) **Maximum Number of Stockholder Nominees**.

(i) **Maximum Number of Stockholder Nominees**. The maximum number of Stockholder Nominees nominated by all Eligible Stockholders that will be included in the Corporation's proxy materials with respect to an annual meeting of stockholders shall not exceed the greater of (A) two (2) or (B) 20% of the number of Directors (rounded down to the nearest whole number) in office as of the last day on which a Notice of Proxy Access Nomination may be delivered pursuant to and in accordance with this Section 11 (the "Final Proxy Access Nomination Date"). In the event that one or more vacancies for any reason occurs on the Board of Directors after the Final Proxy Access Nomination Date but before the date of the annual meeting, and the Board of Directors resolves to reduce the size of the Board of Directors in connection therewith, the maximum number of Stockholder Nominees included in the Corporation's proxy materials shall be calculated based on the number of Directors in office as so reduced.

(ii) **Persons Considered in Calculation of Maximum Number of Stockholder Nominees**. The following persons shall be considered Stockholder Nominees for purposes of determining when the maximum number of Stockholder Nominees provided for in this Section 11 has been reached: (A) any Stockholder Nominee whom the Board of Directors decides to nominate as a Board of Directors' nominee, (B) any Stockholder Nominee who is subsequently withdrawn, (C) any incumbent Director who had been a Stockholder Nominee or a nominee of a stockholder pursuant to the advance notice requirements set forth in Article I, Section 10, in each case, at any of the preceding two annual or special meetings and whose reelection at the upcoming annual meeting is being recommended by the Board of Directors and, without duplication, (D) the number of incumbent Directors who are not Stockholder Nominees and who will be included in the Corporation's proxy materials with respect to such annual meeting of stockholders as an unopposed (by the Board of Directors) nominee pursuant to any agreement, arrangement or other understanding between the Corporation and any stockholder or group of stockholders.

(iii) **Ranking Stockholder Nominees**. Any Eligible Stockholder submitting more than one Stockholder Nominee for inclusion in the Corporation's proxy materials pursuant to this Section 11 shall rank such Stockholder Nominees based on the order that the Eligible Stockholder desires such Stockholder Nominees to be selected for inclusion in the Corporation's proxy statement. In the event that the number of Stockholder Nominees submitted by Eligible Stockholders pursuant to this Section 11 exceeds the maximum number of nominees provided for in this Section 11, the highest ranking Stockholder Nominee who meets the requirements of this Section 11 from each Eligible Stockholder will be selected for inclusion in the Corporation's proxy materials until the maximum number is reached, proceeding in order of the amount (largest to smallest) of shares of common stock of the Corporation each Eligible Stockholder disclosed as owned in its respective Notice of Proxy Access Nomination submitted to the Corporation. For the purpose of the foregoing, in the event that the Notice of Proxy Access Nomination of two or more Eligible Stockholders disclose the ownership of an identical number of shares of common stock, such Eligible Stockholders' Stockholder Nominees will be selected in the order (earliest date to latest date) that the Notice of Proxy Access Nomination was received by the Corporation from each such Eligible Stockholder. If the maximum number is not reached after the highest ranking Stockholder Nominee who meets the requirements of this Section 11 from each Eligible Stockholder has been selected, this process will continue as many times as necessary, following the same order each time, until the maximum number is reached.

(iv) **Exclusion of Stockholder Nominees**. Notwithstanding anything to the contrary contained in this Section 11, if the Secretary of the Corporation receives notice pursuant to Article I, Section 10 of these Bylaws that a stockholder intends to nominate for election at a meeting such number of nominees that, together with the Stockholder Nominees otherwise eligible to be included in the Corporation's proxy materials pursuant to this Section 11, is greater than or equal to 50% of the total number of Directors to be elected at such meeting, the maximum number of Stockholder Nominees eligible to be included in the Corporation's proxy materials with respect to such meeting shall be reduced in whole-number increments, subject to a minimum of zero, until the total number of Directors to be elected at such meeting pursuant to Article I, Section 10 of these Bylaws and this Section 11 shall be less than 50% of the total number of Directors to be elected at such meeting. If the Secretary of the Corporation receives notice pursuant to Article I, Section 10 of these Bylaws that a stockholder intends to nominate for election at such meeting a number of nominees that is greater than or equal to 50% of the total number of Directors to be elected at such meeting, no Stockholder Nominees will be included in the Corporation's proxy materials with respect to such meeting pursuant to this Section 11.

(d) **Ownership**. For purposes of this Section 11, an Eligible Stockholder shall be deemed to "own" only those outstanding shares of common stock of the Corporation as to which the stockholder possesses (i) the full voting and investment rights pertaining to the shares and (ii) the full economic interest in (including the opportunity for profit from and risk of loss on) such shares. The number of shares calculated in accordance with clauses (i) and (ii) shall not include any shares (A) sold by such stockholder (or any of its Affiliates) in any transaction that has not been settled or closed, (B) borrowed by such stockholder (or any of its Affiliates) for any purposes or purchased by such stockholder (or any of its Affiliates) pursuant to an agreement to resell or (C) subject to any option, warrant, derivative or other agreement or understanding, whether any such arrangement is to be settled with shares of common stock of the Corporation or with cash based on the notional amount of shares subject thereto, in any such case which has, or is intended to have or if exercised would have, the purpose or effect of (1) reducing in any manner, to any extent or at any time in the future, such stockholder's (or its Affiliates') rights to vote or direct the voting and full rights to dispose or direct the disposition of any of such shares and/or (2) offsetting to any degree any gain or loss arising from the full economic interest in such shares by such stockholder (or Affiliate). An Eligible Stockholder's ownership of shares shall be deemed to continue during any period in which (x) the Eligible Stockholder has loaned such shares, *provided* that the Eligible Stockholder has the power to recall such loaned shares on not more than five Business Days' notice, and recalls such loaned shares not more than five Business Days after being notified that any of its Stockholder Nominee(s) will be included in the Corporation's proxy materials or (y) the Eligible Stockholder has delegated any voting power with respect to such shares by means of proxy, power of attorney, or other instrument or arrangement, *provided* that such proxy, power of attorney or other instrument or arrangement is revocable at any time by the Eligible Stockholder, and the Eligible Stockholder revokes such proxy, power of attorney, or other instrument or arrangement not more than five Business Days after being notified that any of its Stockholder Nominee(s) will be included in the Corporation's proxy materials. Whether outstanding shares of common stock of the Corporation are "owned" for these purposes will be determined by the Board of Directors.

(e) **Required Ownership Percentage; Minimum Holding Period**. In order to make a nomination pursuant to this Section 11, an Eligible Stockholder must have owned the Required Ownership Percentage (as defined below) of the Corporation's outstanding common stock (the "Required Shares") continuously for the Minimum Holding Period (as defined below) as of both the date the Notice of Proxy Access Nomination is received by the Secretary of the Corporation in accordance with this Section 11 and the record date for determining the stockholders entitled to vote at the annual meeting and must continue to own the Required Shares through the meeting date. For purposes of this Section 11, the "Required Ownership Percentage" is three percent or more, based on the number of shares of the Corporation's common stock outstanding as of the most recently reported date set forth in the Corporation's most recent filing with the SEC containing such information, and the "Minimum Holding Period" is three years.

(f) **Information to Be Provided**.

(i) **Information to Be Provided by Eligible Stockholder**. The Notice of Proxy Access Nomination must include: (A) in form and substance reasonably satisfactory to the Corporation, one or more written statements from the record holder of the shares (and from each intermediary through which the shares are or have been held during the Minimum Holding Period) verifying that, as of a date within seven calendar days prior to the date the Notice of Proxy Access Nomination is delivered or mailed to the Secretary of the Corporation, the Eligible Stockholder owns, and has owned continuously for the Minimum Holding Period, the Required Shares, and the Eligible Stockholder's agreement to provide, within five Business Days after the record date for the annual meeting, written statements from the record holder and intermediaries verifying the Eligible Stockholder's continuous ownership of the Required Shares through the record date and immediate notice if the Eligible Stockholder ceases to own the Required Shares prior to the date of the applicable annual meeting of stockholders; (B) documentation in form and substance reasonably satisfactory to the Corporation demonstrating that any group of funds being counted as one stockholder in meeting the definition of Eligible Stockholder are entitled to be treated as one stockholder for purposes of this Section 11; (C) a copy of the Schedule 14N (or any successor form) that has been filed with the SEC as required by Rule 14a-18 under the Exchange Act (or any successor provisions); (D) the information, representations, and agreements that are the same as those that would be required to be set forth in a stockholder's notice of nomination pursuant to Article I, Section 10 of these Bylaws; (E) in the case of a nomination by a group of stockholders, that together is an Eligible Stockholder, the designation by all group members of one member that is authorized to act on behalf of all such members with respect to the nomination and matters related thereto, including withdrawal of the nomination; (F) representations and agreements in form and substance reasonably satisfactory to the Corporation that the Eligible Stockholder (1) acquired the Required Shares in the ordinary course of business and not with the intent to change or influence control at the Corporation, and neither the Eligible Stockholder nor the Stockholder Nominee nor their respective Affiliates and Associates is holding any securities of the Corporation with the intent to change or influence control at the Corporation, (2) presently intends to maintain qualifying ownership of the Required Shares through the date of the annual meeting, (3) has not nominated and will not nominate for election to the Board of Directors at the annual meeting any person other than the Stockholder Nominee(s) being nominated pursuant to this Section 11, (4) has not engaged and will not engage in, and has not and will not be a "participant" in another person's "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as a Director at the annual meeting other than its Stockholder Nominee(s) or a nominee of the Board of Directors, (5) agrees to comply with all applicable laws and regulations applicable to the use, if any, of soliciting material, and (6) will provide facts, statements, and other information in all communications with the Corporation and its stockholders that are or will be true and correct in all material respects and do not and will not omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading; and (G) an undertaking in form and substance reasonably satisfactory to the Corporation that the Eligible Stockholder agrees to (1) assume all liability stemming from any legal or regulatory violation arising out of the Eligible Stockholder's communications with the stockholders of the Corporation or out of the information that the Eligible Stockholder provided to the Corporation and (2) indemnify and hold harmless the Corporation and each of its Directors, officers and employees individually against any liability, loss or damages in connection with any threatened or pending action, suit, or proceeding, whether legal, administrative or investigative, against the Corporation or any of its Directors, officers or employees arising out of any nomination submitted by the Eligible Stockholder pursuant to this Section 11.

(ii) **Information to Be Provided by Stockholder Nominee**. The Notice of Proxy Access Nomination must include a written representation and agreement from the Stockholder Nominee in form and substance reasonably satisfactory to the Corporation that such person (A) consents to being named in the proxy statement as a nominee and, if elected, intends to serve as a Director for the entire term for which such person is standing for election, (B) is not and will not become a party to (1) any Voting Commitment that has not been disclosed to the Corporation or (2) any Voting Commitment that could limit or interfere with such person's ability to comply, if elected as a Director of the Corporation, with such person's fiduciary duties under applicable law, (C) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the Corporation with respect to any direct or indirect compensation, reimbursement, or indemnification in connection with service or action as a Director that has not been disclosed therein, (D) in such person's individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a Director of the Corporation, and will comply with applicable law, all applicable rules of the U.S. exchanges upon which the common stock of the Corporation is listed, and all of the Corporation's publicly disclosed corporate governance, conflict of interest, confidentiality, and stock ownership and trading policies and guidelines, (E) will provide facts, statements and other information in all communications with the Corporation and its stockholders that are or will be true and correct in all material respects and do not and will not omit to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading, and (F) will irrevocably resign, with such resignation to become automatically effective upon determination by the Board of Directors (excluding for this purpose the Stockholder Nominee) that (1) such Stockholder Nominee or the applicable Eligible Stockholder has breached or has failed to comply with any of its or their obligations under this Section 11 or any of its or their representations or agreements set forth in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11), (2) any of the information in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11) was not, when provided, true and correct in all material respects or omitted to state a material fact necessary in order to make the statements made, in light of the circumstances they were made, not misleading, or (3) the requirements of this Section 11 had not otherwise been met by the Eligible Stockholder or the Stockholder Nominee.

(iii) **Additional Information**. At the request of the Corporation, each Stockholder Nominee for election as a Director of the Corporation must promptly, but in any event within five Business Days after such request, submit all completed and signed questionnaires required of Directors and officers to the Secretary of the Corporation. The Corporation may request such additional information, or such of the foregoing information in a form provided by the Secretary upon written request, as necessary to permit the Board of Directors to determine if each Stockholder Nominee satisfies the requirements of this Section 11.

(g) **Notice of Defect**. In the event that any information or communications provided by the Eligible Stockholder or the Stockholder Nominee to the Corporation or its stockholders ceases to be true and correct in all material respects or omits a material fact necessary to make the statements made, in light of the circumstances under which they were made, not misleading, each Eligible Stockholder or Stockholder Nominee, as the case may be, shall promptly notify the Secretary of the Corporation of any defect in such previously provided information and of the information that is required to correct any such defect, it being understood that providing any such notification shall not be deemed to cure any such defect or limit the remedies available to the Corporation relating to any such defect.

(h) **Exclusions**. The Corporation shall not be required to include in its proxy materials for any meeting of stockholders, pursuant to this Section 11, a Stockholder Nominee (i) for which the Secretary of the Corporation receives a notice that a stockholder has nominated such Stockholder Nominee for election to the Board of Directors pursuant to the advance notice requirements for stockholder nominees for Director set forth in Article I, Section 10 of these Bylaws, (ii) if the Eligible Stockholder who has nominated such Stockholder Nominee has engaged in or is currently engaged in, or has been or is a "participant" in another person's "solicitation" within the meaning of Rule 14a-1(l) under the Exchange Act in support of the election of any individual as a Director at the annual meeting other than its Stockholder Nominee(s) or a nominee of the Board of Directors, (iii) who is not independent under the listing standards of each principal U.S. exchange upon which the common stock of the Corporation is listed, any applicable rules of the SEC, and any publicly disclosed standards used by the Board of Directors in determining and disclosing independence of the Corporation's Directors, in each case as determined by the Board of Directors, (iv) who does not qualify as a "non-employee director" under Rule 16b-3 of the Exchange Act or as an "outside director" for the purposes of Section 162(m) of the Internal Revenue Code (or any successor provision), (v) whose election as a member of the Board of Directors would cause the Corporation to be in violation of these Bylaws, the Certificate of Incorporation, the rules and listing standards of the principal U.S. exchanges upon which the common stock of the Corporation is traded, or any applicable state or federal law, rule or regulation, (vi) who is an officer or director of a competitor, as defined in Section 8 of the Clayton Antitrust Act of 1914, as amended, (vii) who is a named subject of a pending criminal proceeding (excluding traffic violations and other minor offenses) or has been convicted in such a criminal proceeding within the past ten years, (viii) who is subject to any order of the type specified in Rule 506(d) of Regulation D promulgated under the Securities Act, (ix) if such Stockholder Nominee or the applicable Eligible Stockholder shall have provided information to the Corporation in respect to such nomination that was not true or correct in any material respect or that omitted to state a material fact necessary in order to make the statements made, in light of the circumstances under which they were made, not misleading, as determined by the Board of Directors or any committee thereof, or (x) if such Stockholder Nominee or the applicable Eligible Stockholder has breached or has failed to comply with any of its or their obligations under this Section 11 or any of its or their representations or agreements set forth in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11) or any of the information in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11) was not, when provided, true or correct or omitted to state a material fact necessary in order to make the statements made, in light of the circumstances they were made, not misleading, or the requirements of this Section 11 have not otherwise been met.

(i) **Invalidity**. Notwithstanding anything to the contrary set forth herein, the Board of Directors or the chairperson of the meeting of stockholders shall declare a nomination by an Eligible Stockholder to be invalid, and such nomination shall be disregarded and no vote on such Stockholder Nominee will occur, notwithstanding that proxies in respect of such vote may have been received by the Corporation, if (i) the Stockholder Nominee(s) becomes ineligible or unavailable for election at the annual meeting, as determined by the Board of Directors or the chairperson of the meeting, (ii) the Stockholder Nominee(s) and/or the applicable Eligible Stockholder shall have breached or failed to comply with any of its or their obligations under this Section 11 or any of its or their representations or agreements set forth in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11) or any of the information in the Notice of Proxy Access Nomination (or otherwise submitted pursuant to this Section 11) was not, when provided, true or correct or omitted to state a material fact necessary in order to make the statements made, in light of the circumstances they were made, not misleading, or the requirements of this Section 11 have not otherwise been met, as determined by the Board of Directors or the chairperson of the meeting, or (iii) the Eligible Stockholder (or a qualified representative thereof) does not appear at the meeting of stockholders to present any nomination pursuant to this Section 11. In addition, the Corporation will not be required to include in its proxy materials any successor or replacement Stockholder Nominee proposed by the applicable Eligible Stockholder or any other Eligible Stockholder.

(j) **Group Membership**. No person may be a member of more than one group of persons constituting an Eligible Stockholder under this Section 11.

(k) **Restrictions on Successive Nominations**. Any Stockholder Nominee who is included in the Corporation's proxy materials for a particular annual meeting of stockholders but either (i) withdraws from or becomes ineligible or unavailable for election at the annual meeting, or (ii) does not receive at least 25% of the votes cast in favor of such Stockholder Nominee's election, will be ineligible to be a Stockholder Nominee pursuant to this Section 11 for the next two annual meetings. For the avoidance of doubt, this Section 11(k) shall not prevent any stockholder from nominating any person to the Board of Directors pursuant to and in accordance with Article I, Section 10 of these Bylaws.

ARTICLE II

Board of Directors

SECTION 1.

(a) **Number and Term of Office**. The business and affairs of the Corporation shall be managed by or under the direction of the Board of Directors, the exact number of such Directors shall be fixed from time to time by the affirmative vote of a majority of the Board of Directors, who need not be stockholders of the Corporation. The Directors shall, except as hereinafter otherwise provide for filling vacancies, be elected at the annual meeting of stockholders, and shall hold office until their respective successors are elected and qualified or until their earlier resignation or removal. The number of Directors may be altered from time to time by amendment of these Bylaws.

(b) **Procedure for Stockholder Election of Directors; Required Vote**. At any meeting of the stockholders for the election of Directors at which a quorum is present, each Director shall be elected by the affirmative vote of a majority of the votes cast with respect to the Director, *provided* that Directors shall be elected by the affirmative vote of a plurality of the votes cast at any such meeting if in connection with such meeting (i) the Secretary shall have received a notice that one or more stockholders has proposed to nominate one or more persons for election or re-election to the Board of Directors, which notice purports to be in compliance with the advance-notice requirements for Stockholder Nominees for director set forth in Article I, Section 10 or Article I, Section 11, irrespective of whether the Board of Directors at any time determines that any such notice is not in compliance with such requirements and (ii) such nomination or nominations shall not have been formally and irrevocably withdrawn by such stockholder at the Close of Business on or prior to the tenth day preceding the date the Corporation first mails its notice of meeting for such meeting to the stockholders of the Corporation. For purposes of this Section 1(b), votes cast shall include votes for, against or to withhold authority for a Director. An abstention or broker non-vote shall not count as a vote cast with respect to a Director. If an incumbent Director fails to be reelected by a majority vote when such a vote is required and offers to resign, and if that resignation is not accepted by the Board of Directors, such Director shall continue to serve until the next annual meeting and until such Director's successor is duly elected, or such Director's earlier resignation or removal. If a Director's resignation is accepted by the Board of Directors or if a nominee for Director is not elected and the nominee is not an incumbent Director, then the Board of Directors, in its sole discretion, may fill any resulting vacancy pursuant to the provisions of Article II, Section 2 of these Bylaws or may decrease the size of the Board of Directors pursuant to the provisions of Article II, Section 1(a) of these Bylaws.

SECTION 2. Removal, Vacancies and Additional Directors. The stockholders may, at any special meeting the notice of which shall state that it is called for that purpose, remove, with or without cause, any Director and fill the vacancy; *provided* that, whenever any Director shall have been elected by the holders of any class of stock of the Corporation voting separately as a class under the provisions of the Certificate of Incorporation, such Director may be removed and the vacancy filled only by the holders of that class of stock voting separately as a class. Vacancies caused by any such removal and not filled by the stockholders at the meeting at which such removal shall have been made, or any vacancy caused by the death or resignation of any Director or for any other reason, and any newly created directorship resulting from any increase in the authorized number of Directors, may only be filled by the affirmative vote of a majority of the Directors then in office, although less than a quorum, or by a sole remaining director, and any Director so elected to fill any such vacancy or newly created directorship shall hold office until such Director's successor is elected and qualified or until such Director's earlier resignation or removal.

When one or more Directors shall resign effective at a future date, a majority of the Directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each Director so chosen shall hold office as herein provided in connection with the filling of other vacancies.

SECTION 3. **Place of Meeting**. The Board of Directors may hold its meetings in such place or places in the State of Delaware or outside the State of Delaware as the Board of Directors from time to time shall determine.

SECTION 4. **Regular Meetings**. Regular meetings of the Board of Directors shall be held at such times and places as the Board of Directors from time to time by resolution shall determine. No notice shall be required for any regular meeting of the Board of Directors; but a copy of every resolution fixing or changing the time or place of regular meetings shall be mailed to every Director at least five days before the first meeting held in pursuance thereof.

SECTION 5. **Special Meetings**. Special meetings of the Board of Directors shall be held whenever called by direction of the Chair of the Board of Directors, the Vice Chair of the Board of Directors or by a majority of the Board of Directors.

Notice of the day, hour and place of holding of each special meeting shall be given by mailing the same at least two days before the meeting or by causing the same to be delivered personally or transmitted by electronic transmission, telegraph facsimile, telex or sent by certified, registered or overnight mail at least one day before the meeting to each Director. Unless otherwise indicated in the notice thereof, any and all business other than an amendment of these Bylaws may be transacted at any special meeting, and an amendment of these Bylaws may be acted upon if the notice of the meeting shall have stated that the amendment of these Bylaws is one of the purposes of the meeting. At any meeting at which every Director shall be present, even though without any notice, any business may be transacted, including the amendment of these Bylaws.

SECTION 6. **Quorum**. Subject to the provisions of Section 2 of this Article II, a majority of the members of the Board of Directors in office (but in no case less than one-third of the total number of Directors nor less than two Directors) shall constitute a quorum for the transaction of business and the vote of the majority of the Directors present at any meeting of the Board of Directors at which a quorum is present shall be the act of the Board of Directors. If at any meeting of the Board of Directors there is less than a quorum present, a majority of those present may adjourn the meeting from time to time.

SECTION 7. **Chair; Vice Chair; Secretary**. The Chair of the Board of Directors or, in such person's absence, the Vice Chair of the Board of Directors shall preside at all meetings of the Board of Directors. In the absence of the Chair of the Board of Directors and the Vice Chair of the Board of Directors, a Chair shall be elected from the Directors present. The Chair and Vice Chair of the Board of Directors shall have such other powers and perform such other duties as may from time to time be assigned by these Bylaws or by the Board of Directors. The Secretary of the Corporation shall act as Secretary of all meetings of the Directors; but in the absence of the Secretary, the Chair may appoint any person to act as Secretary of the meeting.

SECTION 8. **Committees**. The Board of Directors may, by resolution passed by a majority of the whole Board of Directors, designate one or more committees, each such committee to consist of one or more of the Directors of the Corporation. The Board of Directors may designate one or more Directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. Any such committee, to the extent provided in the resolution of the Board of Directors establishing such committee, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the Corporation, and may authorize the seal of the Corporation to be affixed to all papers which may require it; *provided*, *however*, that no such committee shall have the power or authority in reference to the following matters: (a) approving or adopting, or recommending to the stockholders, any action or matter expressly required by the General Corporation Law of the State of Delaware (the "DGCL") to be submitted to stockholders for approval (other than recommending the election or removal of directors) or (b) adopting, amending, or repealing any by-laws of the Corporation. Each committee of the Board of Directors may fix its own rules of procedure and shall hold its meetings as provided by such rules, except as may otherwise be provided by a resolution of the Board of Directors designating such committee.

SECTION 9. **Conference Telephone Meetings**. Unless otherwise restricted by the Certificate of Incorporation or by these Bylaws, the members of the Board of Directors or any committee designated by the Board of Directors, may participate in a meeting of the Board of Directors or such committee, as the case may be, by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and such participation shall constitute presence in person at such meeting.

SECTION 10. **Consent of Directors or Committee in Lieu of Meeting**. Unless otherwise restricted by the Certificate of Incorporation or by these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors, or of any committee thereof, may be taken without a meeting if all members of the Board of Directors or committee, as the case may be, consent thereto in writing and the writing or writings are filed with the minutes of proceedings of the Board of Directors or committee, as the case may be.

ARTICLE III

Officers

SECTION 1. **Officers**. The officers of the Corporation shall be elected by, and serve at the pleasure of, the Board of Directors. Such officers shall have the authority and duties delegated to each of them, respectively, by these by-laws or the Board of Directors from time to time. The officers of the Corporation may be a President, one or more Vice Presidents, a Secretary and a Treasurer, and such other officers, if any, as shall be elected by the Board of Directors pursuant to the provisions of Section 8 of this Article III. The officers of the Corporation shall be elected annually by the Board of Directors at the meeting of the Board of Directors held after the annual meeting of the stockholders. The failure to hold such election shall not of itself terminate the term of office of any officer. Any officer may resign at any time upon written notice to the Corporation. Officers may, but need not, be Directors. Any number of offices may be held by the same person.

All officers, agents and employees shall be subject to removal, with or without cause, at any time by the Board of Directors. The removal of an officer without cause shall be without prejudice to such officer's contract rights, if any. The election or appointment of an officer shall not of itself create contract rights. All agents and employees other than officers elected by the Board of Directors shall also be subject to removal, with or without cause, at any time by the officers appointing them.

Any vacancy caused by the death of any officer, such officer's resignation, such officer's removal, or otherwise, may be filled by the Board of Directors, and any officer so elected shall hold office at the pleasure of the Board of Directors.

In addition to the powers and duties of the officers of the Corporation as set forth in these Bylaws, the officers shall have such authority and shall perform such duties as from time to time may be determined by the Board of Directors.

SECTION 2. **Powers and Duties of the Chair of the Board of Directors**. The Chair of the Board of Directors shall preside at all meetings of the stockholders and at all meetings of the Board of Directors and shall have such other powers and perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors.

SECTION 3. **Powers and Duties of the Vice Chair of the Board of Directors**. In the absence of the Chair of the Board of Directors, the Vice Chair of the Board of Directors shall preside at all meetings of the Board of Directors and at all meetings of the stockholders and shall have such other powers and perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors.

SECTION 4. **Powers and Duties of the President**. The President shall be the chief executive officer of the Corporation and, subject to the control of the Board of Directors, shall have general charge and control of all its operations and shall perform all duties incident to the office of President and shall have such other powers and perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors.

SECTION 5. **Powers and Duties of the Vice President**. Each Vice President shall perform all duties incident to the office of Vice President and shall have such other powers and perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors or the President.

SECTION 6. **Powers and Duties of the Secretary**. The Secretary shall keep the minutes of all meetings of the Board of Directors and the minutes of all meetings of the stockholders in books provided for that purpose; such person shall attend to the giving or serving of all notices of the Corporation; such person shall have custody of the corporate seal of the Corporation and shall affix the same to such documents and other papers as the Board of Directors or the President shall authorize and direct; such person shall have charge of the stock certificate books, transfer books and stock ledgers and such other books and papers as the Board of Directors or the President shall direct, all of which shall at all reasonable times be open to the examination of any Director, upon application, at the office of the Corporation during business hours; and such person shall perform all duties incident to the office of Secretary and shall also have such other powers and shall perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors or the President.

SECTION 7. Powers and Duties of the Treasurer. The Treasurer shall have custody of, and when proper shall pay out, disburse or otherwise dispose of, all funds and securities of the Corporation which may have come into such person's hands; such person may endorse on behalf of the Corporation for collection checks, notes and other obligations and shall deposit the same to the credit of the Corporation in such bank or banks or depositary or depositories as the Board of Directors may designate; such person shall sign all receipts and vouchers for payments made to the Corporation; such person shall enter or cause to be entered regularly in the books of the Corporation kept for the purpose full and accurate accounts of all moneys received or paid or otherwise disposed of by him and whenever required by the Board of Directors or the President shall render statements of such accounts; such person shall, at all reasonable times, exhibit such person's books and accounts to any Director of the Corporation upon application at the office of the Corporation during business hours; and such person shall perform all duties incident to the office of Treasurer and shall also have such other powers and shall perform such other duties as may from time to time be assigned to him by these Bylaws or by the Board of Directors or the President.

SECTION 8. Additional Officers. The Board of Directors may from time to time elect such other officers (who may but need not be Directors), including a Controller, Assistant Treasurers, Assistant Secretaries and Assistant Controllers, as the Board of Directors may deem advisable and such officers shall have such authority and shall perform such duties as may from time to time be assigned to them by the Board of Directors or the President.

The Board of Directors may from time to time by resolution delegate to any Assistant Treasurer or Assistant Treasurers any of the powers or duties herein assigned to the Treasurer; and may similarly delegate to any Assistant Secretary or Assistant Secretaries any of the powers or duties herein assigned to the Secretary.

SECTION 9. Giving of Bond by Officers. All officers of the Corporation, if required to do so by the Board of Directors, shall furnish bonds to the Corporation for the faithful performance of their duties, in such penalties and with such conditions and security as the Board of Directors shall require.

SECTION 10. Voting Upon Stocks. Unless otherwise ordered by the Board of Directors, the Chair of the Board of Directors, the Vice Chair of the Board of Directors, the President, or any Vice President shall have full power and authority on behalf of the Corporation to attend and to act and to vote, or in the name of the Corporation to execute proxies to vote, at any meetings of stockholders of any corporation in which the Corporation may hold stock, and at any such meetings shall possess and may exercise, in person or by proxy, any and all rights, powers and privileges incident to the ownership of such stock. The Board of Directors may from time to time, by resolution, confer like powers upon any other person or persons.

SECTION 11. Compensation of Officers. The compensation of the executive officers of the Corporation shall be fixed from time to time by, and the compensation of other officers of the Corporation elected by the Board of Directors shall be recommended from time to time by, the compensation committee of the Board of Directors, if such committee is then established or, if such committee is not then established, by the Board of Directors or by such officers as may be designated by resolution of the Board of Directors.

ARTICLE IV

Stock – Seal – Fiscal Year

SECTION 1. Certificates For Shares of Stock. The certificates for shares of stock of the Corporation shall be in such form, not inconsistent with the Certificate of Incorporation, as shall be approved by the Board of Directors, *provided* that the Board of Directors may provide by resolution that some or all of any or all classes or series of shares of stock of the Corporation shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the Corporation. All certificates shall be signed by the Chair of the Board of Directors, the Vice Chair of the Board of Directors, the President or a Vice President and by the Secretary or an Assistant Secretary or the Treasurer or an Assistant Treasurer, and shall not be valid unless so signed.

In case any officer or officers who shall have signed any such certificate or certificates shall cease to be such officer or officers of the Corporation, whether because of death, resignation or otherwise, before such certificates shall have been delivered by the Corporation, such certificate or certificates may nevertheless be issued and delivered as though the person or persons who signed such certificate or certificates had not ceased to be such officer or officers of the Corporation.

All certificates for shares of stock shall be consecutively numbered as the same are issued. The name of the person owning the shares represented thereby with the number of such shares and the date of issue thereof shall be entered on the books of the Corporation.

SECTION 2. Lost, Stolen or Destroyed Certificates. The Corporation may issue or direct a new certificate or certificates or uncertificated shares to be issued in place of any certificate or certificates previously issued by the Corporation alleged to have been lost, stolen or destroyed, upon the making of an affidavit of that fact by the owner of the lost, stolen or destroyed certificate. When authorizing such issue of a new certificate or certificates or uncertificated shares, the Corporation may, in its discretion and as a condition precedent to the issuance thereof, require the owner of such lost, stolen or destroyed certificate or certificates, or such person's legal representative, to give the Corporation a bond in such sum as it may direct, sufficient to indemnify the Corporation against any claim that may be made against the Corporation on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate or uncertificated shares.

SECTION 3. Transfer of Shares. The Board of Directors may appoint a bank or trust company organized under the laws of the United States or any state thereof to act as its transfer agent or registrar, or both in connection with the transfer of any class or series of securities of the Corporation. The Corporation, or its designated transfer agent or other agent, shall keep a book or set of books to be known as the stock transfer books of the Corporation, containing the name of each holder of record, together with such holder's address and the number and class or series of shares held by such holder and the date of issue. When shares are represented by certificates, the Corporation shall issue and deliver to each holder to whom such shares have been issued or transferred, certificates representing the shares owned by such holder, and shares of stock of the Corporation shall only be transferred on the books of the Corporation by the holder of record thereof or by such holder's attorney duly authorized in writing, upon surrender to the Corporation or its designated transfer agent or other agent of the certificate or certificates for such shares endorsed by the appropriate person or persons, with such evidence of the authenticity of such endorsement, transfer, authorization and other matters as the Corporation may reasonably require, and accompanied by all necessary stock transfer stamps; *provided*, *however*, that the Corporation shall be entitled to recognize and enforce any lawful restriction on transfer of shares. In that event, it shall be the duty of the Corporation to issue a new certificate to the person entitled thereto, cancel the old certificate or certificates and record the transaction on its books. When shares are not represented by certificates, shares of stock of the Corporation shall only be transferred on the books of the Corporation by the holder of record thereof or by such holder's attorney duly authorized in writing, with such evidence of the authenticity of such transfer, authorization and other matters as the Corporation may reasonably require, and accompanied by all necessary stock transfer stamps, and within a reasonable time after the issuance or transfer of such shares, the Corporation shall, if required by applicable law, send the holder to whom such shares have been issued or transferred a written statement of the information required by applicable law. Unless otherwise provided by applicable law, the Certificate of Incorporation, these by-laws or any other instrument, the rights and obligations of the holders of uncertificated stock and the rights and obligations of the holders of certificates representing stock of the same class and series shall be identical.

SECTION 4. Regulations. The Board of Directors shall have power and authority to make such other rules and regulations as it may deem expedient concerning the issue, transfer and registration of certificates for shares of stock of the Corporation.

SECTION 5. **Record Date**. In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or to express consent to corporate action in writing without a meeting or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, as the case may be, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall not be more than 60 days nor less than ten days before the date of such meeting, nor more than 60 days prior to any other action. If the Board of Directors so fixes a date, such date shall also be the record date for determining the stockholders entitled to vote at such meeting unless the Board of Directors determines, at the time it fixes such record date, that a later date on or before the date of the meeting shall be the date for making such determination.

If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is first given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held; the record date for determining stockholders entitled to express consent to corporate action in writing without a meeting, when no prior action by the Board of Directors is necessary, shall be the day on which the first written consent is expressed; and the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided*, *however*, that the Board of Directors may fix a new record date for the adjourned meeting in conformity herewith; and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of stockholders entitled to vote in accordance with the foregoing provisions of this Section 5 at the adjourned meeting.

SECTION 6. **Dividends**. Subject to the provisions of the Certificate of Incorporation, the Board of Directors shall have power to declare and pay dividends upon shares of stock of the Corporation, but only out of funds available for the payment of dividends as provided by law.

Subject to the provisions of the Certificate of Incorporation, any dividends declared upon the stock of the Corporation shall be payable on such date or dates as the Board of Directors shall determine. If the date fixed for the payment of any dividend shall in any year fall upon a legal holiday, then the dividend payable on such date shall be paid on the next day not a legal holiday.

SECTION 7. **Corporate Seal**. The Board of Directors shall provide a suitable seal, containing the name of the Corporation, which seal shall be kept in the custody of the Secretary. A duplicate of the seal may be kept and be used by any officer of the Corporation designated by the Board of Directors, the Chair of the Board of Directors or the President.

SECTION 8. **Fiscal Year**. The fiscal year of the Corporation shall be such fiscal year as the Board of Directors from time to time by resolution shall determine.

ARTICLE V

Miscellaneous Provisions

SECTION 1. **Checks, Notes, Etc.** All checks, drafts, bills of exchange, acceptances, notes or other obligations or orders for the payment of money shall be signed and, if so required by the Board of Directors, countersigned by such officers of the Corporation and/or other persons as the Board of Directors from time to time shall designate.

Checks, drafts, bills of exchange, acceptances, notes, obligations and orders for the payment of money made payable to the Corporation may be endorsed for deposit to the credit of the Corporation with a duly authorized depositary by the Treasurer, or otherwise as the Board of Directors may from time to time, by resolution, determine.

SECTION 2. **Loans**. Such officers or agents of the Corporation as from time to time shall be designated by the Board of Directors, pursuant to a delegation of authority approved by resolution of the Board of Directors, shall have authority (subject to the limitations set forth in any delegation of authority approved by the Board of Directors) to effect loans, advances or other forms of credit at any time or times for the Corporation from such banks or trust companies as the Board of Directors shall from time to time designate, and as security for the repayment of such loans, advances or other forms of credit to assign, transfer, endorse and deliver, either originally or in addition or substitution, any or all stocks, bonds, rights and interests of any kind in or to stocks or bonds, certificates of such rights or interests, deposits, accounts, documents covering merchandise, bills receivable and other commercial paper and evidences of debt, at any time held by the Corporation; and for such loans, advances, or other forms of credit to make, execute and deliver one or more notes, acceptances or other written obligations of the Corporation on such terms, and with such provisions as to the securities including the sale or disposition thereof, as such officers or agents shall deem proper; and also to sell to, or discount or rediscount with, such banks or trust companies any and all commercial paper, bills receivable, acceptances and other instruments and evidences of debt at any time held by the Corporation, and to that end to endorse, transfer and deliver the same. The officers of the Corporation or any of them shall from time to time certify the signatures of the officers or agents so authorized, which may include the signature of such certifying officer or officers, to each bank or trust company so designated by the Board of Directors; and each such bank or trust company is authorized to rely upon such certification until written notice of the revocation by the Board of Directors of the authority of such officers or agents shall have been received by such bank or trust company.

SECTION 3. **Waivers of Notice**. Whenever any notice whatever is required to be given by law, by the Certificate of Incorporation or by these Bylaws to any person or persons, a waiver thereof in writing, signed by the person or persons entitled to the notice, whether before or after the time stated therein, shall be deemed equivalent thereto.

SECTION 4. **Offices Outside of Delaware**. Except as otherwise required by the laws of the State of Delaware, the Corporation may have an office or offices and keep its books, documents and papers outside of the State of Delaware at such place or places as from time to time may be determined by the Board of Directors, the Chair of the Board of Directors or the President.

SECTION 5. **Inconsistent Provisions**. In the event that any provision of these Bylaws is or becomes inconsistent with any provision of the Certificate of Incorporation, the General Corporation Law of the State of Delaware or any other applicable law, the provisions of these Bylaws shall not be given any effect to the extent of such inconsistency but shall otherwise be given full force and effect.

ARTICLE VI

Amendments

These Bylaws and any amendment thereof may be altered, amended or repealed, or new Bylaws may be adopted, by the Board of Directors at any regular or special meeting by the affirmative vote of a majority of all of the members of the Board of Directors, *provided* in the case of any special meeting at which all of the members of the Board of Directors are not present, that the notice of such meeting shall have stated that the amendment of these Bylaws was one of the purposes of the meeting; but these Bylaws and any amendment thereof, including the Bylaws adopted by the Board of Directors, may be altered, amended or repealed and other Bylaws may be adopted by the holders of a majority of the total outstanding stock of the Corporation entitled to vote at any annual meeting or at any special meeting, *provided*, in the case of any special meeting, that notice of such proposed alteration, amendment, repeal or adoption is included in the notice of the meeting.

ARTICLE VII

Indemnification of Officers and Directors

SECTION 1. **General**. To the fullest extent permitted by the DGCL as the same exists or may hereafter be amended, a Director of the Corporation shall not be liable to the Corporation or its stockholders for monetary damages for breach of fiduciary duty as Director.

ARTICLE VIII

Offices

SECTION 1. Registered Office. The registered office of the Corporation within the State of Delaware shall be in the City of Wilmington, County of New Castle.

SECTION 2. Other Offices. The Corporation may also have an office or offices other than said registered office at such place or places, either within or without the State of Delaware, as the Board of Directors shall from time to time determine or the business of the Corporation may require.

ARTICLE IX

Exclusive Jurisdiction for Certain Actions

SECTION 1. Forum for Adjudication of Disputes.

(a) Unless the Corporation consents in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall, to the fullest extent permitted by law, be the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Corporation, (ii) any action asserting a claim of breach of fiduciary duty owed by, or other wrongdoing by, any Director, officer, employee or agent of the Corporation to the Corporation or the Corporation's stockholders, creditors or other constituents, or a claim of aiding and abetting any such breach of fiduciary duty, (iii) any action asserting a claim against the Corporation or any Director or officer or other employee of the Corporation arising pursuant to any provision of the DGCL or the Certificate of Incorporation or these Bylaws of the Corporation (as either may be amended, restated, modified, supplemented or waived from time to time), (iv) any action to interpret, apply, enforce or determine the validity of the Certificate of Incorporation or these Bylaws of the Corporation, (v) any action asserting a claim against the Corporation or any Director or officer or other employee of the Corporation governed by the internal affairs doctrine or (vi) any action asserting an "internal corporate claim" as that term is defined in Section 115 of the DGCL. For the avoidance of doubt, this Section 1(a) of Article IX shall not apply to any action or proceeding asserting a claim under the Securities Act or the Exchange Act.

(b) Unless the Corporation consents in writing to the selection of an alternative forum, the federal district courts of the United States of America shall be the sole and exclusive forum for the resolution of any complaint asserting a cause of action arising under the Securities Act against the Corporation or any Director or officer of the Corporation.

(c) Any person or entity purchasing or otherwise acquiring any interest in any security of the Corporation shall be deemed to have notice of and consented to the provisions of this Article IX.

ARTICLE X

Emergency Bylaws

SECTION 1. Emergency Bylaws.

(a) During periods of emergency resulting from an attack on the United States of America or on a locality in which the Corporation conducts its business or customarily holds meetings of its Board of Directors or its stockholders, or during any nuclear or atomic disaster, or during the existence of any catastrophe, including, but not limited to, an epidemic or pandemic, and a declaration of national emergency by the United States government or other similar emergency condition, the provisions of this Article X shall apply notwithstanding any different provisions elsewhere contained in these Bylaws.

(b) Whenever, during such emergency irrespective of whether a quorum of the Board of Directors or a standing or special committee thereof can readily be convened for action, a meeting of such Board of Directors or committee thereof may be called by any officer of the Corporation or Director by a notice of the time and place given only to such of the Directors as it may be feasible to reach at the time and by such means as may be feasible at the time, including publications or radio. Three Directors in attendance at the meeting shall constitute a quorum; *provided*, *however*, that the officers of the Corporation or other persons present who have been designated on a list approved by the Board before the emergency, all in such order of priority and subject to such conditions and for such period of time as may be provided in the resolution approving such list, or in the absence of such a resolution, the officers of the Corporation who are present, in order of rank, and within the same rank in order of seniority, shall to the extent required to provide a quorum be deemed Directors for such meeting.

(c) The Board of Directors, both before or during any such emergency, may provide and modify lines of succession in the event that during such emergency any or all officers or agents of the Corporation shall for any reason be rendered incapable of discharging their duties.

(d) The Board of Directors, both before or during any such emergency, may, effective as of the emergency, change the principal executive office or designate several alternative principal executive offices or regional offices or authorize the officers of the Corporation so to do.

(e) No Director or officer or employee of the Corporation acting in accordance with this Article X shall be liable for any act or failure to act, except for willful misconduct.

(f) To the extent not inconsistent with this Article X, all other Articles of these Bylaws shall remain in effect during any emergency described in this Article X and, upon termination of the emergency (to be determined by the Board of Directors in its sole discretion), the provisions of this Article X shall cease to be operative.

ARTICLE XI

Severability

SECTION 1. Severability. If any provision or provisions in these Bylaws shall be held to be invalid, illegal or unenforceable as applied to any person or entity or circumstance for any reason whatsoever, then, to the fullest extent permitted by law, the validity, legality and enforceability of such provision or provisions in any other circumstance, and of the remaining provisions in these Bylaws, and the application of such provision or provisions to other persons or entities and circumstances shall not in any way be affected or impaired thereby.

Adopted on December 6, 1991

Amended and Restated on August 16, 1994

Amended and Restated effective November 21, 1995

Amended and Restated effective December 13, 2006

Amended and Restated effective May 11, 2010

Amended and Restated effective October 16, 2013

Amended and Restated effective December 5, 2017

Amended and Restated effective October 8, 2020

Amended and Restated effective February 23, 2024

Waters Corporation and Subsidiaries
12/31/2023

- Waters Corporation (Delaware)
  - Waters Technologies Corporation (Delaware)
    - Andrew Alliance SA (Switzerland)
      - Andrew Alliance SASU (France)
    - Environmental Resource Associates, Inc. (Colorado)
    - Integrated Software Solutions Pty Limited
      - Integrated Software Solutions Limited (UK)
      - Integrated Software Solutions USA, LLC
    - TA Instruments-Waters LLC (Delaware)
    - Waters AG (Switzerland)
    - Waters Australia PTY LTD. (Australia)
    - Waters India Pvt. Ltd.
    - Waters SA de CV (Mexico)
    - Wyatt Technology, LLC (California)
      - Wyatt Technology (UK) Limited (UK)
      - Wyatt Technology France (France)
      - Wyatt Technology Europe GmbH (Germany)
        - Wyatt Technology Europe GmbH (Swiss)
        - Wyatt Technology Europe GmbH (Czech)
        - Wyatt Technology Europe GmbH (Netherlands)
    - Waters SAS (France)
    - Waters Sverige AB (Sweden)
    - Waters Technologies do Brasil Ltda (Brazil)
    - Waters Asia Limited (Delaware)
      - Waters A/S (Denmark)
      - Waters Limited (Canada)
      - Waters China Ltd. (Hong Kong)
      - Waters Cromatografia SA (Spain)
      - Waters NV (Belgium)
      - Waters Korea Limited (Korea)
      - Waters Technologies (Beijing) Co. Ltd (China)
      - Waters Technologies (Shanghai) Ltd (China)
      - Waters Ges.MBH (Austria)
        - Waters Kft (Hungary)
        - Waters Sp.Zo.o (Poland)
      - Waters Pacific Pte Ltd. (Singapore)
        - Waters Analytical Instruments Sdn Bhd (Malaysia)
      - Waters Holdings LLC (Delaware)
        - Waters European Investments, LLC (Cayman)
          - Milford International Limited (Cayman)
        - Nihon Waters K.K. (Japan)
        - TA Instruments Japan, Inc. (Japan)
        - Waters SpA (Italy)
        - Waters Celtic Holdings Ltd. (Ireland)
          - Waters Chromatography Ireland Ltd. (Ireland)
          - Waters Technologies Ireland Ltd. (Ireland)
            - Waters Romania Srl
            - Waters GmbH (Germany)
        - Waters Luxembourg SARL (Luxembourg)
          - Waters (TC) Israel Ltd. (Israel)
          - Micromass Holdings Ltd. (UK)
            - Waters Chromatography BV (Netherlands)
            - Waters Chromatography Europe BV (Netherlands)
            - Waters Tech. LC-MS Unipessol Lda (Portugal)
            - Micromass Ltd. (UK)
              - Waters Limited (UK)
              - Micromass UK Ltd. (UK)
                - Waters Research Center Kft (Hungary)
                - MPE Orbur Group Ltd. (UK)
                  - Midland Precision Equipment Co. Ltd. (UK)

All Subsidiaries are 100% owned unless otherwise indicated

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-160507, 333-183721, 333-239020) of Waters Corporation of our report dated February 27, 2024 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
February 27, 2024

Exhibit 31.1

**CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002**

I, Udit Batra, certify that:

1. I have reviewed this annual report on Form 10-K of Waters Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2024

/s/ Udit Batra, Ph.D.
Udit Batra, Ph.D.
Chief Executive Officer

Exhibit 31.2

**CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO SECTION 302
OF THE SARBANES-OXLEY ACT OF 2002**

I, Amol Chaubal, certify that:

1. I have reviewed this annual report on Form 10-K of Waters Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

    a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

    b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

    c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

    d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2024

/s/ Amol Chaubal
Amol Chaubal
Chief Financial Officer

Exhibit 32.1

CHIEF EXECUTIVE OFFICER CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The certification set forth below is hereby made solely for the purpose of satisfying the requirements of Section 906 of the Sarbanes-Oxley Act of 2002 and may not be relied upon or used for any other purposes.

In connection with the Annual Report of Waters Corporation (the “Company”) on Form 10-K for the period ended December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Udit Batra, Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge: (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement required by Section 906 or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Date: February 27, 2024

By: /s/ Udit Batra, Ph.D.
Udit Batra, Ph.D.
Chief Executive Officer

Exhibit 32.2

CHIEF FINANCIAL OFFICER CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

The certification set forth below is hereby made solely for the purpose of satisfying the requirements of Section 906 of the Sarbanes-Oxley Act of 2002 and may not be relied upon or used for any other purposes.

In connection with the Annual Report of Waters Corporation (the “Company”) on Form 10-K for the period ended December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Amol Chaubal, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to my knowledge: (1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

A signed original of this written statement required by Section 906 or other document authenticating, acknowledging or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.

Date: February 27, 2024

By: /s/ Amol Chaubal
Amol Chaubal
Chief Financial Officer

Exhibit 97

WATERS CORPORATION

MANDATORY CLAWBACK POLICY

PURPOSE

Waters Corporation, a Delaware corporation (the "Company"), believes that it is in the best interests of the Company and its shareholders to create and maintain a culture that emphasizes integrity and accountability and that reinforces the Company's pay-for-performance compensation philosophy. The Company's Board of Directors (the " Board") has therefore adopted this policy, which provides for the recoupment of certain executive compensation in the event that the Company is required to prepare an accounting restatement of its financial statements due to material noncompliance with any financial reporting requirement under the federal securities laws (this "Policy"). This Policy is designed to comply with Section 10D of the Securities Exchange Act of 1934, as amended (the " Exchange Act"), the rules promulgated thereunder, and the listing standards of the national securities exchange on which the Company's securities are listed.

ADMINISTRATION

This Policy shall be administered by the Compensation Committee of the Board (the " Compensation Committee"). Any determinations made by the Compensation Committee shall be final and binding on all affected individuals.

COVERED EXECUTIVES

This Policy applies to the Company's current and former executive officers (as determined by the Compensation Committee in accordance with Section 10D of the Exchange Act, the rules promulgated thereunder, and the listing standards of the national securities exchange on which the Company's securities are listed) and such other senior executives or employees who may from time to time be deemed subject to this Policy by the Compensation Committee (collectively, the "Covered Executives"). This Policy shall be binding and enforceable against all Covered Executives.

RECOUPMENT; ACCOUNTING RESTATEMENT

In the event that the Company is required to prepare an accounting restatement of its financial statements due to the Company's material noncompliance with any financial reporting requirement under the securities laws, including any required accounting restatement (i) to correct an error in previously issued financial statements that is material to the previously issued financial statements, or (ii) that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period (each, an "Accounting Restatement"), the Compensation Committee will reasonably promptly require reimbursement or forfeiture of the Overpayment (as defined below) received by any Covered Executive (x) after beginning service as a Covered Executive, (y) who served as a Covered Executive at any time during the performance period for the applicable Incentive-Based Compensation (as defined below), and (z) during the three (3) completed fiscal years immediately preceding the date on which the Company is required to prepare an Accounting Restatement and any transition period (that results from a change in the Company's fiscal year) within or immediately following those three (3) completed fiscal years.

INCENTIVE-BASED COMPENSATION

For purposes of this Policy:

"Incentive-Based Compensation" means any compensation that is granted, earned, or vested based wholly or in part upon the attainment of a Financial Reporting Measure, including, but not limited to: (i) non-equity incentive plan awards that are earned solely or in part by satisfying a Financial Reporting Measure performance goal; (ii) bonuses paid from a bonus pool, where the size of the pool is determined solely or in part by satisfying a Financial Reporting Measure performance goal; (iii) other cash awards based on satisfaction of a Financial Reporting Measure performance goal; (iv) restricted stock, restricted stock units, stock options, stock appreciation rights, and performance share units that are granted or vest solely or in part based on satisfaction of a Financial Reporting Measure performance goal; and (v) proceeds from the sale of shares acquired through an incentive plan that were granted or vested solely or in part based on satisfaction of a Financial Reporting Measure performance goal.

Compensation that would not be considered Incentive-Based Compensation includes, but is not limited to: (i) salaries; (ii) bonuses paid solely based on satisfaction of subjective standards, such as demonstrating leadership, and/or completion of a specified employment period; (iii) non-equity incentive plan awards earned solely based on satisfaction of strategic or operational measures; (iv) wholly time-based equity awards; and (v) discretionary bonuses or other compensation that is not paid from a bonus pool that is determined by satisfying a Financial Reporting Measure performance goal.

"Financial Reporting Measure" means: (i) any measure that is determined and presented in accordance with the accounting principles used in preparing financial statements, or any measure derived wholly or in part from such measure, such as revenues, EBITDA, or net income or (ii) stock price and total shareholder return. Financial Reporting Measures include, but are not limited to: revenues; net income; operating income; profitability of one or more reportable segments; financial ratios (e.g., accounts receivable turnover and inventory turnover rates); net assets or net asset value per share; earnings before interest, taxes, depreciation and amortization; funds from operations and adjusted funds from operations; liquidity measures (e.g., working capital, operating cash flow); return measures (e.g., return on invested capital, return on assets); earnings measures (e.g., earnings per share); sales per square foot or same store sales, where sales is subject to an accounting restatement; revenue per user, or average revenue per user, where revenue is subject to an accounting restatement; cost per employee, where cost is subject to an accounting restatement; any of such Financial Reporting Measures relative to a peer group, where the Company's Financial Reporting Measure is subject to an accounting restatement; and tax basis income.

OVERPAYMENT: AMOUNT SUBJECT TO RECOVERY

The amount to be recovered will be the amount of Incentive-Based Compensation received that exceeds the amount of Incentive-Based Compensation that otherwise would have been received had it been determined based on the restated amounts, and must be computed without regard to any taxes paid (the "Overpayment"). Incentive-Based Compensation is deemed "received" in the Company's fiscal period during which the Financial Reporting Measure specified in the incentive-based compensation award is attained, even if the vesting, payment or grant of the incentive-based compensation occurs after the end of that period.

For Incentive-Based Compensation based on stock price or total shareholder return, where the amount of erroneously awarded compensation is not subject to mathematical recalculation directly from the information in the Accounting Restatement, the amount must be based on a reasonable estimate of the effect of the Accounting Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was received, and the Company must maintain documentation of the determination of that reasonable estimate and provide such documentation to the exchange on which the Company's securities are listed.

METHOD OF RECOUPMENT

The Compensation Committee will determine, in its sole discretion, the method or methods for recouping any Overpayment hereunder which may include, without limitation:

- Requiring reimbursement of cash Incentive-Based Compensation previously paid;
- Seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer, or other disposition of any equity-based awards granted as Incentive-Based Compensation;
- Offsetting any or all of the Overpayment from any compensation otherwise owed by the Company to the Covered Executive;
- Cancelling outstanding vested or unvested equity awards; and/or
- Taking any other remedial or recovery action permitted by law, as determined by the Compensation Committee.

LIMITATION ON RECOVERY; NO ADDITIONAL PAYMENTS

The right to recovery will be limited to Overpayments received during the three (3) completed fiscal years prior to the date on which the Company is required to prepare an Accounting Restatement and any transition period (that results from a change in the Company's fiscal year) within or immediately following those three (3) completed fiscal years. In no event shall the Company be required to award Covered Executives an additional payment if the restated or accurate financial results would have resulted in a higher Incentive-Based Compensation payment.

NO INDEMNIFICATION

The Company shall not indemnify any Covered Executives against the loss of any incorrectly awarded Incentive-Based Compensation.

INTERPRETATION

The Compensation Committee is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate, or advisable for the administration of this Policy. It is intended that this Policy be interpreted in a manner that is consistent with the requirements of Section 10D of the Exchange Act and the applicable rules or standards adopted by the Securities and Exchange Commission or any national securities exchange on which the Company's securities are listed.

EFFECTIVE DATE

This Policy shall be effective as of the date it is adopted by the Board (the "Effective Date") and shall apply to Incentive-Based Compensation (including Incentive-Based Compensation granted pursuant to arrangements existing prior to the Effective Date). Notwithstanding the foregoing, this Policy shall only apply to Incentive-Based Compensation received (as determined pursuant to this Policy) on or after October 2, 2023.

AMENDMENT; TERMINATION

The Board may amend this Policy from time to time in its discretion. The Board may terminate this Policy at any time.

OTHER RECOUPMENT RIGHTS

The Board intends that this Policy will be applied to the fullest extent of the law. The Compensation Committee may require that any employment or service agreement, cash-based bonus plan or program, equity award agreement, or similar agreement entered into on or after the adoption of this Policy shall, as a condition to the grant of any benefit thereunder, require a Covered Executive to agree to abide by the terms of this Policy. Any right of recoupment under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company pursuant to the terms of any similar policy in any employment agreement, equity award agreement, cash-based bonus plan or program, or similar agreement and any other legal remedies available to the Company.

IMPRACTICABILITY

The Compensation Committee shall recover any Overpayment in accordance with this Policy except to the extent that the Compensation Committee determines such recovery would be impracticable because:

- The direct expense paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered;
- Recovery would violate home country law of the Company where that law was adopted prior to November 28, 2022; or

- Recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and regulations thereunder.

SUCCESSORS

This Policy shall be binding and enforceable against all Covered Executives and their beneficiaries, heirs, executors, administrators or other legal representatives.