ONE MISSION
COUNTLESS OPPORTUNITIES

2019 Annual Report

PerkinElmer
For the Better

"I am honored and privileged to lead PerkinElmer in the next chapter of its journey, one that I trust will be our most impactful yet."

– Dr. Prahlad Singh, President & Chief Executive Officer

Dear Fellow Shareholders,

2019 was a year of change for PerkinElmer, a year that I think will be looked back on as pivotal in our corporate history. Soon after I took over the role as Chief Operating Officer at the beginning of 2019, I led a concerted effort to bring the organization together by uniting teams from our Discovery and Analytical Solutions (DAS) and Diagnostics segments. Although we were already operating on a solid foundation, we had an immense amount of talent across our businesses that was being underutilized. As a result, we implemented new operating mechanisms, simplified processes, and took steps to evolve our culture to enhance transparency, encourage debate, and empower creativity. The year of transformation will foster even more positive changes throughout our organization and accelerate innovation over the coming quarters and years.

Science is evolving rapidly, seemingly faster than ever. Customers across our end-markets are increasingly demanding solutions that deliver fast, accurate results. To be a better stakeholder and partner to our customers, we must deliver products and services that take the difficulty of analysis out of their hands, instead embedding that complexity into the advanced capabilities of our systems and solutions. Our relative size and application expertise are competitive advantages in this effort. As a nimbler organization, we can better take advantage of the breadth of our portfolio and global footprint to address the evolving needs of our customers.

PerkinElmer's rich history of innovation gives me confidence moving forward because, for all intents and purposes, innovation is in our DNA. Over the years, we have expanded our capabilities both organically from our research and development investments, as well as through acquiring key technologies to complement our offerings across the markets we serve. We have come a long way since Richard Perkin and Charles Elmer made history debuting the first spectrophotometer in 1944 and the first gas chromatograph in 1955, to name just a couple of examples. Seventy-five years ago, the technical capabilities of our instruments were at the parts per billion level, which would be akin to detecting one specific human hair in all the heads on five blocks in New York City. Whereas today, we can detect at the parts per quadrillion level, which is akin to detecting one human hair out of all the hair on the heads of every person in the world. It's truly amazing how far technology has progressed.

To continue to advance science, we are proactively investigating how to best integrate artificial intelligence across our portfolio to accelerate data interpretation and deliver faster and more precise insights to our customers. For example, we are layering artificial intelligence (AI) with our clinical genomic services capabilities to generate faster, actionable insights for our clinical customers. The pairing has reduced the time to diagnose the incidence of rare disease in affected individuals by an estimated 25%.

Our recently launched Opera Phenix® Plus and MuviCyte platforms enable customers to utilize more clinically relevant cellular models to gain insights into oncology, neuroscience, and cardiovascular disease. These platforms provide an innovative solution to measure real-time molecular interactions over prolonged time periods and accelerate the identification of novel biomarkers as targets for new therapeutics. Additionally, we are actively investing in ways to harness the power of AI to further improve the quantitation of phenotypic differences in cell populations. In turn, this added capability will hopefully improve the ability to replicate the mechanism of disease in preclinical environments and help our customers to identify more novel targets for prospective therapeutics while also significantly reducing the risks associated with clinical translation.

All this is thanks to our approximately 13,000 employees who enable PerkinElmer to be at the forefront of technology and innovation. We are driving greater connectivity, insights and outcomes because now, more than ever before, we can proactively connect the dots between the ever-changing challenges faced by scientists, clinicians and researchers and the solutions we develop to address them. I am inspired by how we are innovating across the whole human care cycle, from family planning, maternal fetal and newborn health to childhood and family health. Moreover, it's exciting to see how we are supporting drug and disease research with advanced genomic, imaging and automation solutions across the entire lab workflow. Finally, the ways we are impacting the world around us through cutting edge detection technologies that test the quality and safety of the environment and global food supply are more meaningful than ever.

In addition, we have inorganically expanded our technologies and geographic footprint – while also further enhancing our culture of innovation – by making strategic acquisitions in attractive end markets. Last year, we acquired Cisbio, broadening our reagent portfolio for life sciences customers. We now offer Cisbio's leading homogenous detection technologies aimed at helping scientists accelerate workflows and more efficiently screen potential drug trial candidates. Cisbio has also enabled our expansion into cellular imaging reagents to complement our strong positions in high-content and in-vivo imaging products. Furthermore, we see great potential in pairing Cisbio's in vitro diagnostics offerings with our EUROIMMUN products to deliver faster and more complete tests to our diagnostics customers. We also acquired Solus Scientific to better help customers meet increasing food safety compliance needs in the large and fast-growing pathogen detection segment. Solus' food pathogen and microbial detection solutions, which feature assays with automation platforms, enable PerkinElmer to more fully address the local and regional food safety requirements of customers around the world. Towards the end of last year, we closed the exciting acquisition of Meizheng Group, a leading food safety testing company in China. The strong product portfolio, combined with broad sales channel coverage, expanded the total addressable market for PerkinElmer's food portfolio in China to approximately $2 billion. Integrating Meizheng's immunoassay, microbiology and molecular testing capabilities, which serve the grain and milling, dairy, meat and seafood markets, into our expanding food business in China positions PerkinElmer as having the broadest set of capabilities across the food testing value chain.

As PerkinElmer has continued to grow for the better, our team has rallied around an unwavering dedication to accomplishing our mission of innovating for a healthier world. This will require that we remain steadfast in our commitment to executing on our strategic priorities for 2020. These are ensuring a customer-first mindset, innovating to help address critical challenges within health and science, and evolving the employee experience to create a more collaborative culture.

Looking towards the years ahead, I am honored and privileged to lead PerkinElmer in the next chapter of its journey, one that I trust will be our most impactful yet. Impactful not only for our employees, customers and shareholders, but on a greater scale, impactful for the world thanks to the yet-to-be-achieved clinical and scientific breakthroughs made possible by PerkinElmer. And, with our aligned organization and a unified go-to-market strategy focused on transformative innovation and operational excellence, I am confident that we will continue to deliver outcomes for the betterment of people, the environment and our future. As we enter a new decade of possibilities, I am truly passionate about PerkinElmer's mission and the countless opportunities to bring it to life.

Regards,

Prahlad Singh, PhD
President & Chief Executive Officer, PerkinElmer, Inc.

CORPORATE GOVERNANCE

BOARD OF DIRECTORS

Prahlad Singh, PhD
President and Chief Executive Officer
PerkinElmer, Inc.

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Partner, Atlas Venture

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Frank Witney, PhD
Former Chief Executive Officer
Affymetrix, Inc.

Pascale Witz
Founder and Chief Executive Officer
PWH Advisors

CORPORATE OFFICERS

Prahlad Singh, PhD
President and Chief Executive Officer

Deborah Butters
Senior Vice President and Chief Human Resources Officer

Joel S. Goldberg
Senior Vice President, Administration, General Counsel and Secretary

James M. Mock
Senior Vice President and Chief Financial Officer

Daniel R. Tereau
Senior Vice President, Strategy and Business Development

Tajinder Vohra
Senior Vice President, Global Operations

Andrew Okun
Vice President and Chief Accounting Officer

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 29, 2019

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number 001-5075

PerkinElmer, Inc.

(Exact name of registrant as specified in its charter)

Massachusetts	**04-2052042**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*
940 Winter Street, Waltham, Massachusetts	**02451**
(Address of Principal Executive Offices)	*(Zip Code)*

(781) 663-6900

(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, $1 Par Value	PKI	The New York Stock Exchange
1.875% Notes due 2026	PKI 21A	The New York Stock Exchange
0.600% Notes due 2021	PKI 21B	The New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

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

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

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or Section 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 and post 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.

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

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

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

The aggregate market value of the common stock, $1 par value per share, held by non-affiliates of the registrant on June 28, 2019, was $10,536,461,974 based upon the last reported sale of $96.34 per share of common stock on June 28, 2019.

As of February 21, 2020, there were outstanding 111,303,859 shares of common stock, $1 par value per share.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of PerkinElmer, Inc.'s Definitive Proxy Statement for its Annual Meeting of Shareholders to be held on April 28, 2020 are incorporated by reference into Part III of this Form 10-K.

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PART I

Item 1. *Business*

Overview

We are a leading provider of products, services and solutions for the diagnostics, life sciences and applied markets. Through our advanced technologies and differentiated solutions, we address critical issues that help to improve lives and the world around us.

We are a Massachusetts corporation, founded in 1947. Our headquarters are in Waltham, Massachusetts, and we market our products and services in more than 190 countries. As of December 29, 2019, we employed approximately 13,000 employees. Our common stock is listed on the New York Stock Exchange under the symbol "PKI" and we are a component of the S&P 500 Index.

We maintain a website with the address http://www.perkinelmer.com. We are not including the information contained in our website as part of, or incorporating it by reference into, this annual report on Form 10-K. We make available free of charge through our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to these reports, as soon as reasonably practicable after we electronically file these materials with, or otherwise furnish them to, the Securities and Exchange Commission.

Our Strategy

Our strategy is to develop and deliver innovative products, services and solutions in high-growth markets that utilize our knowledge and expertise to address customers' critical needs and drive scientific breakthroughs. To execute on our strategy and accelerate revenue growth, we focus on broadening our offerings through both the acquisition of innovative technology and investment in research and development. Our strategy includes:

- Achieving significant growth in both of our core business segments, Discovery & Analytical Solutions and Diagnostics, through strategic acquisitions and licensing;
- Accelerating innovation through both internal research and development and third-party collaborations and alliances;
- Strengthening our position within key markets by expanding our global product and service offerings and maintaining superior product quality;
- Utilizing our share repurchase programs to help drive shareholder value; and
- Attracting, retaining and developing talented and engaged employees.

Recent Developments

As part of our strategy to grow our core businesses, we have recently taken the following actions:

Acquisitions in Fiscal Year 2019:

We completed the acquisition of five businesses for aggregate consideration of $433.1 million. We reported the operations of these acquisitions within the results of our Discovery & Analytical Solutions or Diagnostics segments, as applicable, from the acquisition dates.

Restructuring:

During fiscal year 2019, we recorded pre-tax restructuring charges of $21.8 million in our Discovery & Analytical Solutions segment and $7.6 million in our Diagnostics segment related to workforce reductions from restructuring activities. Our management approved these plans to realign resources to emphasize growth initiatives. We also terminated various contractual commitments in connection with certain disposal activities and have recorded charges, to the extent applicable, for the costs of terminating these contracts before the end of their terms and the costs that will continue to be incurred for the remaining terms without economic benefit to us. We recorded pre-tax charges of $0.2 million and $0.2 million in the Discovery & Analytical Solutions and Diagnostics segments, respectively, during fiscal year 2019 as a result of these contract terminations. We also recorded pre-tax charges of $0.8 million associated with relocating facilities during fiscal year 2019.

This pre-tax restructuring activity has been reported as restructuring and other costs, net and is included as a component of income from continuing operations. We expect no significant impact on future operating results or cash flows from the restructuring activities executed in fiscal year 2019.

Business Segments and Products

We report our business in two segments: Discovery & Analytical Solutions and Diagnostics.

Discovery & Analytical Solutions Segment

Our comprehensive portfolio of technologies helps life sciences researchers better understand diseases and develop treatments. In addition, we enable scientists to detect, monitor and manage contaminants and toxic chemicals that impact our environment and food supply. Our Discovery & Analytical Solutions segment serves the life sciences and applied markets.

Life Sciences Market:

The life sciences market consists of the life sciences research market and laboratory services market. In the life sciences research market, we provide a broad suite of solutions including reagents, informatics, and detection and imaging technologies that enable scientists to work smarter, make research breakthroughs and transform those breakthroughs to real-world outcomes. These products, solutions and services support pharmaceutical and biotech companies, contract research organizations and academic institutions globally in discovering and developing better treatments and therapeutics to fight disease, faster and more efficiently.

We also provide services designed to help customers in the laboratory services market increase efficiencies and production time while reducing laboratory maintenance costs. Our OneSource® laboratory service business is aligned with customers' needs, enabling them to accelerate scientific progress and commercial opportunities.

Applied Markets:

The applied markets consist of environmental, food and industrial markets. For the environmental market, we develop and provide analytical technologies, solutions and services that enable our customers to understand the characterization and health of many aspects of our environment, including air, water and soil. Our solutions are used to detect and help reduce the impact products and industrial processes have on our environment. For example, our solutions help ensure compliance with regulatory standards that protect the purity of the world's water supply by detecting harmful substances, including trace metals such as lead, and organic pollutants such as pesticides and benzene. We provide the tools needed to test functionality, meet quality specifications and safety standards, and innovate for next generation products.

We also offer a variety of solutions that help farmers and food producers provide a growing population with food that is safe, nutritious and appealing, and assist manufacturers with product consistency and maximizing production yield. Our instruments confirm food quality, including the level of moisture in grain or the level of fat in butter, as well as detect the presence of potentially dangerous contaminants, such as lead and mercury in milk. Our solutions can also be used to identify the origin of food products such as olive oil, which helps prevent counterfeiting. Our methods and analyses are transferable throughout the supply chain to enable customers to keep pace with industry standards as well as governmental regulations and certifications.

We also provide analytical instrumentation for the industrial market which includes the chemical, semiconductor and electronics, energy, lubricant, petrochemical and polymer industries. Our technologies for this market are primarily used by customers focusing on quality assurance standards. They are also used to drive advancement or innovation of new products.

Principal Products:

Our principal products and services for Discovery & Analytical Solutions applications include the following:

Life Sciences Market:

- Radiometric detection solutions, including over 1,100 radiochemicals and the Tri-carb® and Quantulus™ GCT families of liquid scintillation analyzers, Wizard²® Gamma counters and MicroBeta²® plate based LSA, which are used for beta, gamma and luminescence counting in microplate and vial formats utilized in research, environmental and drug discovery applications.
- The Opera Phenix® high content screening system, which is used for sensitive and high speed phenotypic drug screening of complex cellular models.
- The Operetta® CLS™ high content analysis system, which enables scientists to reveal fine sub-cellular details from everyday assays as well as more complex studies, for example using live cells, 3D and stem cells.
- The EnSight® multimode plate reader benchtop system, offering well plate imaging alongside labeled detection technologies for target-based and phenotypic assays.
- The EnVision® multimode plate reader, designed for high-throughput screening laboratories, including those using HTRF®, AlphaScreen®, AlphaLISA® and/or AlphaPlex® technologies.
- A wide range of homogeneous biochemical and cell-based assay reagents, including HTRF®, LANCE® *Ultra*™ and Alpha™ technology assay platforms used for the detection of drug discovery targets such as G-protein coupled receptors ("GPCR"), kinases, biomarkers and the modification of epigenetic enzymes.
- A broad portfolio of recombinant GPCR and ion channel cell lines, including over 300 products and 120 ready-to-use frozen cell lines for a wide range of disease areas.
- HTRF®, AlphaScreen®, AlphaLISA® and AlphaPlex® research assays, including over 500 no-wash biomarker detection kits for both biotherapeutics and small molecule drug discovery and development in a variety of therapeutic areas including cancer, inflammation, metabolic disorders, neurodegeneration and virology.
- TSA™ Plus biotin kits, which can increase sensitivity of histochemistry and cytochemistry as much as 10 to 20 times.
- In vivo imaging technologies and reagents for preclinical research, including the IVIS® Spectrum™ series for 2D and 3D optical imaging, the FMT® series for 3D optical tomography and the IVIS® Lumina™ series for 2D imaging, along with a suite of bioluminescent and fluorescent imaging agents, cell lines and dyes. These technologies are designed to provide non-invasive longitudinal monitoring of disease progression, cell trafficking and gene expression patterns in living animals and are complemented by a broad portfolio of fluorescent and bioluminescent in vivo imaging reagents that can be useful for identifying, characterizing and quantifying a range of disease biomarkers and therapeutic efficacy in living animal models.
- The Quantum™ GX2 system, which enables in vivo imaging of multiple species across multiple disease areas by delivering industry leading high resolution imaging. Low dose scanning allows subjects to be imaged over time to evaluate disease progression while minimizing the harmful effects of radiation that could impact the biology of the animal. With the Quantum™ GX2 system, data from the IVIS® and FMT® imaging platforms can be seamlessly co-registered with microCT to deliver more information on the disease state.
- OneSource® laboratory services, a comprehensive portfolio of multivendor instrument management, QA/QC, lab relocation, scientific, laboratory IT and regulatory compliance services. OneSource®

programs are tailored to the specific needs and goals of individual customers and offer a series of informatics-based consulting, planning and management offerings to assist in laboratory productivity and the optimization of complex Information Technology platforms.

- OneSource® Dashboard, a TIBCO® Spotfire® technology driven interactive graphical platform, providing visibility to a customer's global asset population, service event and downtime distribution, as well as key performance indicators to assist in asset operation.
- OneSource® Insights as a Service™, which leverages comprehensive OneSource® analytics and industry data to develop and deliver customer-need driven recommendations to optimize, integrate and accelerate lab operations.
- PerkinElmer Signals Medical Review™ software, which empowers medical monitors to detect safety signals faster and reduce overall time to submission by combining innovative medical review workflow with advanced analytics.
- PerkinElmer Signals Lead Discovery™ software, which enables researchers to quickly gain new insights into chemical and biomolecular research data, featuring guided search and analysis workflows and dynamic data visualizations for on-the-fly exploration.
- PerkinElmer Signals™ Notebook, a scientific research data management solution, allowing researchers to record research data and experiments in digital notebooks, drag & drop, store, organize, share, find and filter data easily.
- PerkinElmer Signals™ Translational data management, aggregation and analysis platform, which offers out-of-the-box support for the complete precision medicine workflow from data acquisition to biomarker discovery and validation.
- ChemDraw® 18, a chemical structure drawing and visualization application for scientists and researchers.
- Lead Discovery Premium software, which allows scientists to import, filter by, analyze and interpret chemical structures and biosequences alongside other related data in a highly visual and interactive environment for faster insights and better decisions.

Applied Markets:

- The Clarus® series of gas chromatographs, gas chromatographs/mass spectrometers and the TurboMatrix™ family of sample-handling equipment, which are used to identify and quantify compounds in the environmental, forensics, food and beverage, hydrocarbon processing/biofuels, materials testing, pharmaceutical and semiconductor industries.
- The Flexar™ ultra-high performance liquid chromatography (UHPLC) and Flexar advanced liquid chromatography systems, which provide high throughput and resolution chromatographic separations.
- The QSight® Triple Quad LC/MS/MS, a flow-based mass spectrometry system that provides high sensitivity and enables high levels of efficiency and productivity to meet both standard and regulatory requirements.
- The QSight® 400 series LC/MS/MS, a robust, powerful ready-to-implement triple quad LC/MS/MS system providing higher sensitivity and throughput that regulated food, cannabis and environmental testing labs need to meet their most stringent requirements.
- The Torion® T-9 portable GC/MS, a fast person-portable GC/MS system, enabling rapid detection and actionable results to potentially hazardous and emergency environmental conditions.
- Our atomic spectroscopy family of instruments, including the PinAAcle® family of atomic absorption spectrometers, the Avio® family of inductively coupled plasma ("ICP") optical emission spectrometers and the NexION® family of ICP mass spectrometers, which are used in the environmental and chemical industries, among others, to determine the elemental content of a sample.
- Our infrared spectroscopy (IR) family of instruments, the Spectrum Two™ IR & NIR spectrometers, which are compact and portable and used for high-speed infrared analysis for unknown substance identification, material qualification or concentration determination in fuel and lubricant analysis, polymer analysis and pharmaceutical and environmental applications. This includes the Frontier™ IR and NIR spectrometers designed to provide high sensitivity and flexibility to address a range of sample

types. Spotlight™ IR Microscopic and Imaging systems are designed for scientists whose samples demand higher sensitivity and simpler analysis and workflows.

- The LAMBDA™ UV/Vis, a series of spectrophotometers that provide sampling flexibility to enable measurement of a wide range of sample types, including liquids, powders and solid materials, both in regulated industries as well as QC/QA and research applications.
- The FL 6500™ and FL 8500™ fluorescence spectrophotometers, which address the challenges of bioscience, industrial, chemical, environmental, pharmaceutical, agricultural and academic application. They are designed to improve lab productivity and ensure standard compliance regulations are met. The FL 6500™ provides a high-energy pulsed Xenon light source that preserves sample integrity and the FL 8500™ provides a high-sensitivity source for testing diluted or small samples.
- The 2400 Series II CHNS/O Elemental Analyzer, one of the leading organic elemental analyzers. It is ideal for the rapid determination of carbon, hydrogen, nitrogen, sulfur, and oxygen content in organic and other types of materials.
- Our thermal analysis family, including our Differential Scanning Calorimetry (DSC) series that offers exclusive HyperDSC™ capability for unparalleled sensitivity and new insights into material processes, our Thermogravimetric (TGA) and Simultaneous Thermal Analysis (STA) instruments, which can be coupled to Fourier Transform Infrared (FT-IR), Mass Spectrometry (MS), or Gas Chromatography/Mass Spectrometry (GC/MS) to provide greater analysis power and knowledge.
- Perten's Falling Number® and Glutomatic® instruments, which determine the bread baking quality of wheat and flour, and Perten's DA NIR bench and in process analyzer determine constituent content for use across the food segment from meat to animal feed.
- The Delta™ range of milk quality analyzers, which help ensure the quality of dairy products and are used at Central Milk Testing labs as well as dairy processing facilities around the world.
- The Bioo Scientific® test kits for detection of toxins, veterinary drug residues and contaminants, which enable rapid and easy testing at different steps in the food value chain.

New Products:

New products introduced or acquired for Discovery & Analytical Solutions applications in fiscal year 2019 include the following:

Life Sciences Market:

- A range of new AlphaLISA®, Alpha *SureFire® Ultra* and LANCE® reagents and assay kits across key research and therapeutic areas, including cell signaling, inflammation, oncology, and biotherapeutics.
- OneSource® Asset Genius™ Monitoring Solution, part of the Asset Genius family, which offers a 360° view of laboratory instruments regardless of the manufacturer, correlating instrument usage, age and service data, allowing customers to visually pinpoint under-performing, ideally-performing and over-burdened assets, and to make informed decisions. The Monitoring Solution enables critical micro-environmental information to be captured, monitored and actioned to better improve reduce scientific variability.

Applied Markets:

- The LPC 500 Liquid Particle Counter featuring single particle optical sizing technology. Coupled with the Avio 500 ICP-OES Oils system, particle counting and sizing as well as wear metals analysis of in-service oils and lubricants are performed in one run with results delivered in less than a minute. This patent-pending integrated solution considerably improves operating costs.
- The NexSAR™ HPLC, is speciation analysis ready system engineered with a completely inert and metal-free fluid path, enabling laboratories to meet low chromatographic background requirements on the most challenging speciation applications in food, water or consumer products such as children's toys. This system is part of the NexSAR HPLC-ICP-MS Speciation Solution, which couples the NexSAR HPLC with our revolutionary NexION® ICP-MS and is seamlessly integrated using the proven Clarity™ software.

- The Quasar™ Liquid Chromatography (LC) Columns, which are built for optimized retention with a high surface coverage and high-sample loading capacities that help improve the detection of low-level compounds and are designed for optimal peak shapes. The Quasar™ SPP or Quasar™ Silica LC columns can be used across any HPLC or UHPLC system.
- The Polymer ID Analyzer, which provides accurate verification of identity, quality, and composition of polymers and their blends used in industries such as food packaging, construction, and automotive. It is a compact and easy-to-use solution designed to simplify and accelerate polymer analysis to quickly and confidently identify unknown polymer samples, determine composition of blends, and verify quality.
- The LAMBDA™ 1050+ and 850+ UV/Vis/NIR and UV/Vis spectrophotometers are easy-to-use with high-performance and provide accurate characterizations of sample materials that are critical for manufacturers in a variety of industries to ensure their products meet regulatory standards and develop smart materials with advanced properties for improved safety, efficiency and functionality.
- The DA 6200™ NIR analyzer, which helps meat and olive processors conduct quality and process control accurately, easily and quickly. The DA 6200 analyzer is based on the next generation Diode Array Near-Infrared Transmission Spectroscopy (NIR) technology, which provides accurate test results of fat, moisture, protein, collagen, salt and ash levels in a sample.
- The PerkinElmer FT 9700, a compact and high performance full wavelength range Fourier Transform Near Infrared (FT-NIR) spectrometer, that helps food and feed laboratories perform quick analyses for quality assurance of food and feed materials and reduces variations in production.
- The QSight® SP50 online solid phase extraction (SPE) system, which facilitates sample clean-up, enrichment and concentration, obviating the need for elaborate and time-consuming sample preparation procedures. The QSight SP50 offers easy and efficient switching between traditional, direct injection UHPLC analyses and fully automated online SPE with sample pre-concentration, allowing for increased throughput and cost savings.

Brand Names:

Our Discovery & Analytical Solutions segment offers additional products under various brand names, including:

Life Sciences Market:

AlphaLISA®, AlphaPlex™, AlphaScreen®, Alpha™ SureFire®, AngioSense®, Annexin-Vivo™ , Cell carrier®, cell::explorer®, Chem3D®, ChemDraw®, ChemOffice®, Columbus™ Elements™, EnLite™, EnSight®, EnVision®, FMT®, FolateRSense™, High Content Profiler™, IntegriSense™, IVIS®, LANCE®, Living Image®, Lumina™, MicroBeta²®, MMPSense®, NEN™, OneSource®, Opera Phenix®, Operetta® CLS™, OsteoSense®, PerkinElmer Signals™ for Translational, ProSense®, Quantulus™ GCT, RediJect™, Spectrum™, Transferrin-Vivo™, Tri-Carb®, VICTOR Nivo™, ViewLux™, VivoTag®, Wizard²®, and XenoLight™.

Applied Markets:

Aquamatic™, Avio®, Clarity™, Clarus®, DairyGuard™, Falling Number®, FL 6500™, FL 8500™, Flexar™, Frontier™, Glutomatic®, Honigs Regression™, HyperDSC®, Inframatic™, LAMBDA®, LPC 500™ , NexION®, NexSAR™, OilExpress™, OilPrep™, Optima®, Perten®, Perten Instruments®, PinAAcle®, QSight®, Quasar™, Spectrum™, Spectrum Two™, Spotlight™, Supra-clean®, Supra-d™, Supra-poly®, Syngistix™, Torion®, TurboMatrix™ and Ultraspray®.

Diagnostics Segment

We offer instruments, reagents, assay platforms, and software to hospitals, medical labs, clinicians, and medical research professionals to help improve the health of families. Our Diagnostics segment is especially focused on reproductive health, emerging market diagnostics, and applied genomics.

We provide early detection for genetic disorders from pregnancy to early childhood, and infectious disease testing for the diagnostics market. Our screening products are designed to provide early and accurate insights into the health of expectant mothers during pregnancy and into the health of their babies. Diagnostics labs use our instruments, reagents and software for testing and screening genetic abnormalities and certain disorders and diseases, including Down syndrome, hypothyroidism, muscular dystrophy, infertility and various metabolic conditions. We also develop technologies that enable and support genomic workflows using PCR and next-generation DNA sequencing for applications in oncology and drug discovery.

Principal Products:

Our principal products and services for Diagnostics applications include the following:

- The DELFIA® Xpress screening platform, a complete solution for prenatal and maternal health screening, which includes a fast continuous loading system. It is supported by kits for first, second and third trimester analyses for prenatal screening and clinically validated LifeCycle™ software.
- The NeoBase™ non-derivatized MS/MS AAAC kit, which is used to support detection of metabolic disorders in newborns through tandem mass spectrometry. The kit analyzes newborn dry blood spot samples for measurement of amino acids and other metabolic analytes for specific diseases.
- The GSP® Neonatal hTSH, T4 17á-OHP, GALT IRT, BTD, PKU, Total Galactose, CK-MM and G6PD kits, used for screening congenital neonatal conditions from a drop of blood.
- The Specimen Gate® informatics data management solution, designed specifically for newborn screening laboratories.
- ViaCord® umbilical cord blood banking services for the banking of stem cells harvested from umbilical cord blood and cord tissue, for potential therapeutic application in transplant and regenerative medicine.
- An expanded portfolio of molecular-based infectious disease screening technologies for blood bank and clinical laboratory settings in China. The tools include a qualitative 3-in-1 assay for the detection of hepatitis B, hepatitis C and HIV, as well as assays for other communicable diseases.
- The EnLite™ Neonatal TREC™ System, a screening test for Severe Combined Immunodeficiency, consisting of EnLite™ Neonatal TREC™ reagent kits, the Victor EnLite™ instrument and EnLite™ workstation software.
- NeoLSD™ MSMS kit, the first commercial IVD kit for screening of Pompe, MPS-I, Fabry, Gaucher, Niemann-Pick A/B and Krabbe disorders from a single dried blood spot sample.
- QSight® Triple Quad MSMS instrument, which is used for newborn screening.
- TRF based Anti HBs/HCV/TP kits for infectious disease testing.
- Chitas® instrument and HBV/HCV/HIV 3 in 1 PCR reagents for blood screening and Hi Sensitivity HBV DNA and HCV RNA assays for clinical infectious disease testing.
- The chemagic™ Prime™ instrument, a fully automated, LIMS-compatible solution for primary sample transfer, DNA and RNA isolation, optional normalization, and the setup of PCR and NGS applications.
- Immune fluorescence testing (IFT), enzyme-linked immunosorbent assay (ELISA), chemiluminescence-based immunotesting, immunoblots, molecular microarrays, PCR, liquid handlers and software solutions.
- Autoimmune testing covering rheumatology, hepatology, gastroenterology, endocrinology, neurology, nephrology, dermatology and infertility.
- Infectious disease testing covering bacteria, viruses and parasites.
- IFT, ELISA and EUROLINE™ assays for veterinary medical diagnostics.
- Automated liquid handling platforms (JANUS®, Sciclone® and Zephyr®) that offer a choice of robotic solutions in genomics, biotherapeutics, high throughput screening and high content analysis to assist life science research from bench to clinic.
- JANUS® BioTx™, PreNAT II workstation for automated small-scale purification, offering column, tip and plate based chromatography on a single platform.
- The LabChip GXII® Touch™ platform, which provides a means of characterizing multiple protein product attributes for research labs through QC.

- The explorer® automated workstation, which allows integration of multiple laboratory instrumentation using a centralized robotic interface, allowing high throughput and turnkey-application focused solutions.
- Allergy testing covering allergen-specific immunoglobin e (IgE) measuring the level of different IgE antibodies in blood using ELISA and EUROLINE™ assays.
- Vanadis® NIPT, a breakthrough cfDNA technology for use in genetic and biochemistry laboratories for screening common trisomies in pregnant population as a leading NIPT solution.
- PG-Seq™ Rapid Non-Invasive Preimplantation Genetic Testing Kit, an alternative to IVF embryo biopsies.

New Products:

New products introduced or acquired for Diagnostics applications in fiscal year 2019 include the following:

- PerkinElmer's GSP® Neonatal Creatine Kinase -MM kit, which is an FDA approved immunoassay for measuring CK-MM in dried blood spot samples of newborn babies. As the assay measures the muscle specific isoform, it enables the screening process to find the babies affected by Duchenne muscular dystrophy.
- GenePrism: Actionable Insights, a new genetic screening test offering comprehensive clinical-grade DNA sequencing and interpretation in order to better understand the underlying disease risks.
- EUROIMMUN Aspergillus Antigen ELISA, an enzyme-linked immunosorbent assay specifically designed to detect the Aspergillus antigen galactomannoprotein and assist in distinguishing invasive aspergillosis (IA).
- Commenced diagnostic screening of consumer-initiated health testing for Lyme and food intolerance.
- CE-marked chemiluminescence immunoassays (ChLIA) for the detection of anti-Borrelia (Lyme disease) and anti-EBV/EBNA (Epstein-Barr Virus) antibodies on our EUROIMMUN RA Analyzer 10 system.
- Superflex chemiluminescent POC system using Acridinium ester technology with first launched assays including the inflammation markers PCR and CRP and the cardiac disease markers CKMB, cTnI, MYO, NT-ProBNP.

Brand Names:

Our Diagnostics segment offers additional products under various brand names, including AutoDELFIA®, BACS-on-Beads®, BIOCHIPs, Bioo Scientific®, BoBs®, chemagic™, Chitas®, Datalytix™, DELFIA®, DELFIA® Xpress, DOPlify®, EUROArray™, EUROIMMUN®, EUROLabWorkstation™, EUROline™, EUROPattern™, Evolution™, explorer™, FragilEase®, Genoglyphix®, GSP®, Haoyuan™, iLab™, JANUS®, LabChip®, LifeCycle™, LimsLink™, MultiPROBE®, NEXTFLEX®, NextPrep™, Pannoramic™, PG-Seq™, PG-Find™, PreNAT®, Protein Clear™, ProteinEXact™, QSight®, Sciclone®, Specimen Gate®, Superflex™, Symbio™, Twister®, Vanadis™, VariSpec™, ViaCord®, and Zephyr®.

Marketing

All of our businesses market their products and services primarily through their own specialized sales forces. As of December 29, 2019, we employed approximately 5,300 sales and service representatives operating in approximately 38 countries and marketing products and services in more than 190 countries. In geographic regions where we do not have a sales and service presence, we utilize distributors to sell our products.

Raw Materials, Key Components and Supplies

Each of our businesses uses a wide variety of raw materials, key components and supplies that are generally available from alternate sources of supply and in adequate quantities from domestic and foreign sources. We generally have multi-year contracts, with no minimum purchase requirements, with our suppliers. For certain critical raw materials, key components and supplies required for the production of some of our principal products, we have qualified only a limited or a single source of supply. We periodically purchase quantities of some of these critical raw materials in excess of current requirements, in anticipation of future manufacturing needs. With sufficient lead times, we believe we would be able to qualify alternative suppliers for each of these raw materials and key components. See the applicable risk factor in “Item 1A. Risk Factors” for an additional description of this risk.

Intellectual Property

We own numerous United States and foreign patents and have patent applications pending in the United States and abroad. We also license intellectual property rights to and from third parties, some of which bear royalties and are terminable in specified circumstances. In addition to our patent portfolio, we possess a wide array of unpatented proprietary technology and know-how. We also own numerous United States and foreign trademarks and trade names for a variety of our product names, and have applications for the registration of trademarks and trade names pending in the United States and abroad. We believe that patents and other proprietary rights are important to the development of both of our reporting segments, but we also rely upon trade secrets, know-how, continuing technological innovations and licensing opportunities to develop and maintain the competitive position of both of our reporting segments. We do not believe that the loss of any one patent or other proprietary right would have a material adverse effect on our overall business or on any of our reporting segments.

In some cases, we may participate in litigation or other proceedings to defend against or assert claims of infringement, to enforce our patents or our licensors’ patents, to protect our trade secrets, know-how or other intellectual property rights, or to determine the scope and validity of our or third parties’ intellectual property rights. Litigation of this type could result in substantial cost to us and diversion of our resources. An adverse outcome in any litigation or proceeding could subject us to significant liabilities or expenses, require us to cease using disputed intellectual property or cease the sale of a product, or require us to license the disputed intellectual property from third parties.

Backlog

We believe that backlog is not a meaningful indicator of future business prospects for either of our business segments due to the short lead time required for a majority of our sales. Therefore, we believe that backlog information is not material to an understanding of our business.

Competition

Due to the range and diversity of our products and services, we face many different types of competition and competitors. Our competitors range from foreign and domestic organizations, which produce a comprehensive array of goods and services and that may have greater financial and other resources than we do, to more narrowly focused firms producing a limited number of goods or services for specialized market segments.

We compete on the basis of service level, price, technological innovation, operational efficiency, product differentiation, product availability, quality and reliability. Competitors range from multinational organizations with a wide range of products to specialized firms that in some cases have well-established market positions. We expect the proportion of large competitors to increase through the continued consolidation of competitors.

Environmental Matters

Our operations are subject to various foreign, federal, state and local environmental and safety laws and regulations. These requirements include those governing uses, emissions and discharges of hazardous substances, the remediation of contaminated soil and groundwater, the regulation of radioactive materials, and the health and safety of our employees.

We may have liability under the Comprehensive Environmental Response Compensation and Liability Act and comparable state statutes that impose liability for investigation and remediation of contamination without regard to fault, in connection with materials that we or our former businesses sent to various third-party sites. We have incurred, and expect to incur, costs pursuant to these statutes.

We are conducting a number of environmental investigations and remedial actions at our current and former locations and, along with other companies, have been named a potentially responsible party ("PRP") for certain waste disposal sites. We accrue for environmental issues in the accounting period that our responsibility is established and when the cost can be reasonably estimated. We have accrued $7.7 million and $7.9 million as of December 29, 2019 and December 30, 2018, respectively, which represents our management's estimate of the cost of the remediation of known environmental matters, and does not include any potential liability for related personal injury or property damage claims. Our environmental accrual is not discounted and does not reflect the recovery of any material amounts through insurance or indemnification arrangements. The cost estimates are subject to a number of variables, including the stage of the environmental investigations, the magnitude of the possible contamination, the nature of the potential remedies, possible joint and several liability, the time period over which remediation may occur, and the possible effects of changing laws and regulations. For sites where we have been named a PRP, our management does not currently anticipate any additional liability to result from the inability of other significant named parties to contribute. We expect that the majority of such accrued amounts could be paid out over a period of up to ten years. As assessment and remediation activities progress at each individual site, these liabilities are reviewed and adjusted to reflect additional information as it becomes available. There have been no environmental problems to date that have had, or are expected to have, a material adverse effect on our consolidated financial statements. While it is possible that a loss exceeding the amounts recorded in the consolidated financial statements may be incurred, the potential exposure is not expected to be materially different from those amounts recorded.

We may become subject to new or unforeseen environmental costs or liabilities. Compliance with new or more stringent laws or regulations, stricter interpretations of existing laws, or the discovery of new contamination could cause us to incur additional costs.

Employees

As of December 29, 2019, we employed approximately 13,000 employees. Several of our subsidiaries are parties to contracts with labor unions and workers' councils. As of December 29, 2019, we estimate that we employed an aggregate of approximately 1,500 union and workers' council employees. We consider our relations with our employees to be satisfactory.

Item 1A. *Risk Factors*

The following important factors affect our business and operations generally or affect multiple segments of our business and operations:

If the markets into which we sell our products decline or do not grow as anticipated due to a decline in general economic conditions, or there are uncertainties surrounding the approval of government or industrial funding proposals, or there are unfavorable changes in government regulations, we may see an adverse effect on the results of our business operations.

Our customers include pharmaceutical and biotechnology companies, laboratories, academic and research institutions, public health authorities, private healthcare organizations, doctors and government agencies. Our quarterly revenue and results of operations are highly dependent on the volume and timing of orders received during the quarter. In addition, our revenues and earnings forecasts for future quarters are often based on the expected trends in our markets. However, the markets we serve do not always experience the trends that we may expect. Negative fluctuations in our customers' markets, the inability of our customers to secure credit or funding, restrictions in capital expenditures, general economic conditions, cuts in government funding or unfavorable changes in government regulations would likely result in a reduction in demand for our products and services. In addition, government funding is subject to economic conditions and the political process, which is inherently fluid and unpredictable. Our revenues may be adversely affected if our customers delay or reduce purchases as a result of uncertainties surrounding the approval of government or industrial funding proposals. Such declines could harm our consolidated financial position, results of operations, cash flows and trading price of our common stock, and could limit our ability to sustain profitability.

Our growth is subject to global economic and political conditions, and operational disruptions at our facilities.

Our business is affected by global economic and political conditions as well as the state of the financial markets, particularly as the United States and other countries balance concerns around debt, inflation, growth and budget allocations in their policy initiatives. There can be no assurance that global economic conditions and financial markets will not worsen and that we will not experience any adverse effects that may be material to our consolidated cash flows, results of operations, financial position or our ability to access capital, such as the adverse effects resulting from a prolonged shutdown in government operations both in the United States and internationally. Our business is also affected by local economic environments, including inflation, recession, financial liquidity and currency volatility or devaluation. Political changes, some of which may be disruptive, could interfere with our supply chain, our customers and all of our activities in a particular location.

While we take precautions to prevent production or service interruptions at our global facilities, a major earthquake, fire, flood, power loss or other catastrophic event that results in the destruction or delay of any of our critical business operations could result in our incurring significant liability to customers or other third parties, cause significant reputational damage or have a material adverse effect on our business, operating results or financial condition.

Certain of these risks can be hedged to a limited degree using financial instruments, or other measures, and some of these risks are insurable, but any such mitigation efforts are costly and may not always be fully successful. Our ability to engage in such mitigation efforts has decreased or become even more costly as a result of recent market developments.

If we do not introduce new products in a timely manner, we may lose market share and be unable to achieve revenue growth targets.

We sell many of our products in industries characterized by rapid technological change, frequent new product and service introductions, and evolving customer needs and industry standards. Many of the businesses competing with us in these industries have significant financial and other resources to invest in new technologies, substantial intellectual property portfolios, substantial experience in new product development, regulatory expertise, manufacturing capabilities, and established distribution channels to deliver products to customers. Our products could become technologically obsolete over time, or we may invest in technology that does not lead to revenue growth or continue to sell products for which the demand from our customers is declining, in which case we may lose market share or not achieve our revenue growth targets. The success of our new product offerings will depend upon several factors, including our ability to:

- accurately anticipate customer needs,
- innovate and develop new reliable technologies and applications,
- receive regulatory approvals in a timely manner,
- successfully commercialize new technologies in a timely manner,
- price our products competitively, and manufacture and deliver our products in sufficient volumes and on time, and
- differentiate our offerings from our competitors' offerings.

Many of our products are used by our customers to develop, test and manufacture their products. We must anticipate industry trends and consistently develop new products to meet our customers' expectations. In developing new products, we may be required to make significant investments before we can determine the commercial viability of the new product. If we fail to accurately foresee our customers' needs and future activities, we may invest heavily in research and development of products that do not lead to significant revenue. We may also suffer a loss in market share and potential revenue if we are unable to commercialize our technology in a timely and efficient manner.

In addition, some of our licensed technology is subject to contractual restrictions, which may limit our ability to develop or commercialize products for some applications.

We may not be able to successfully execute acquisitions or divestitures, license technologies, integrate acquired businesses or licensed technologies into our existing businesses, or make acquired businesses or licensed technologies profitable.

We have in the past supplemented, and may in the future supplement, our internal growth by acquiring businesses and licensing technologies that complement or augment our existing product lines, such as our recent acquisition of Cisbio Bioassays. However, we may be unable to identify or complete promising acquisitions or license transactions for many reasons, such as:

- competition among buyers and licensees,
- the high valuations of businesses and technologies,
- the need for regulatory and other approval, and
- our inability to raise capital to fund these acquisitions.

Some of the businesses we acquire may be unprofitable or marginally profitable, or may increase the variability of our revenue recognition. If, for example, we are unable to successfully commercialize products and services related to significant in-process research and development that we have capitalized, we may have to impair the value of such assets. Accordingly, the earnings or losses of acquired businesses may dilute our earnings. For these acquired businesses to achieve acceptable levels of profitability, we would have to improve their management, operations, products and market penetration. We may not be successful in this regard and may encounter other difficulties in integrating acquired businesses into our existing operations, such as incompatible management, information or other systems, cultural differences, loss of key personnel, unforeseen regulatory requirements, previously undisclosed liabilities or difficulties in predicting financial results. Additionally, if we are not successful in selling businesses we seek to divest, the activity of such businesses may dilute our earnings and we may not be able to achieve the expected benefits of such divestitures. As a result, our financial results may differ from our forecasts or the expectations of the investment community in a given quarter or over the long term.

To finance our acquisitions, we may have to raise additional funds, either through public or private financings. We may be unable to obtain such funds or may be able to do so only on terms unacceptable to us. We may also incur expenses related to completing acquisitions or licensing technologies, or in evaluating potential acquisitions or technologies, which may adversely impact our profitability.

We may not be successful in adequately protecting our intellectual property.

Patent and trade secret protection is important to us because developing new products, processes and technologies gives us a competitive advantage, although it is time-consuming and expensive. We own many United States and foreign patents and intend to apply for additional patents. Patent applications we file, however, may not result in issued patents or, if they do, the claims allowed in the patents may be narrower than what is needed to protect fully our products, processes and technologies. The expiration of our previously issued patents may cause us to lose a competitive advantage in certain of the products and services we provide. Similarly, applications to register our trademarks may not be granted in all countries in which they are filed. For our intellectual property that is protected by keeping it secret, such as trade secrets and know-how, we may not use adequate measures to protect this intellectual property.

Third parties may also challenge the validity of our issued patents, may circumvent or “design around” our patents and patent applications, or may claim that our products, processes or technologies infringe their patents. In addition, third parties may assert that our product names infringe their trademarks. We may incur significant expense in legal proceedings to protect our intellectual property against infringement by third parties or to defend against claims of infringement by third parties. Claims by third parties in pending or future lawsuits could result in awards of substantial damages against us or court orders that could effectively prevent us from manufacturing, using, importing or selling our products in the United States or other countries.

If we are unable to renew our licenses or otherwise lose our licensed rights, we may have to stop selling products or we may lose competitive advantage.

We may not be able to renew our existing licenses, or licenses we may obtain in the future, on terms acceptable to us, or at all. If we lose the rights to a patented or other proprietary technology, we may need to stop selling products incorporating that technology and possibly other products, redesign our products or lose a competitive advantage. Potential competitors could in-license technologies that we fail to license and potentially erode our market share.

Our licenses typically subject us to various economic and commercialization obligations. If we fail to comply with these obligations, we could lose important rights under a license, such as the right to exclusivity in a market, or incur losses for failing to comply with our contractual obligations. In some cases, we could lose all rights under the license. In addition, rights granted under the license could be lost for reasons out of our control. For example, the licensor could lose patent protection for a number of reasons, including invalidity of the licensed patent, or a third-party could obtain a patent that curtails our freedom to operate under one or more licenses.

If we do not compete effectively, our business will be harmed.

We encounter aggressive competition from numerous competitors in many areas of our business. We may not be able to compete effectively with all of these competitors. To remain competitive, we must develop new products and periodically enhance our existing products. We anticipate that we may also have to adjust the prices of many of our products to stay competitive. In addition, new competitors, technologies or market trends may emerge to threaten or reduce the value of entire product lines.

Our quarterly operating results could be subject to significant fluctuation, and we may not be able to adjust our operations to effectively address changes we do not anticipate, which could increase the volatility of our stock price and potentially cause losses to our shareholders.

Given the nature of the markets in which we participate, we cannot reliably predict future revenue and profitability. Changes in competitive, market and economic conditions may require us to adjust our operations, and we may not be able to make those adjustments or make them quickly enough to adapt to changing conditions. A high proportion of our costs are fixed in the short term, due in part to our research and development and manufacturing costs. As a result, small declines in sales could disproportionately affect our operating results in a quarter. Factors that may affect our quarterly operating results include:

- demand for and market acceptance of our products,
- competitive pressures resulting in lower selling prices,
- changes in the level of economic activity in regions in which we do business,

- changes in general economic conditions or government funding,
- settlements of income tax audits,
- expenses incurred in connection with claims related to environmental conditions at locations where we conduct or formerly conducted operations,
- contract termination and litigation costs,
- differing tax laws and changes in those laws, or changes in the countries in which we are subject to taxation,
- changes in our effective tax rate,
- changes in industries, such as pharmaceutical and biomedical,
- changes in the portions of our revenue represented by our various products and customers,
- our ability to introduce new products,
- our competitors' announcement or introduction of new products, services or technological innovations,
- costs of raw materials, energy or supplies,
- changes in healthcare or other reimbursement rates paid by government agencies and other third parties for certain of our products and services,
- our ability to realize the benefit of ongoing productivity initiatives,
- changes in the volume or timing of product orders,
- fluctuation in the expense related to the mark-to-market adjustment on postretirement benefit plans,
- changes in our assumptions underlying future funding of pension obligations,
- changes in assumptions used to determine contingent consideration in acquisitions, and
- changes in foreign currency exchange rates.

A significant disruption in third-party package delivery and import/export services, or significant increases in prices for those services, could interfere with our ability to ship products, increase our costs and lower our profitability.

We ship a significant portion of our products to our customers through independent package delivery and import/export companies, including UPS and Federal Express in the United States; TNT, UPS and DHL in Europe; and UPS in Asia. We also ship our products through other carriers, including national trucking firms, overnight carrier services and the United States Postal Service. If one or more of the package delivery or import/export providers experiences a significant disruption in services or institutes a significant price increase, we may have to seek alternative providers and the delivery of our products could be prevented or delayed. Such events could cause us to incur increased shipping costs that could not be passed on to our customers, negatively impacting our profitability and our relationships with certain of our customers.

Disruptions in the supply of raw materials, certain key components and other goods from our limited or single source suppliers could have an adverse effect on the results of our business operations, and could damage our relationships with customers.

The production of our products requires a wide variety of raw materials, key components and other goods that are generally available from alternate sources of supply. However, certain critical raw materials, key components and other goods required for the production and sale of some of our principal products are available from limited or single sources of supply. We generally have multi-year contracts with no minimum purchase requirements with these suppliers, but those contracts may not fully protect us from a failure by certain suppliers to supply critical materials or from the delays inherent in being required to change suppliers and, in some cases, validate new raw materials. Such raw materials, key components and other goods can usually be obtained from alternative sources with the potential for an increase in price, decline in quality or delay in delivery. A prolonged inability to obtain certain raw materials, key components or other goods is possible and could have an adverse effect on our business operations, and could damage our relationships with customers.

We are subject to the rules of the Securities and Exchange Commission requiring disclosure as to whether certain materials known as conflict minerals (tantalum, tin, gold, tungsten and their derivatives) that may be contained in our products are mined from the Democratic Republic of the Congo and adjoining countries. As a result of these rules, we may incur additional costs in complying with the disclosure requirements and in satisfying those customers who require that the components used in our products be certified as conflict-free, and the potential lack of availability of these materials at competitive prices could increase our production costs.

The manufacture and sale of products and services may expose us to product and other liability claims for which we could have substantial liability.

We face an inherent business risk of exposure to product and other liability claims if our products, services or product candidates are alleged or found to have caused injury, damage or loss. We may be unable to obtain insurance with adequate levels of coverage for potential liability on acceptable terms or claims of this nature may be excluded from coverage under the terms of any insurance policy that we obtain. If we are unable to obtain such insurance or the amounts of any claims successfully brought against us substantially exceed our coverage, then our business could be adversely impacted.

If we fail to maintain satisfactory compliance with the regulations of the United States Food and Drug Administration and other governmental agencies in the United States and abroad, we may be forced to recall products and cease their manufacture and distribution, and we could be subject to civil, criminal or monetary penalties.

Our operations are subject to regulation by different state and federal government agencies in the United States and other countries, as well as to the standards established by international standards bodies. If we fail to comply with those regulations or standards, we could be subject to fines, penalties, criminal prosecution or other sanctions. Some of our products are subject to regulation by the United States Food and Drug Administration and similar foreign and domestic agencies. These regulations govern a wide variety of product activities, from design and development to labeling, manufacturing, promotion, sales and distribution. If we fail to comply with those regulations or standards, we may have to recall products, cease their manufacture and distribution, and may be subject to fines or criminal prosecution.

We are also subject to a variety of laws, regulations and standards that govern, among other things, the importation and exportation of products, the handling, transportation and manufacture of toxic or hazardous substances, and our business practices in the United States and abroad such as anti-bribery, anti-corruption and competition laws. This requires that we devote substantial resources to maintaining our compliance with those laws, regulations and standards. A failure to do so could result in the imposition of civil, criminal or monetary penalties having a material adverse effect on our operations.

Changes in governmental regulations may reduce demand for our products or increase our expenses.

We compete in markets in which we or our customers must comply with federal, state, local and foreign regulations, such as environmental, health and safety, and food and drug regulations. We develop, configure and market our products to meet customer needs created by these regulations. Any significant change in these regulations could reduce demand for our products or increase our costs of producing these products.

The healthcare industry is highly regulated and if we fail to comply with its extensive system of laws and regulations, we could suffer fines and penalties or be required to make significant changes to our operations which could have a significant adverse effect on the results of our business operations.

The healthcare industry, including the genetic screening market, is subject to extensive and frequently changing international and United States federal, state and local laws and regulations. In addition, legislative provisions relating to healthcare fraud and abuse, patient privacy violations and misconduct involving government insurance programs provide federal enforcement personnel with substantial powers and remedies to pursue suspected violations. We believe that our business will continue to be subject to increasing regulation as the federal government continues to strengthen its position on healthcare matters, the scope and effect of which we cannot predict. If we fail to comply with applicable laws and regulations, we could suffer civil and criminal damages, fines and penalties, exclusion from participation in governmental healthcare programs, and the loss of various licenses, certificates and authorizations necessary to operate our business, as well as incur liabilities from third-party claims, all of which could have a significant adverse effect on our business.

Outbreaks of communicable diseases in various parts of China and other countries may materially and adversely affect our business, financial condition and results of operations.

We face risks related to health epidemics or outbreaks of communicable diseases. Beginning in late 2019, China, as well as several other countries, experienced an outbreak of a highly contagious form of an upper respiratory infection caused by COVID-19, a novel coronavirus strain commonly referred to as coronavirus. The outbreak has severely restricted the level of economic activity in affected areas and may have an adverse impact on sales of certain of our products and services, and/or our suppliers, especially in China. Approximately 20% of our net sales from continuing operations in fiscal year 2019 came from China. The extent to which coronavirus impacts our results will depend on future developments, which are highly uncertain and cannot currently be predicted, including the severity of the outbreak and the responsive actions taken to contain it or treat its impact.

Economic, political and other risks associated with foreign operations could adversely affect our international sales and profitability.

Because we sell our products worldwide, our businesses are subject to risks associated with doing business internationally. Our sales originating outside the United States represented the majority of our total revenue in fiscal year 2019. We anticipate that sales from international operations will continue to represent a substantial portion of our total revenue. In addition, many of our manufacturing facilities, employees and suppliers are located outside the United States. Accordingly, our future results of operations could be harmed by a variety of factors, including:

- changes in actual, or from projected, foreign currency exchange rates,
- changes in a country's or region's political or economic conditions, particularly in developing or emerging markets,
- longer payment cycles of foreign customers and timing of collections in foreign jurisdictions,
- trade protection measures including embargoes and tariffs, such as the tariffs recently implemented by the U.S. government on certain imports from China and by the Chinese government on certain imports from the U.S., the extent and impact of which have yet to be fully determined,
- import or export licensing requirements and the associated potential for delays or restrictions in the shipment of our products or the receipt of products from our suppliers,
- policies in foreign countries benefiting domestic manufacturers or other policies detrimental to companies headquartered in the United States,
- differing tax laws and changes in those laws, or changes in the countries in which we are subject to tax,

- adverse income tax audit settlements or loss of previously negotiated tax incentives,
- differing business practices associated with foreign operations,
- difficulty in transferring cash between international operations and the United States,
- difficulty in staffing and managing widespread operations,
- differing labor laws and changes in those laws,
- differing protection of intellectual property and changes in that protection,
- expanded enforcement of laws related to data protection and personal privacy,
- increasing global enforcement of anti-bribery and anti-corruption laws, and
- differing regulatory requirements and changes in those requirements.

If we do not retain our key personnel, our ability to execute our business strategy will be limited.

Our success depends to a significant extent upon the continued service of our executive officers and key management and technical personnel, particularly our experienced engineers and scientists, and on our ability to continue to attract, retain, and motivate qualified personnel. The competition for these employees is intense. The loss of the services of key personnel could have a material adverse effect on our operating results. In addition, there could be a material adverse effect on us should the turnover rates for key personnel increase significantly or if we are unable to continue to attract qualified personnel. We do not maintain any key person life insurance policies on any of our officers or employees.

Our success also depends on our ability to execute leadership succession plans. The inability to successfully transition key management roles could have a material adverse effect on our operating results.

If we experience a significant disruption in, or breach in security of, our information technology systems or those of our customers, suppliers or other third parties, or cybercrime, resulting in inappropriate access to or inadvertent transfer of information or assets, or if we fail to implement new systems, software and technologies successfully, our business could be adversely affected.

We rely on several centralized information technology systems throughout our company to develop, manufacture and provide products and services, keep financial records, process orders, manage inventory, process shipments to customers and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, computer viruses, attacks by computer hackers, telecommunication failures, user errors, catastrophes or other unforeseen events. If we were to experience a prolonged system disruption in the information technology systems that involve our interactions with customers, suppliers or other third parties, it could result in the loss of sales and customers and significant incremental costs, which could adversely affect our business. In addition, security breaches of our information technology systems or cybercrime, resulting in inappropriate access to or inadvertent transfer of information or assets, could result in losses or misappropriation of assets or unauthorized disclosure of confidential information belonging to us or to our employees, partners, customers or suppliers, which could result in our suffering significant financial or reputational damage.

We have a substantial amount of outstanding debt, which could impact our ability to obtain future financing and limit our ability to make other expenditures in the conduct of our business.

We have a substantial amount of debt and other financial obligations. Our debt level and related debt service obligations could have negative consequences, including:

- requiring us to dedicate significant cash flow from operations to the payment of principal and interest on our debt, which reduces the funds we have available for other purposes, such as acquisitions and stock repurchases;

- reducing our flexibility in planning for or reacting to changes in our business and market conditions;
- exposing us to interest rate risk as a portion of our debt obligations are at variable rates;
- increasing our foreign currency risk as a portion of our debt obligations are in denominations other than the US dollar; and
- increasing the chances of a downgrade of our debt ratings due to the amount or intended purpose of our debt obligations.

In addition, we may incur additional indebtedness in the future to meet future financing needs. If we add new debt, the risks described above could increase.

Restrictions in our senior unsecured revolving credit facility and other debt instruments may limit our activities.

Our senior unsecured revolving credit facility, senior unsecured notes due in April 2021 ("April 2021 Notes"), senior unsecured notes due in 2026 ("2026 Notes") and senior unsecured notes due in 2029 ("2029 Notes") include restrictive covenants that limit our ability to engage in activities that could otherwise benefit our company. These include restrictions on our ability and the ability of our subsidiaries to:

- pay dividends on, redeem or repurchase our capital stock,
- sell assets,
- incur obligations that restrict our subsidiaries' ability to make dividend or other payments to us,
- guarantee or secure indebtedness,
- enter into transactions with affiliates, and
- consolidate, merge or transfer all, or substantially all, of our assets and the assets of our subsidiaries on a consolidated basis.

We are also required to meet specified financial ratios under the terms of certain of our existing debt instruments. Our ability to comply with these financial restrictions and covenants is dependent on our future performance, which is subject to prevailing economic conditions and other factors, including factors that are beyond our control, such as foreign exchange rates, interest rates, changes in technology and changes in the level of competition. In addition, if we are unable to maintain our investment grade credit rating, our borrowing costs would increase and we would be subject to different and potentially more restrictive financial covenants under some of our existing debt instruments.

Any future indebtedness that we incur may include similar or more restrictive covenants. Our failure to comply with any of the restrictions in our senior unsecured revolving credit facility, the April 2021 Notes, the 2026 Notes, the 2029 Notes or any future indebtedness may result in an event of default under those debt instruments, which could permit acceleration of the debt under those debt instruments, and require us to prepay that debt before its scheduled due date under certain circumstances.

Discontinuation, reform, or replacement of LIBOR may adversely affect our variable rate debt.

Our indebtedness under our senior unsecured revolving credit facility bears interest at fluctuating interest rates, primarily based on the London Interbank Offered Rate ("LIBOR") for deposits of U.S. dollars. In July 2017, the United Kingdom Financial Conduct Authority (the authority that regulates LIBOR) announced that it intends to stop compelling banks to submit rates for the calculation of LIBOR after 2021. It is unclear whether new methods of calculating LIBOR will be established such that it continues to exist after 2021. The Alternative Reference Rates Committee in the United States has proposed that the Secured Overnight Financing Rate

(“SOFR”) is the rate that represents best practice as the alternative to U.S. dollar LIBOR for use in derivatives and other financial contracts that are currently indexed to LIBOR. If LIBOR is discontinued, reformed or replaced, we expect that our indebtedness under our senior unsecured revolving credit facility will be indexed to a replacement benchmark based on SOFR. Any such change could cause the effective interest rate under our senior unsecured revolving credit facility and our overall interest expense to increase, in which event we may have difficulties making interest payments and funding our other fixed costs, and our available cash flow for general corporate requirements may be adversely affected.

The United Kingdom’s withdrawal from the European Union could adversely impact our results of operations.

Nearly 3% of our net sales from continuing operations in fiscal year 2019 came from the United Kingdom. Following the referendum vote in the United Kingdom in June 2016 in favor of leaving the European Union, on January 31, 2020, the country formally withdrew from the European Union (commonly referred to as “Brexit”). Brexit has involved a process of lengthy negotiations between the United Kingdom and European Union member states to determine the future terms of the United Kingdom’s relationship with the European Union. These negotiations remain ongoing and the potential effects of Brexit are uncertain. Brexit has caused, and may continue to create, volatility in global stock markets and regional and global economic uncertainty particularly in the United Kingdom financial and banking markets. Weakening of economic conditions or economic uncertainties tend to harm our business, and if such conditions worsen in the United Kingdom or in the rest of Europe, it may have a material adverse effect on our operations and sales.

Any significant weakening of the Great Britain Pound to the U.S. dollar will have an adverse impact on our European revenues due to the importance of our sales in the United Kingdom. Currency exchange rates in the pound sterling and the euro with respect to each other and the U.S. dollar have already been adversely affected by Brexit and that may continue to be the case. In addition, if the United Kingdom is unable to negotiate trade agreements with terms as beneficial to the United Kingdom as those previously in place under global trade agreements negotiated by the European Union on behalf of its members, the United Kingdom could face increased trade barriers which could make our doing business in United Kingdom more difficult.

Our results of operations will be adversely affected if we fail to realize the full value of our intangible assets.

As of December 29, 2019, our total assets included $4.4 billion of net intangible assets. Net intangible assets consist principally of goodwill associated with acquisitions and costs associated with securing patent rights, trademark rights, customer relationships, core technology and technology licenses and in-process research and development, net of accumulated amortization. We test certain of these items—specifically all of those that are considered “non-amortizing”—at least annually for potential impairment by comparing the carrying value to the fair market value of the reporting unit to which they are assigned. All of our amortizing intangible assets are also evaluated for impairment should events occur that call into question the value of the intangible assets.

Adverse changes in our business, adverse changes in the assumptions used to determine the fair value of our reporting units, or the failure to grow our Discovery & Analytical Solutions and Diagnostics segments may result in impairment of our intangible assets, which could adversely affect our results of operations.

Our share price will fluctuate.

Over the last several years, stock markets in general and our common stock in particular have experienced significant price and volume volatility. Both the market price and the daily trading volume of our common stock may continue to be subject to significant fluctuations due not only to general stock market conditions but also to a change in sentiment in the market regarding our operations and business prospects. In addition to the risk factors discussed above, the price and volume volatility of our common stock may be affected by:

- operating results that vary from our financial guidance or the expectations of securities analysts and investors,
- the financial performance of the major end markets that we target,
- the operating and securities price performance of companies that investors consider to be comparable to us,
- announcements of strategic developments, acquisitions and other material events by us or our competitors, and
- changes in global financial markets and global economies and general market conditions, such as interest or foreign exchange rates, commodity and equity prices and the value of financial assets.

Dividends on our common stock could be reduced or eliminated in the future.

On October 24, 2019, we announced that our Board had declared a quarterly dividend of $0.07 per share for the fourth quarter of fiscal year 2019 that was paid in February 2020. On January 23, 2020, we announced that our Board had declared a quarterly dividend of $0.07 per share for the first quarter of fiscal year 2020 that will be payable in May 2020. In the future, our Board may determine to reduce or eliminate our common stock dividend in order to fund investments for growth, repurchase shares or conserve capital resources.

Item 1B. *Unresolved Staff Comments*

Not applicable.

Item 2. *Properties*

Not material.

Item 3. *Legal Proceedings*

We are subject to various claims, legal proceedings and investigations covering a wide range of matters that arise in the ordinary course of our business activities. Although we have established accruals for potential losses that we believe are probable and reasonably estimable, in the opinion of our management, based on its review of the information available at this time, the total cost of resolving these contingencies at December 29, 2019 should not have a material adverse effect on our consolidated financial statements included in this annual report on Form 10-K. However, each of these matters is subject to uncertainties, and it is possible that some of these matters may be resolved unfavorably to us.

Item 4. *Mine Safety Disclosures*

Not applicable.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Listed below are our executive officers as of February 25, 2020. No family relationship exists between any one of these executive officers and any of the other executive officers or directors.

Name	Position	Age
Prahlad Singh	President and Chief Executive Officer	55
James M. Mock	Senior Vice President and Chief Financial Officer	43
Joel S. Goldberg	Senior Vice President, Administration, General Counsel and Secretary	51
Daniel R. Tereau	Senior Vice President, Strategy and Business Development	53
Deborah Butters	Senior Vice President, Chief Human Resources Officer	50
Tajinder Vohra	Senior Vice President, Global Operations	54
Andrew Okun	Vice President and Chief Accounting Officer	50

Prahlad Singh, 55. Dr. Singh currently serves as President and Chief Executive Officer of PerkinElmer, having previously served as President and Chief Operating Officer of PerkinElmer from January 2019 through December 2019. Dr. Singh joined PerkinElmer as the President of our Diagnostics business in May 2014. He was elected Senior Vice President in September 2016 and Executive Vice President in March 2018. Prior to joining PerkinElmer, Dr. Singh was General Manager of GE Healthcare's Women's Health business from 2012 to 2014, with responsibility for its mammography and bone densitometry businesses. Before that, Dr. Singh held senior executive level roles in strategy, business development and mergers & acquisitions at both GE Healthcare and Philips Healthcare. Earlier in his career, he held leadership roles of increasing responsibility at DuPont Pharmaceuticals and subsequently Bristol-Myers Squibb Medical Imaging, which included managing the Asia Pacific and Middle East region. Dr. Singh holds a doctoral degree in chemistry from the University of Missouri-Columbia and a Master of Business Administration from Northeastern University. His research work has resulted in several issued patents and publications in peer reviewed journals.

James M. Mock, 43. Mr. Mock joined PerkinElmer in May 2018 as our Senior Vice President and Chief Financial Officer. Prior to joining us, Mr. Mock served for nearly 20 years in a wide range of financial oversight capacities within General Electric Company (GE). Mr. Mock was most recently Vice President, Corporate Audit Staff, a position in which he served from October 2015 to April 2018, where he worked globally across GE's businesses on controllership reviews and operational excellence projects. Mr. Mock previously served in a number of progressively responsible leadership positions with GE both in the United States and overseas, including as Vice President and Chief Financial Officer for GE Oil & Gas, Subsea Systems, from 2014 to 2015. Mr. Mock received a Bachelor's degree in Economics from St. Lawrence University.

Joel S. Goldberg, *51*. Mr. Goldberg currently serves as our Senior Vice President, Administration, General Counsel and Secretary, having joined as our Senior Vice President, General Counsel and Secretary in July 2008. Prior to joining us, Mr. Goldberg spent seven years at Millennium Pharmaceuticals, Inc., where he most recently served as Vice President, Chief Compliance Officer and Secretary. During his seven years with Millennium, he focused in the areas of mergers and acquisitions, strategic alliances, investment and financing transactions, securities and healthcare related compliance, and employment law. Previously, he was an associate of the law firm Edwards & Angell, LLP. Mr. Goldberg graduated from the Northeastern University School of Law and also holds a Master of Business Administration from Northeastern University. He completed his undergraduate degree at the University of Wisconsin-Madison.

Daniel R. Tereau, 53. Mr. Tereau was appointed Senior Vice President, Strategy and Business Development in January 2016, having joined PerkinElmer in April 2014 as Vice President, Strategy and Business Development. He is responsible for leading PerkinElmer's overall strategic planning and business development activities. Prior to joining PerkinElmer, Mr. Tereau served on Novartis' leadership team as Senior Vice President and Global Head of Strategy, Business Development and Licensing from 2011 to 2014, where he was responsible for global strategy and business development for the Consumer Health division. Prior to 2011, Mr. Tereau held similar roles at Thermo Fisher Scientific and GE Healthcare. Mr. Tereau holds a Bachelor of Science degree in finance from Ferris State University, a Juris Doctorate from Wayne State University, and earned his Master of Business Administration from Yale University.

Deborah Butters, 50. Ms. Butters joined PerkinElmer in July 2016 as Senior Vice President, Chief Human Resources Officer. Prior to joining us, she served as Head of North America Human Resources at IBM, where she led all aspects of the Human Resource function for IBM's largest geography, which included 35,000 employees and was responsible for over $30B of IBM's revenue. During her 17 year career there, she significantly helped shape IBM's HR programs and practices, including leading its enterprise-wide, people transformation strategy to optimize employee engagement and business performance. Ms. Butters was with Lotus Development for eight years prior to its acquisition by IBM. Ms. Butters' experiences working in the United Kingdom and Germany for Lotus Development, and in Switzerland and the United States for IBM, ranged from leading functional roles across workforce planning and talent management, to serving in five HR business partner roles in both software and consulting within IBM and Lotus Development, with the largest being IBM's North America Consulting business. Ms. Butters holds a Bachelor of Science degree from the University of Bath and a diploma in Human Resources from London University.

Tajinder Vohra, 54. Mr. Vohra joined PerkinElmer in October 2015 as Vice President of Global Operations and was appointed Senior Vice President in January 2018. He oversees all of PerkinElmer's global operations, including manufacturing, supply chain, customer care and distribution. Prior to joining PerkinElmer, Mr. Vohra served at ABB as a Country Operations Leader from 2011 to 2015, where he was responsible for India-wide operations and Supply Chains for India, Middle East and Africa. Prior to 2011, Mr. Vohra was a Senior Vice President with Genpact, managing Supply Chain and IT businesses, and held a number of global management operational positions with GE Healthcare. Mr. Vohra received his Bachelor's degree in Mechanical Engineering from the University of Delhi, Master's degree in Industrial Engineering from the University of Alabama and Master's degree in Manufacturing Engineering from Lehigh University. Mr. Vohra is a certified Six Sigma Black Belt, and was trained in lean manufacturing at the Shingijitsu Training Institute in Japan.

Andrew Okun, 50. Mr. Okun serves as our Vice President and Chief Accounting Officer, a position in which he has served since April 2011. Mr. Okun joined us in 2001 and has served in financial and controllership positions of increasing responsibility, including Director of Finance for the Optoelectronics business from 2001 through 2005, Vice President of Finance from 2005 through 2009 and Vice President and Corporate Controller from 2009 through 2011. Prior to joining us, Mr. Okun most recently worked for Honeywell International as a Site Controller as well as for Coopers & Lybrand. Mr. Okun is a Certified Public Accountant and earned his Master of Business Administration from the University of Virginia. He completed his undergraduate degree at the University of California, Santa Barbara.

PART II

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

Common Equity

We only have one class of common stock. Our common stock is listed on the New York Stock Exchange under the symbol "PKI". As of February 21, 2020, we had approximately 3,548 holders of record of our common stock.

Stock Repurchases

The following table provides information with respect to the shares of common stock repurchased by us for the periods indicated.

	Issuer Repurchases of Equity Securities			
Period	Total Number of Shares Purchased(1)	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(2)	Maximum Aggregate Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plans or Programs
September 30, 2019—October 27, 2019	870	$ 83.30	—	$ 197,803,699
October 28, 2019—November 24, 2019	373	88.12	—	197,803,699
November 25, 2019—December 29, 2019	71	95.67	—	197,803,699
Activity for quarter ended December 29, 2019	1,314	$ 85.34	—	$ 197,803,699

(1) Our Board has authorized us to repurchase shares of common stock to satisfy minimum statutory tax withholding obligations in connection with the vesting of restricted stock awards and restricted stock unit awards granted pursuant to our equity incentive plans and to satisfy obligations related to the exercise of stock options made pursuant to our equity incentive plans. During the fourth quarter of fiscal year 2019, we repurchased 1,314 shares of common stock for this purpose at an aggregate cost of $0.1 million. During the fiscal year 2019, we repurchased 68,536 shares of common stock for this purpose at an aggregate cost of $6.3 million. The repurchased shares have been reflected as additional authorized but unissued shares, with the payments reflected in common stock and capital in excess of par value.

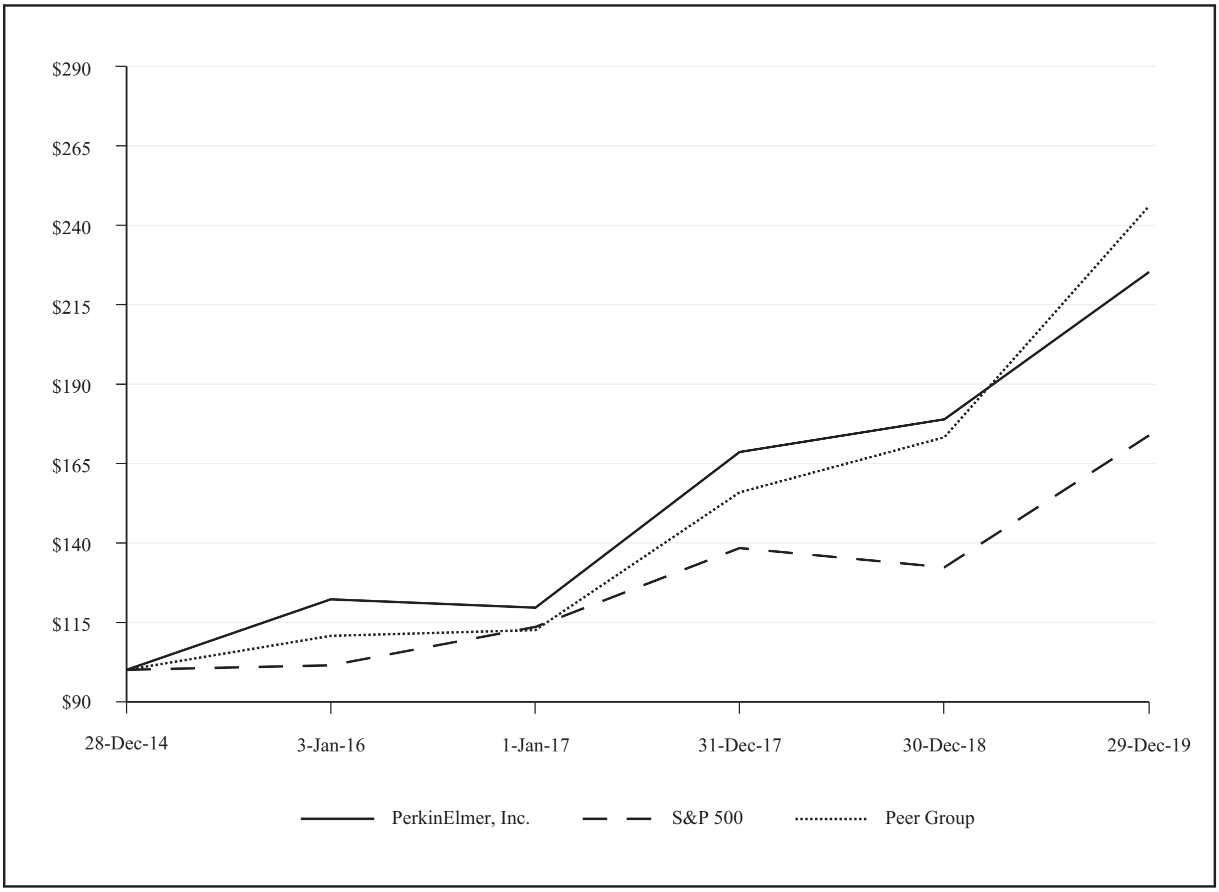
(2) On July 23, 2018, our Board authorized us to repurchase shares of common stock for an aggregate amount up to $250.0 million under a stock repurchase program (the "Repurchase Program"). The Repurchase Program will expire on July 23, 2020 unless terminated earlier by our Board and may be suspended or discontinued at any time. During fiscal year 2019, we had no stock repurchases under the Repurchase Program. As of December 29, 2019, $197.8 million remained available for aggregate repurchases of shares under the Repurchase Program.

Stock Performance Graph

Set forth below is a line graph comparing the cumulative total shareholder return on our common stock against the cumulative total return of the S&P Composite-500 Index and a Peer Group Index for the five fiscal years from December 28, 2014 to December 29, 2019. Our Peer Group Index consists of Agilent Technologies Inc., Thermo Fisher Scientific Inc., and Waters Corporation. The peer group is the same as the peer group used in the stock performance graph in our Annual Report on Form 10-K for the fiscal year ended December 30, 2018.

Comparison of Five-Year Cumulative Total Return
Among PerkinElmer, Inc. Common Stock, S&P Composite-500 and
Peer Group Index

TOTAL RETURN TO SHAREHOLDERS
(Includes reinvestment of dividends)



	28-Dec-14		3-Jan-16		1-Jan-17		31-Dec-17		30-Dec-18		29-Dec-19	
PerkinElmer, Inc.	$	100.00	$	122.26	$	119.67	$	168.56	$	178.80	$	225.22
S&P 500 Index	$	100.00	$	101.38	$	113.51	$	138.29	$	132.23	$	173.86
Peer Group	$	100.00	$	110.68	$	112.48	$	155.88	$	173.15	$	245.90

Item 6. *Selected Financial Data*

The following table sets forth selected historical financial information as of and for each of the fiscal years in the five-year period ended December 29, 2019. We derived the selected historical financial information for the balance sheets for the fiscal years ended December 29, 2019 and December 30, 2018 and the statements of operations for each of the fiscal years in the three-year period ended December 29, 2019 from our audited consolidated financial statements which are included elsewhere in this annual report on Form 10-K. We derived the selected historical financial information for the statements of operations for the fiscal years ended January 1, 2017 and January 3, 2016 from our audited consolidated financial statements which are not included in this annual report on Form 10-K. We derived the selected historical financial information for the balance sheets as of December 31, 2017, January 1, 2017 and January 3, 2016 from our audited consolidated financial statements which are not included in this annual report on Form 10-K.

Our historical financial information may not be indicative of our future results of operations or financial position.

The following selected historical financial information should be read together with our "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements, including the related notes, included elsewhere in this annual report on Form 10-K.

	Fiscal Years Ended				
	December 29, 2019	December 30, 2018	December 31, 2017	January 1, 2017	January 3, 2016
	(In thousands, except per share data)				
Statement of Operations Data:					
Revenue	$ 2,883,673	$ 2,777,996	$ 2,256,982	$ 2,115,517	$ 2,104,823
Operating income from continuing operations(1)(2)	361,973	323,884	295,615	294,582	258,517
Interest and other expense (income), net(3)(4)	124,831	66,201	(1,103)	50,514	49,710
Income from continuing operations before income taxes	237,142	257,683	296,718	244,068	208,807
Income from continuing operations, net of income taxes(5)	227,753	237,475	156,890	215,706	188,785
(Loss) gain from discontinued operations and dispositions, net of income taxes(6)	(195)	452	135,743	18,593	23,640
Net income	$ 227,558	$ 237,927	$ 292,633	$ 234,299	$ 212,425
Basic earnings per share:					
Continuing operations	$ 2.06	$ 2.15	$ 1.43	$ 1.97	$ 1.68
Discontinued operations	0.00	0.00	1.24	0.17	0.21
Net income	$ 2.06	$ 2.15	$ 2.67	$ 2.14	$ 1.89
Diluted earnings per share:					
Continuing operations	$ 2.04	$ 2.13	$ 1.42	$ 1.96	$ 1.67
Discontinued operations	0.00	0.00	1.22	0.17	0.21
Net income	$ 2.04	$ 2.13	$ 2.64	$ 2.12	$ 1.87
Weighted-average common shares outstanding:					
Basic	110,827	110,561	109,857	109,478	112,507
Diluted	111,501	111,534	110,859	110,313	113,315
Cash dividends declared per common share	$ 0.28	$ 0.28	$ 0.28	$ 0.28	$ 0.28

	As of				
	December 29, 2019	December 30, 2018	December 31, 2017	January 1, 2017	January 3, 2016
			(In thousands)		
Balance Sheet Data:					
Total assets[7]	$ 6,538,564	$ 5,975,522	$ 6,091,463	$ 4,276,683	$ 4,166,295
Short-term debt[3]	9,974	14,856	217,306	1,172	1,123
Long-term debt[3][4][7][8]	2,064,041	1,876,624	1,788,803	1,045,254	1,011,762
Stockholders' equity[7][9]	2,813,824	2,584,955	2,503,188	2,153,570	2,110,441
Common shares outstanding[9]	111,140	110,597	110,361	109,617	112,034

(1) Activity related to the mark-to-market adjustment on postretirement benefit plans was a pre-tax loss of $31.2 million in fiscal year 2019, a pre-tax loss of $21.4 million in fiscal year 2018, a pre-tax gain of $2.1 million in fiscal year 2017, a pre-tax loss of $15.3 million in fiscal year 2016 and a pre-tax loss of $12.4 million in fiscal year 2015.

(2) We recorded pre-tax restructuring and other costs, net, of $29.4 million in fiscal year 2019, $11.1 million in fiscal year 2018, $12.7 million in fiscal year 2017, $5.1 million in fiscal year 2016 and $13.5 million in fiscal year 2015.

(3) In fiscal years 2019, 2018, 2017, 2016 and 2015, interest expense was $63.6 million, $67.0 million, $43.9 million, $41.5 million and $38.0 million, respectively.

(4) In October 2019, we redeemed all of the outstanding 5% senior unsecured notes due in November 2021 ("November 2021 Notes"). The redemption of the November 2021 Notes resulted in a pre-tax, non-operating charge of $32.3 million.

(5) In fiscal years 2019 and 2018, provision for income tax on continuing operations was $9.4 million and $20.2 million, respectively. The lower provision for income taxes in fiscal year 2019 compared to that of fiscal year 2018 was primarily due to the execution of U.S. federal and non-U.S. tax planning. In fiscal years 2017, 2016 and 2015, tax expense on continuing operations was $139.8 million, $28.4 million and $20.0 million, respectively. The higher provision for income taxes in fiscal year 2017 was primarily due to the $106.5 million discrete tax expense related to the Tax Cuts & Jobs Act of 2017. The tax expense in fiscal years 2016 and 2015 was primarily due to income in high tax rate jurisdictions, partially offset by losses in low tax rate jurisdictions and a tax benefit of $9.6 million in fiscal year 2016 and $6.4 million in fiscal year 2015 related to discrete items.

(6) In May 2017, we completed the sale of our Medical Imaging business. We recorded a pre-tax gain of $179.6 million and income tax expense of $43.1 million in fiscal year 2017. We accounted for this business as discontinued operations beginning in 2016 and the financial information relating to fiscal year 2015 has been retrospectively adjusted to reflect the inclusion of this business in discontinued operations.

(7) At the beginning of fiscal year 2019, we adopted Accounting Standards Codification No. 842, *Leases* ("ASC 842"), using a modified retrospective approach and as a result, the comparative information has not been restated and is reported under the accounting standards in effect for these years. See Note 1 to the Consolidated Financial Statements for additional information.

(8) In September 2019, we issued and sold ten-year senior notes at a rate of 3.3% with a face value of $850.0 million and received $847.2 million of net proceeds from the issuance. The debt, which matures in September 2029, is unsecured. In April 2018, we issued and sold three-year senior notes at a rate of 0.6% with a face value of €300.0 million and received €298.7 million of net proceeds from the issuance. The debt, which matures in April 2021, is unsecured. In July 2016, we issued and sold ten-year senior notes at a rate of 1.875% with a face value of €500.0 million and received €492.3 million of net proceeds from the issuance. The debt, which matures in July 2026, is unsecured.

(9) In fiscal year 2018, we repurchased in the open market 650,000 shares of our common stock at an aggregate cost of $52.2 million, including commissions, under the stock repurchase program authorized by our Board on July 23, 2018. In fiscal years 2018 and 2017, we did not repurchase any shares of our common stock under a stock repurchase program originally announced in July 2017 that was terminated in

July 2018. In fiscal year 2016, we repurchased in the open market 3.2 million shares of our common stock at an aggregate cost of $148.2 million, including commissions under a stock repurchase program originally announced in October 2014 that was terminated in July 2016 (the "October 2014 Repurchase Program"). In fiscal year 2015, we repurchased in the open market 1.5 million shares of our common stock at an aggregate cost of $72.0 million, including commissions, under both the October 2014 Repurchase Program and a stock repurchase program originally announced in October 2012 that expired in October 2014.

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

This annual report on Form 10-K, including the following management's discussion and analysis, contains forward-looking information that you should read in conjunction with the consolidated financial statements and notes to consolidated financial statements that we have included elsewhere in this annual report on Form 10-K. For this purpose, any statements contained in this report that are not statements of historical fact may be deemed to be forward-looking statements. Words such as "believes," "plans," "anticipates," "expects," "will" and similar expressions are intended to identify forward-looking statements. Our actual results may differ materially from the plans, intentions or expectations we disclose in the forward-looking statements we make. We have included important factors above under the heading "Risk Factors" in Item 1A above that we believe could cause actual results to differ materially from the forward-looking statements we make. We are not obligated to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise.

Accounting Period

Our fiscal year ends on the Sunday nearest December 31. We report fiscal years under a 52/53 week format and as a result, certain fiscal years will contain 53 weeks. Each of the fiscal years ended December 29, 2019 ("fiscal year 2019"), December 30, 2018 ("fiscal year 2018") and December 31, 2017 ("fiscal year 2017") included 52 weeks. The fiscal year ending January 3, 2021 ("fiscal year 2020") will include 53 weeks.

Overview of Fiscal Year 2019

During fiscal year 2019, we continued to see strong returns from our acquisitions as well as our organic investments across technology, marketing and people. Our overall revenue in fiscal year 2019 increased $105.7 million, or 4%, as compared to fiscal year 2018, reflecting an increase of $53.0 million, or 3%, in our Discovery & Analytical Solutions segment revenue and an increase of $52.7 million, or 5%, in our Diagnostics segment revenue. The increase in our Discovery & Analytical Solutions segment during fiscal year 2019 was due to an increase of $42.5 million from our life sciences market revenue and $10.4 million from our applied markets revenue. The increase in our Diagnostics segment revenue during fiscal year 2019 was primarily due to an increase of $37.2 million from our immunodiagnostics revenue and $22.4 million from our reproductive health revenue partially offset by a decrease of $6.9 million from our applied genomics revenue.

In our Discovery & Analytical Solutions segment, we experienced growth during fiscal year 2019 driven by successful new product introductions and the performance of our acquisitions. We saw continued growth in our food portfolio mostly driven by cannabis demand, while in the life sciences market, we experienced strength in our drug discovery offering and strong performance in our Informatics business.

In our Diagnostics segment, we experienced growth from reproductive health, genetic testing and immunodiagnostics solutions across all regions. We saw strong growth in immunodiagnostics driven by EUROIMMUN which was broad-based from both a geographic and product basis, as well as continued growth in our Tulip and Symbio franchises, partially offset by a decline in the performance of applied genomics during fiscal year 2019. In our reproductive health business, expanded coverage in Asia helped to offset the effect of decreased birthrates. During fiscal year 2019, we expanded the extent and the reach of our capabilities to enable earlier treatments and better outcomes, both in terms of diseases and geographies.

Our consolidated gross margins increased 14 basis points in fiscal year 2019, as compared to fiscal year 2018, primarily due to favorable shift in product mix and continued productivity initiatives to improve our supply chain. Our consolidated operating margin increased 89 basis points in fiscal year 2019, as compared to fiscal year 2018 primarily due to favorable shift in product mix and lower costs as a result of our cost containment and productivity initiatives partially offset by increased amortization of intangible assets and acquired inventory revaluation.

We continue to believe that we are well positioned to take advantage of the spending trends in our end markets and to promote efficiencies in markets where current conditions may increase demand for certain services. Overall, we believe that our strategic focus on diagnostics and discovery and analytical solutions markets, coupled with our deep portfolio of technologies and applications, leading market positions, global scale and financial strength will provide us with a foundation for growth.

Consolidated Results of Operations

Fiscal Year 2019 Compared to Fiscal Year 2018

Revenue

Revenue for fiscal year 2019 was $2,883.7 million, as compared to $2,778.0 million for fiscal year 2018, an increase of $105.7 million, or 4%, which includes an approximate 1% increase in revenue attributable to acquisitions and divestitures and a 2% decrease in revenue attributable to changes in foreign exchange rates. The analysis in the remainder of this paragraph compares segment revenue for fiscal year 2019 as compared to fiscal year 2018 and includes the effect of foreign exchange rate fluctuations, and acquisitions and divestitures. The total increase in revenue reflects an increase in our Diagnostics segment revenue of $52.7 million, or 5%, due to growth in our reproductive health and immunodiagnostics businesses partially offset by unfavorable changes in foreign exchange rates. Our Discovery & Analytical Solutions segment revenue increased by $53.0 million, or 3%, due to an increase of $42.5 million from our life sciences market revenue and an increase of $10.4 million from our applied markets revenue, partially offset by unfavorable changes in foreign exchange rates. As a result of adjustments to deferred revenue related to certain acquisitions required by business combination rules, we did not recognize $0.8 million of revenue primarily related to our Diagnostics segment for each of fiscal years 2019 and 2018 that otherwise would have been recorded by the acquired businesses during each of the respective periods.

Cost of Revenue

Cost of revenue for fiscal year 2019 was $1,487.6 million, as compared to $1,437.1 million for fiscal year 2018, an increase of approximately $50.6 million, or 4%. As a percentage of revenue, cost of revenue decreased to 51.6% in fiscal year 2019 from 51.7% in fiscal year 2018, resulting in an increase in gross margin of approximately 14 basis points to 48.4% in fiscal year 2019 from 48.3% in fiscal year 2018. Amortization of intangible assets increased and was $61.4 million for fiscal year 2019, as compared to $46.2 million for fiscal year 2018. Stock-based compensation expense was $1.6 million for fiscal year 2019, as compared to $1.5 million for fiscal year 2018. The amortization of purchase accounting adjustments to record the inventory from certain acquisitions added an incremental expense of $21.6 million for fiscal year 2019, as compared to $19.3 million for fiscal year 2018. Acquisition and divestiture-related expenses, contingent consideration and other costs were minimal for fiscal year 2019, as compared to an incremental expense of $0.1 million for fiscal year 2018. In addition to the factors noted above, the overall increase in gross margin primarily the result of mix, price and improved manufacturing and services productivity.

Selling, General and Administrative Expenses

Selling, general and administrative expenses for fiscal year 2019 were $815.3 million, as compared to $811.9 million for fiscal year 2018, an increase of approximately $3.4 million, or 0.4%. As a percentage of revenue, selling, general and administrative expenses decreased to 28.3% in fiscal year 2019 from 29.2% in fiscal year 2018. Amortization of intangible assets increased to $103.0 million for fiscal year 2019, as compared to $81.8 million for fiscal year 2018. Stock-based compensation expense increased to $28.8 million for fiscal year 2019, as compared to $25.9 million for fiscal year 2018. Acquisition and divestiture-related expenses, contingent consideration and other costs added an incremental expense of $7.9 million for fiscal year 2019 as compared to $30.5 million for fiscal year 2018. During fiscal year 2019, legal costs for significant litigation matters were $2.3 million, as compared to $5.5 million for fiscal year 2018. Acceleration of executive compensation was

$7.7 million for fiscal year 2019. In addition to the above items, the increase in selling, general and administrative expenses was primarily the result of costs related to growth investments, which were partially offset by lower costs resulting from cost containment and productivity initiatives.

Research and Development Expenses

Research and development expenses for fiscal year 2019 were $189.3 million, as compared to $194.0 million for fiscal year 2018, a decrease of $4.7 million, or 2%. As a percentage of revenue, research and development expenses decreased to 6.6% in fiscal year 2019, as compared to 7.0% in fiscal year 2018. Amortization of intangible assets was minimal in fiscal year 2019, as compared to $7.9 million in fiscal year 2018. Stock-based compensation expense was $1.1 million in fiscal year 2019, as compared to $1.4 million in fiscal year 2018. In addition to the above items, the decrease in research and development expenses was driven by improved leverage of investments in new product development and project timing.

Restructuring and Other Costs, Net

We have undertaken a series of restructuring actions related to the impact of acquisitions and divestitures, the alignment of our operations with our growth strategy, the integration of our business units and productivity initiatives. Restructuring and other costs, net for fiscal year 2019 were $29.4 million as compared to $11.1 million for fiscal year 2018.

We implemented a restructuring plan in each quarter of fiscal year 2019 consisting of workforce reductions principally intended to realign resources to emphasize growth initiatives (the “Q1 2019 Plan”, “Q2 2019 Plan”, “Q3 2019 Plan” and “Q4 2019 Plan”, respectively). We implemented a restructuring plan in each of the first, third and fourth quarters of fiscal year 2018 consisting of workforce reductions principally intended to realign resources to emphasize growth initiatives (the “Q1 2018 Plan”, “Q3 2018 Plan” and “Q4 2018 Plan”, respectively). All other previous restructuring plans were workforce reductions or the closure of excess facility space principally intended to integrate our businesses in order to realign operations, reduce costs, achieve operational efficiencies and shift resources into geographic regions and end markets that are more consistent with our growth strategy (the “Previous Plans”).

The following table summarizes the number of employees reduced, the initial restructuring or contract termination charges by operating segment, and the dates by which payments were substantially completed, or the expected dates by which payments will be substantially completed, for restructuring actions implemented during fiscal years 2019 and 2018 in continuing operations:

		Workforce Reductions		Closure of Excess Facility			(Expected) Date Payments Substantially Completed by	
	Headcount Reduction	Diagnostics	Discovery & Analytical Solutions	Diagnostics	Discovery & Analytical Solutions	Total	Severance	Excess Facility
	(In thousands, except headcount data)							
Q4 2019 Plan	22	$ 2,404	$ 177	$ —	$ —	$ 2,581	Q3 FY2020	—
Q3 2019 Plan	259	2,641	11,156	—	—	13,797	Q2 FY2020	—
Q2 2019 Plan	44	1,129	4,461	—	—	5,590	Q1 FY2020	—
Q1 2019 Plan	105	1,459	6,001	—	—	7,460	Q4 FY2019	—
Q4 2018 Plan	1	—	348	—	—	348	Q1 FY2019	—
Q3 2018 Plan	61	618	1,146	—	—	1,764	Q4 FY2019	—
Q1 2018 Plan	47	902	5,096	—	—	5,998	Q4 FY2019	—

We expect to make payments under the Previous Plans for remaining residual lease obligations, with terms varying in length, through fiscal year 2022.

We also have terminated various contractual commitments in connection with certain disposal activities and have recorded charges, to the extent applicable, for the costs of terminating these contracts before the end of their terms and the costs that will continue to be incurred for the remaining terms without economic benefit to us. We recorded additional pre-tax charges of $0.2 million and $5.0 million in the Discovery & Analytical Solutions segment during fiscal years 2019 and 2018, respectively, and $0.2 million during fiscal year 2019, in the Diagnostics segment as a result of these contract terminations.

We recorded pre-tax charges of $0.8 million associated with relocating facilities during fiscal year 2019. We expect to make payments on these relocation activities through fiscal year 2021.

At December 29, 2019, we had $13.9 million recorded for accrued restructuring and other charges, of which $11.6 million was recorded in short-term accrued restructuring and other charges, $0.4 million in accrued expenses and other current liabilities, $0.8 million was recorded in long-term liabilities, and $1.1 million was recorded in operating lease liabilities. At December 30, 2018, we had $6.2 million recorded for accrued restructuring and other charges, of which $4.8 million was recorded in short-term accrued restructuring and other charges and $1.4 million was recorded in long-term liabilities. The following table summarizes our restructuring accrual balances and related activity by restructuring plan, as well as other accrual balances and related activity, during fiscal years 2019 and 2018 in continuing operations:

	Balance at December 31, 2017	2018 Charges and Changes in Estimates, Net	2018 Amounts Paid	Balance at December 30, 2018	2019 Charges and Changes in Estimates, Net	2019 Amounts Paid	Balance at December 29, 2019
Severance:							
Q4 2019 Plan	$ —	$ —	$ —	$ —	$ 2,581	$ (1,692)	$ 889
Q3 2019 Plan	—	—	—	—	13,797	(7,486)	6,311
Q2 2019 Plan	—	—	—	—	5,590	(3,701)	1,889
Q1 2019 Plan	—	—	—	—	7,483	(5,354)	2,129
Q4 2018 Plan	—	348	—	348	3	(351)	—
Q3 2018 Plan[1]	—	2,054	(639)	1,415	(77)	(1,314)	24
Q1 2018 Plan[2]	—	5,998	(4,389)	1,609	(1,069)	(282)	258
Previous Plans[3][4]	10,921	(1,998)	(6,252)	2,671	(159)	(1,147)	1,365
Restructuring	10,921	6,402	(11,280)	6,043	28,149	(21,327)	12,865
Contract Termination	3,048	4,742	(7,653)	137	452	(401)	188
Other Costs	—	—	—	—	827	—	827
Total Restructuring and Other Liabilities	$ 13,969	$ 11,144	$(18,933)	$ 6,180	$ 29,428	$ (21,728)	$ 13,880

(1) During fiscal year 2019, we recognized pre-tax restructuring reversals of $0.4 million in the Diagnostics segment related to lower than expected costs associated with workforce reductions and an additional expense of $0.3 million in the Discovery & Analytical Solutions segment for the Q3 2018 Plan.

(2) During fiscal year 2019, we recognized pre-tax restructuring reversals of $1.1 million in the Discovery & Analytical Solutions segment related to lower than expected costs associated with workforce reductions for the Q1 2018 Plan.

(3) During fiscal year 2019, we recognized pre-tax restructuring reversals of $0.3 million in the Discovery & Analytical Solutions segment related to lower than expected costs associated with workforce reductions for the Previous Plans.

(4) During fiscal year 2019, we recognized pre-tax restructuring expense of $0.1 million in the Discovery & Analytical Solutions segment related to higher than expected costs associated with workforce reductions for the Previous Plans.

Interest and Other Expense, Net

Interest and other expense, net, consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
Interest income	$ (1,495)	$ (1,141)
Interest expense	63,627	66,976
Loss (gain) on disposition of businesses and assets, net	2,469	(12,844)
Debt extinguishment costs	32,541	—
Other expense, net	27,689	13,210
Total interest and other expense, net	$ 124,831	$ 66,201

Interest and other expense, net, for fiscal year 2019 was an expense of $124.8 million, as compared to an expense of $66.2 million for fiscal year 2018, an increase of $58.6 million. The increase in interest and other expense, net, in fiscal year 2019 as compared to fiscal year 2018 was largely due to an increase in debt extinguishment costs of $32.5 million primarily associated with the redemption of the November 2021 Notes in the fourth quarter of fiscal year 2019; a loss on disposition of businesses and assets, net of $2.5 million in fiscal year 2019 as compared to a gain on disposition of businesses and assets, net of $12.8 million in fiscal year 2018; and an increase in other expense, net of $14.5 million primarily due to an increase in pension-related expenses of $13.8 million, an increase of $3.2 million in expenses related to acquisition-related foreign currency transactions and translation of non-functional currency assets and liabilities, partially offset by $3.2 million of change in fair value of financial securities. This was partially offset by a decrease of $3.3 million in interest expense in fiscal year 2019 as compared to fiscal year 2018 associated with the cross-currency swap that we entered into during the second quarter of fiscal year 2019 to swap higher cost U.S. denominated debt with lower cost euro-denominated debt and an increase in interest income of $0.4 million in fiscal year 2019 as compared to fiscal year 2018. A more complete discussion of our liquidity is set forth below under the heading "Liquidity and Capital Resources."

Provision for Income Taxes

The effective tax rates on continuing operations were 4.0% and 7.8% for fiscal years 2019 and 2018, respectively. Certain of our subsidiaries have, at various times, been granted tax relief in their respective countries, resulting in lower income taxes than would otherwise be the case under ordinary tax rates. A reconciliation of income tax expense at the U.S. federal statutory income tax rate to the recorded tax provision is as follows for the fiscal years ended:

	December 30, 2019	December 30, 2018
	(In thousands)	
Tax at statutory rate	$ 49,799	$ 54,114
Non-U.S. rate differential, net	(32,124)	(27,281)
U.S. taxation of multinational operations	4,251	7,047
State income taxes, net	1,941	2,028
Prior year tax matters	(5,103)	1,124
Effect of stock compensation	(2,053)	(6,331)
General business tax credits	(4,325)	(3,738)
Change in valuation allowance	(1,117)	(759)
Tax elections	(3,700)	—
Impact of U.S. tax reform	2,718	(2,025)
Others, net	(898)	(3,971)
Total	$ 9,389	$ 20,208

The variation in our effective tax rate for each year is primarily a result of the recognition of earnings in foreign jurisdictions, predominantly Singapore, Finland and The Netherlands, which are taxed at rates lower than the U.S. federal statutory rate, resulting in a benefit from income taxes of $16.7 million in fiscal year 2019 and $18.7 million in fiscal year 2018. These amounts include $10.4 million in fiscal year 2019 and $10.3 million in fiscal year 2018 of benefits derived from tax holidays in China and Singapore. The effect of these benefits derived from tax holidays on basic and diluted earnings per share for fiscal year 2019 was $0.09 and $0.09, respectively, and for fiscal year 2018 was $0.09 and $0.09, respectively. The tax holiday in China is renewed every three years. We expect to renew the tax holiday of one of our subsidiaries in China that expired in fiscal year 2019. The tax holiday in one of our subsidiaries in Singapore is scheduled to expire in fiscal year 2023.

Disposition of Businesses and Assets

As part of our continuing efforts to focus on higher growth opportunities, we have discontinued certain businesses. When the discontinued operations represented a strategic shift that will have a major effect on our operations and financial statements, we accounted for these businesses as discontinued operations and accordingly, have presented the results of operations and related cash flows as discontinued operations. Any business deemed to be a discontinued operation prior to the adoption of Accounting Standards Update 2014-08, *Reporting Discontinued Operations and Disclosures of Disposals of Components of An Entity,* continues to be reported as a discontinued operation, and the results of operations and related cash flows are presented as discontinued operations for all periods presented. Any remaining assets and liabilities of these businesses have been presented separately, and are reflected within assets and liabilities from discontinued operations in the accompanying consolidated balance sheets as of December 29, 2019 and December 30, 2018.

We recorded the following pre-tax gains and losses, which have been reported as a net gain or loss on disposition of discontinued operations during the two fiscal years included below:

	December 29, 2019	December 30, 2018
	(In thousands)	
Loss on disposition of the Medical Imaging business	$ —	$ (793)
Loss on disposition of Fluid Sciences business	—	(66)
Loss on disposition of discontinued operations before income taxes	$ —	$ (859)

During the third quarter of fiscal year 2018, we completed the sale of substantially all of the assets and liabilities related to our multispectral imaging business for aggregate consideration of $37.3 million, recognizing a pre-tax gain of $13.0 million. The pre-tax gain is included in interest and other expense, net in the consolidated statement of operations. The multispectral imaging business was a component of our Discovery & Analytical Solutions segment. The divestiture of the multispectral imaging business has not been classified as a discontinued operation in this Form 10-K because the disposition does not represent a strategic shift that will have a major effect on our operations and financial statements.

We recorded a provision for (benefit from) income taxes of $0.2 million and $(1.3) million on discontinued operations and dispositions in fiscal years 2019 and 2018.

Fiscal Year 2018 Compared to Fiscal Year 2017

For a discussion of our results of operations for fiscal year 2018 as compared to fiscal year 2017, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations in our annual report on Form 10-K for the fiscal year ended December 30, 2018 filed with the Securities and Exchange Commission on February 26, 2019.

Business Combinations

Acquisitions in Fiscal Year 2019

During the fiscal year 2019, we completed the acquisition of five businesses for aggregate consideration of $433.1 million in cash. The acquired businesses include Cisbio Bioassays SAS ("Cisbio"), a company based in Codolet, France, which was acquired for a total consideration of $219.9 million in cash, Shandong Meizheng Bio-Tech Co., Ltd. ("Meizheng Group"), a company headquartered in Beijing, China, for a total consideration of $166.5 million in cash, and three other businesses were acquired for a total consideration of $46.6 million in cash. We have a potential obligation to pay the former shareholders of certain of these acquired businesses additional contingent consideration of up to $31.8 million. The excess of the purchase prices over the fair values of the acquired businesses' net assets represents cost and revenue synergies specific to us, as well as non-capitalizable intangible assets, such as the employee workforces acquired, and has been allocated to goodwill, which is not tax deductible. We have reported the operations for these acquisitions within the results of our Diagnostics and Discovery & Analytical Solutions segments, as applicable, from the acquisition dates. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of these acquisitions had a weighted average amortization period of 11.0 years.

Acquisitions in Fiscal Year 2018

During fiscal year 2018, we completed the acquisition of four businesses for aggregate consideration of $105.8 million. The excess of the purchase prices over the fair values of the acquired businesses' net assets represents cost and revenue synergies specific to us, as well as non-capitalizable intangible assets, such as the employee workforces acquired, and has been allocated to goodwill, which is not tax deductible. We have reported the operations for these acquisitions within the results of our Diagnostics and Discovery & Analytical Solutions segments, as applicable, from the acquisition dates. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of these acquisitions had a weighted average amortization period of 11.2 years.

Acquisitions in Fiscal Year 2017

For a discussion of our acquisitions for fiscal year 2017, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations in our annual report on Form 10-K for the fiscal year ended December 30, 2018 filed with the Securities and Exchange Commission on February 26, 2019.

As of December 29, 2019, the allocations of purchase prices for acquisitions completed in fiscal years 2018 and 2017 were final. The preliminary allocations of the purchase prices for acquisitions completed in fiscal year 2019 were based upon initial valuations. Our estimates and assumptions underlying the initial valuations are subject to the collection of information necessary to complete our valuations within the measurement periods, which are up to one year from the respective acquisition dates. The primary areas of the preliminary purchase price allocations that are not yet finalized relate to the fair value of certain tangible and intangible assets acquired and liabilities assumed, assets and liabilities related to income taxes and related valuation allowances, and residual goodwill. We expect to continue to obtain information to assist in determining the fair values of the net assets acquired at the acquisition dates during the measurement periods. During the measurement periods, we will adjust assets or liabilities if new information is obtained about facts and circumstances that existed as of the acquisition dates that, if known, would have resulted in the recognition of those assets and liabilities as of those dates. These adjustments will be made in the periods in which the amounts are determined and the cumulative effect of such adjustments will be calculated as if the adjustments had been completed as of the acquisition dates. All changes that do not qualify as adjustments made during the measurement periods are also included in current period earnings.

During fiscal year 2019, we obtained information relevant to determining the fair values of certain tangible and intangible assets acquired, and liabilities assumed, related to recent acquisitions and adjusted our purchase price allocations. Based on this information, we recognized an increase in goodwill of $6.1 million, an increase in deferred tax liabilities of $5.1 million, a decrease in current assets of $1.6 million, a decrease in liabilities assumed of $0.4 million and a decrease in other assets of $0.1 million.

Allocations of the purchase price for acquisitions are based on estimates of the fair value of the net assets acquired and are subject to adjustment upon finalization of the purchase price allocations. The accounting for business combinations requires estimates and judgments as to expectations for future cash flows of the acquired business, and the allocation of those cash flows to identifiable intangible assets, in determining the estimated fair values for assets acquired and liabilities assumed. The fair values assigned to tangible and intangible assets acquired and liabilities assumed, including contingent consideration, are based on management's estimates and assumptions, as well as other information compiled by management, including valuations that utilize customary valuation procedures and techniques. Contingent consideration is measured at fair value at the acquisition date, based on the probability that revenue thresholds or product development milestones will be achieved during the earnout period, with changes in the fair value after the acquisition date affecting earnings to the extent it is to be settled in cash. Increases or decreases in the fair value of contingent consideration liabilities primarily result from changes in the estimated probabilities of achieving revenue thresholds or product development milestones during the earnout period.

As of December 29, 2019, we may have to pay contingent consideration, related to acquisitions with open contingency periods, of up to $57.1 million. As of December 29, 2019, we have recorded contingent consideration obligations of $35.5 million, of which $20.8 million was recorded in accrued expenses and other current liabilities, and $14.7 million was recorded in long-term liabilities. As of December 30, 2018, we have recorded contingent consideration obligations of $69.7 million, of which $67.0 million was recorded in accrued expenses and other current liabilities, and $2.7 million was recorded in long-term liabilities. The expected maximum earnout period for acquisitions with open contingency periods does not exceed 3.0 years from December 29, 2019, and the remaining weighted average expected earnout period at December 29, 2019 was 1.2 years. If the actual results differ from the estimates and judgments used in these fair values, the amounts recorded in the consolidated financial statements could result in a possible impairment of the intangible assets and goodwill, require acceleration of the amortization expense of definite-lived intangible assets or the recognition of additional contingent consideration which would be recognized as a component of operating expenses from continuing operations.

In connection with the purchase price allocations for acquisitions, we estimate the fair value of deferred revenue assumed with our acquisitions. The estimated fair value of deferred revenue is determined by the legal performance obligation at the date of acquisition, and is generally based on the nature of the activities to be performed and the related costs to be incurred after the acquisition date. The fair value of an assumed liability related to deferred revenue is estimated based on the current market cost of fulfilling the obligation, plus a normal profit margin thereon. The estimated costs to fulfill the deferred revenue are based on the historical direct costs related to providing the services. We do not include any costs associated with selling effort, research and development, or the related margins on these costs. In most acquisitions, profit associated with selling effort is excluded because the acquired businesses would have concluded the selling effort on the support contracts prior to the acquisition date. The estimated research and development costs are not included in the fair value determination, as these costs are not deemed to represent a legal obligation at the time of acquisition. The sum of the costs and operating income approximates, in theory, the amount that we would be required to pay a third-party to assume the obligation.

Contingencies, Including Tax Matters

We are conducting a number of environmental investigations and remedial actions at our current and former locations and, along with other companies, have been named a potentially responsible party ("PRP") for certain waste disposal sites. We accrue for environmental issues in the accounting period that our responsibility is established and when the cost can be reasonably estimated. We have accrued $7.7 million and $7.9 million as of December 29, 2019 and December 30, 2018, respectively, in accrued expenses and other current liabilities, which represents our management's estimate of the cost of the remediation of known environmental matters, and does not include any potential liability for related personal injury or property damage claims. Our environmental accrual is not discounted and does not reflect the recovery of any material amounts through insurance or indemnification arrangements. The cost estimates are subject to a number of variables, including the stage of the environmental investigations, the magnitude of the possible contamination, the nature of the potential remedies, possible joint and several liability, the time period over which remediation may occur, and the possible effects of changing laws and regulations. For sites where we have been named a PRP, our management does not currently anticipate any additional liability to result from the inability of other significant named parties to contribute. We expect that the majority of such accrued amounts could be paid out over a period of up to ten years. As assessment and remediation activities progress at each individual site, these liabilities are reviewed and adjusted to reflect additional information as it becomes available. There have been no environmental problems to date that have had, or are expected to have, a material adverse effect on our consolidated financial statements. While it is possible that a loss exceeding the amounts recorded in the consolidated financial statements may be incurred, the potential exposure is not expected to be materially different from those amounts recorded.

Various tax years after 2010 remain open to examination by certain jurisdictions in which we have significant business operations, such as Finland, Germany, Italy, Netherlands, Singapore, China and the United States. The tax years under examination vary by jurisdiction. We regularly review our tax positions in each significant taxing jurisdiction in the process of evaluating our unrecognized tax benefits. We make adjustments to our unrecognized tax benefits when: (i) facts and circumstances regarding a tax position change, causing a change in management's judgment regarding that tax position; (ii) a tax position is effectively settled with a tax authority; and/or (iii) the statute of limitations expires regarding a tax position.

We are subject to various claims, legal proceedings and investigations covering a wide range of matters that arise in the ordinary course of our business activities. Although we have established accruals for potential losses that we believe are probable and reasonably estimable, in our opinion, based on our review of the information available at this time, the total cost of resolving these contingencies at December 29, 2019 should not have a material adverse effect on our consolidated financial statements included in this annual report on Form 10-K. However, each of these matters is subject to uncertainties, and it is possible that some of these matters may be resolved unfavorably to us.

Reporting Segment Results of Continuing Operations

Discovery & Analytical Solutions

Fiscal Year 2019 Compared to Fiscal Year 2018

Revenue for fiscal year 2019 was $1,746.2 million, as compared to $1,693.2 million for fiscal year 2018, an increase of $53.0 million, or 3%, which includes an approximate 2% increase in revenue attributable to acquisitions and divestitures and a 2% decrease in revenue attributable to unfavorable changes in foreign exchange rates. The analysis in the remainder of this paragraph compares revenue by end-market for fiscal year 2019, as compared to fiscal year 2018, and includes the effect of foreign exchange fluctuations and acquisitions and divestitures. The increase in revenue in our Discovery & Analytical Solutions segment was a result of an increase of $42.5 million from our life sciences market revenue and an increase of $10.4 million from our applied markets revenue. The increase in our life sciences market revenue was the result of an increase in revenue in our pharmaceutical and biotechnology markets driven by continued growth in our Discovery, Informatics and OneSource businesses. The increase in our applied markets revenue was driven by our food franchise on strong cannabis demand.

Operating income from continuing operations for fiscal year 2019 was $238.3 million, as compared to $230.5 million for fiscal year 2018, an increase of $7.9 million, or 3%. Amortization of intangible assets increased to $52.9 million for fiscal year 2019 as compared to $46.1 million for fiscal year 2018. Restructuring and other costs, net increased to $22.0 million for fiscal year 2019 as compared to $10.0 million for fiscal year 2018. The amortization of purchase accounting adjustments to record the inventory from certain acquisitions added an incremental expense of $20.8 million in fiscal year 2019. Acquisition and divestiture-related costs, contingent consideration and other costs added an incremental expense of $1.8 million for fiscal year 2019, as compared to $3.1 million for fiscal year 2018. Legal costs for significant litigation matters were $2.2 million for fiscal year 2019, as compared to $5.3 million for fiscal year 2018. In addition to the factors noted above, the overall increase in operating income for fiscal year 2019 as compared to fiscal year 2018, was primarily as a result of higher sales volume, product mix, price, supply chain and services productivity as well as cost curtailment.

Fiscal Year 2018 Compared to Fiscal Year 2017

For a discussion of our results of operations for fiscal year 2018 as compared to fiscal year 2017, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations in our annual report on Form 10-K for the fiscal year ended December 30, 2018 filed with the Securities and Exchange Commission on February 26, 2019.

Diagnostics

Fiscal Year 2019 Compared to Fiscal Year 2018

Revenue for fiscal year 2019 was $1,137.5 million, as compared to $1,084.8 million for fiscal year 2018, an increase of $52.7 million, or 5%, which includes an approximate 3% decrease in revenue in revenue attributable to unfavorable changes in foreign exchange rates. As a result of adjustments to deferred revenue related to certain acquisitions required by business combination rules, we did not recognize $0.8 million of revenue primarily related to our Diagnostics segment for each of fiscal years 2019 and 2018 that otherwise would have been recorded by the acquired businesses during each of the respective periods. The increase in our Diagnostics segment was driven by growth in our immunodiagnostics and reproductive health businesses.

Operating income from continuing operations for fiscal year 2019 was $189.3 million, as compared to $153.2 million for fiscal year 2018, an increase of $36.1 million, or 24%. Amortization of intangible assets increased and was $111.4 million for fiscal year 2019 as compared to $89.8 million for fiscal year 2018. Restructuring and other costs, net increased and were $7.5 million for fiscal year 2019 as compared to $1.2 million for fiscal year 2018. Acquisition and divestiture-related expenses, contingent consideration and other costs added an incremental expense of $6.6 million in fiscal year 2019, as compared to an incremental expense of $28.2 million for fiscal year 2018. The amortization of purchase accounting adjustments to record the inventory from certain acquisitions added an incremental expense of $1.1 million in fiscal year 2019, as compared to $19.3 million for fiscal year 2018. Legal costs for significant litigation matters were $0.1 million for fiscal year 2019, as compared to $0.2 million for fiscal year 2018 In addition to the factors noted above, operating income increased during fiscal year 2019, as compared to fiscal year 2018, primarily the result of higher sales volume and stronger productivity through our cost curtailment and supply chain initiatives.

Fiscal Year 2018 Compared to Fiscal Year 2017

For a discussion of our results of operations for fiscal year 2018 as compared to fiscal year 2017, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations in our annual report on Form 10-K for the fiscal year ended December 30, 2018 filed with the Securities and Exchange Commission on February 26, 2019.

Liquidity and Capital Resources

We require cash to pay our operating expenses, make capital expenditures, make strategic acquisitions, service our debt and other long-term liabilities, repurchase shares of our common stock and pay dividends on our common stock. Our principal sources of funds are from our operations and the capital markets, particularly the debt markets. We anticipate that our internal operations will generate sufficient cash to fund our operating expenses, capital expenditures, smaller acquisitions, interest payments on our debt and dividends on our common stock. However, we expect to use external sources to satisfy the balance of our debt when due, any larger acquisitions and other long-term liabilities, such as contributions to our postretirement benefit plans.

Principal factors that could affect the availability of our internally generated funds include:

- changes in sales due to weakness in markets in which we sell our products and services, and
- changes in our working capital requirements.

Principal factors that could affect our ability to obtain cash from external sources include:

- financial covenants contained in the financial instruments controlling our borrowings that limit our total borrowing capacity,
- increases in interest rates applicable to our outstanding variable rate debt,
- a ratings downgrade that could limit the amount we can borrow under our senior unsecured revolving credit facility and our overall access to the corporate debt market,
- increases in interest rates or credit spreads, as well as limitations on the availability of credit, that affect our ability to borrow under future potential facilities on a secured or unsecured basis,
- a decrease in the market price for our common stock, and
- volatility in the public debt and equity markets.

Cash Flows

Fiscal Year 2019 Compared to Fiscal Year 2018

Operating Activities. Net cash provided by continuing operations was $363.5 million for fiscal year 2019, as compared to net cash provided by continuing operations of $311.2 million for fiscal year 2018, an increase of $52.2 million. The cash provided by operating activities for fiscal year 2019 was principally a result of income from continuing operations of $227.8 million, and non-cash charges, including depreciation and amortization of $214.0 million, debt extinguishment costs of $32.5 million, stock based compensation expense of $31.5 million, restructuring and other costs, net, of $29.4 million, a non-cash expense of $26.1 million related to our postretirement benefit plans, including the mark-to-market adjustment in the fourth quarter of fiscal year 2019, change in fair value of contingent consideration of $3.9 million, amortization of deferred debt issuance costs and accretion of discounts of $3.8 million and loss on disposition of businesses and assets, net, of $2.5 million. These amounts were partially offset by a net increase in working capital of $102.9 million, deferred tax benefit of $61.4 million, change in fair value of financial securities of $3.2 million, and a net decrease of $40.6 million in accrued expenses, other assets and liabilities and other items. The change in accrued expenses, other assets and liabilities and other items decreased cash provided by operating activities by $40.6 million for fiscal year 2019, as compared to $3.7 million for fiscal year 2018. These changes primarily related to the timing of payments for pensions, taxes, restructuring, and salary and benefits, including the amortization of purchase accounting adjustments to record the inventory from certain acquisitions of $21.6 million for fiscal year 2019 as compared to $19.3 million for fiscal year 2018. For fiscal year 2019, $20.9 million of contingent consideration payments, which were paid primarily to the former shareholders of Vanadis Diagnostics AB, were included in operating activities as compared to $3.7 million for fiscal year 2018. In addition, we paid stay bonuses associated with our acquisition of Tulip Diagnostics Private Limited of $11.8 million for fiscal year 2019 as compared to $10.6 million for fiscal year 2018. During fiscal year 2019, we made contributions of $8.2 million, in the aggregate, to pension plans outside of the United States, as compared to $8.5 million during fiscal year 2018, and we paid $15.0 million to our defined benefit pension plan in the United States during fiscal year 2018 for the plan year 2017. Contributing to the net increase in working capital for fiscal year 2019, excluding the effect of foreign exchange rate fluctuations, was an increase in accounts receivable of $100.6 million and an increase in inventory of $9.6 million, which were partially offset by an increase in accounts payable of $7.4 million. The increase in accounts receivable was a result of higher sales volume and increased terms in fiscal year 2019. The increase in inventory and the increase in accounts payable were primarily in line with the growth of our business in fiscal year 2019.

Investing Activities. Net cash used in the investing activities of our continuing operations was $487.6 million for fiscal year 2019, as compared to net cash used in the investing activities of our continuing operations of $159.9 million for fiscal year 2018, an increase of $327.7 million. For fiscal year 2019, we used $400.4 million of net cash for acquisitions, as compared to $97.7 million used in fiscal year 2018. Capital expenditures for fiscal year 2019 were $76.3 million, primarily for manufacturing equipment and other capital equipment purchases, as compared to $93.3 million for fiscal year 2018. During fiscal year 2019, we made equity investments amounting to $6.4 million as compared to $7.0 million in fiscal year 2018. In addition, we made purchases of licenses of $5.0 million in fiscal year 2019. These items were partially offset by $0.6 million in proceeds from disposition of businesses in fiscal year 2019 as compared to $38.0 million in proceeds from disposition of businesses in fiscal year 2018.

Financing Activities. Net cash provided by the financing activities of our continuing operations was $150.1 million for fiscal year 2019, as compared to net cash used in the financing activities of our continuing operations of $179.2 million for fiscal year 2018, an increase of $329.4 million. The cash provided by financing activities in fiscal year 2019 was a result of proceeds from borrowings, proceeds from the sale of senior debt and proceeds from the issuance of common stock under stock plans. During fiscal year 2019, proceeds from our senior unsecured revolving credit facility totaled $1,599.4 million which were more than offset by debt payments of $1,692.5 million and debt issuance costs of $9.9 million, as compared to proceeds from our senior unsecured revolving credit facility totaled $857.0 million which were more than offset by debt payments of $1,264.0 million and debt issuance costs of $2.6 million in fiscal year 2018. Proceeds from the sale of senior debt were $847.2 million during fiscal year 2019, which were partially offset by payments of our senior debt of $530.3 million, as compared to proceeds from the sale of senior debt of $369.3 million in fiscal year 2018. Proceeds from the issuance of common stock under stock plans were $19.7 million, as compared to proceeds from the issuance of common stock under stock plans of $24.8 million in fiscal year 2018. Cash provided by financing activities during fiscal year 2019 was partially offset by payments of dividends, payments for acquisition-related contingent consideration, net payments on other credit facilities, repurchase of our common stock pursuant to our equity incentive plans, and settlement of forward foreign exchange contracts. During fiscal year 2019, we paid $31.1 million in dividends as compared to $31.0 million for fiscal year 2018. During fiscal year 2019, we paid $29.9 million for acquisition-related contingent consideration as compared to $12.8 million in fiscal year 2018. During fiscal year 2019, we had net payments on other credit facilities of $15.0 million as compared to $28.4 million in fiscal year 2018. During fiscal year 2019, we repurchased 68,536 shares of our common stock to satisfy minimum statutory tax withholding obligations in connection with the vesting of restricted stock awards and restricted stock unit awards granted pursuant to our equity incentive plans and to satisfy obligations related to the exercise of stock options made pursuant to our equity incentive plans, for a total cost of $6.3 million. This compares to repurchases of 650,000 shares of our common stock under our Repurchase Program, in addition to repurchasing 66,506 shares of our common stock pursuant to our equity incentive plans in fiscal year 2018, for a total cost of $57.4 million. In addition, during fiscal year 2019, we paid $1.3 million for settlement of forward foreign exchange contracts as compared to $34.1 million in fiscal year 2018.

Fiscal Year 2018 Compared to Fiscal Year 2017

For a discussion of our results of operations for fiscal year 2018 as compared to fiscal year 2017, see Item 7, Management's Discussion and Analysis of Financial Condition and Results of Operations in our annual report on Form 10-K for the fiscal year ended December 30, 2018 filed with the Securities and Exchange Commission on February 26, 2019.

Borrowing Arrangements

Senior Unsecured Revolving Credit Facility. On September 17, 2019, we terminated our previous senior unsecured revolving credit facility and entered into a new senior unsecured revolving credit facility with a five-year term and a borrowing capacity of $1.0 billion. The new senior unsecured revolving credit facility provides for revolving loans that may be either US Dollar Base Rate loans or Eurocurrency Rate loans, as those terms are defined in the new credit agreement. As of December 29, 2019, undrawn letters of credit in the aggregate amount of $11.4 million were treated as issued and outstanding when calculating the borrowing availability under the new senior unsecured revolving credit facility. As of December 29, 2019, we had $663.2 million available for additional borrowing under the facility. We plan to use the new senior unsecured revolving credit facility for general corporate purposes, which may include working capital, refinancing existing indebtedness, capital expenditures, share repurchases, acquisitions and strategic alliances. The interest rates on the Eurocurrency Rate loans are based on the Eurocurrency Rate at the time of borrowing, plus a percentage spread based on the credit rating of our debt. The interest rates on the US Dollar Base Rate loans are based on the US Dollar Base Rate at the time of borrowing, plus a percentage spread based on the credit rating of our debt. The base rate is the higher of (i) the Federal Funds Rate (as defined in the new credit agreement) plus 50 basis points (ii) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its "prime rate," or (iii) the Eurocurrency Rate plus 1.00%. The Eurocurrency margin as of December 29, 2019 was 102.0 basis points. The weighted average Eurocurrency interest rate as of December 29, 2019 was 1.67%, resulting in a weighted average effective Eurocurrency Rate, including the margin, of 2.68%, which was the interest applicable to the borrowings outstanding as of December 29, 2019. As of December 29, 2019, the new senior unsecured revolving credit facility had outstanding borrowings of $325.4 million, and $3.4 million of unamortized debt issuance costs. As of December 30, 2018, the previous senior unsecured revolving credit facility had $418.0 million of outstanding borrowings, and $2.4 million of unamortized debt issuance costs. The credit agreement for the new facility contains affirmative, negative and financial covenants and events of default. The financial covenants include a debt-to-capital ratio that remains applicable for so long as our debt is rated as investment grade. In the event that our debt is not rated as investment grade, the debt-to-capital ratio covenant is replaced with a maximum consolidated leverage ratio covenant and a minimum consolidated interest coverage ratio covenant. We were in compliance with all applicable debt covenants as of December 29, 2019.

5% Senior Unsecured Notes due in 2021. On October 25, 2011, we issued $500.0 million aggregate principal amount of senior unsecured notes due in 2021 (the "November 2021 Notes") in a registered public offering and received $493.6 million of net proceeds from the issuance. The November 2021 Notes were issued at 99.4% of the principal amount, which resulted in a discount of $3.1 million. On October 13, 2019, we redeemed all of the outstanding November 2021 Notes. The redemption of the November 2021 Notes resulted in a pre-tax, non-operating charge of $32.3 million. The non-operating charge consists of a make-whole premium payment of $31.3 million, partially offset by $1.0 million of proceeds received from a reverse treasury rate lock settlement, to call the November 2021 Notes and $2.0 million associated with the write-off of the existing deferred costs and original issue discount. As of December 30, 2018, the November 2021 Notes had an aggregate carrying value of $497.4 million, net of $1.1 million of unamortized original issue discount and $1.6 million of unamortized debt issuance costs.

1.875% Senior Unsecured Notes due 2026. On July 19, 2016, we issued €500.0 million aggregate principal amount of senior unsecured notes due in 2026 (the "2026 Notes") in a registered public offering and received approximately €492.3 million of net proceeds from the issuance. The 2026 Notes were issued at 99.118% of the principal amount, which resulted in a discount of €4.4 million. The 2026 Notes mature in July 2026 and bear interest at an annual rate of 1.875%. Interest on the 2026 Notes is payable annually on July 19th each year. The proceeds from the 2026 Notes were used to pay in full the outstanding balance of our previous senior unsecured revolving credit facility. As of December 29, 2019, the 2026 Notes had an aggregate carrying value of $552.2 million, net of $3.5 million of unamortized original issue discount and $3.3 million of unamortized debt issuance costs. As of December 30, 2018, the 2026 Notes had an aggregate carrying value of $564.5 million, net of $4.0 million of unamortized original issue discount and $3.8 million of unamortized debt issuance costs.

Prior to April 19, 2026 (three months prior to their maturity date), we may redeem the 2026 Notes in whole at any time or in part from time to time, at our option, at a redemption price equal to the greater of (i) 100% of the principal amount of the 2026 Notes to be redeemed, or (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the 2026 Notes being redeemed, discounted on an annual basis, at the applicable Comparable Government Bond Rate (as defined in the indenture governing the 2026 Notes) plus 35 basis points; plus, in each case, accrued and unpaid interest. In addition, at any time on or after April 19, 2026 (three months prior to their maturity date), we may redeem the 2026 Notes, at our option, at a redemption price equal to 100% of the principal amount of the 2026 Notes due to be redeemed plus accrued and unpaid interest.

Upon a change of control (as defined in the indenture governing the 2026 Notes) and a contemporaneous downgrade of the 2026 Notes below investment grade, we will, in certain circumstances, make an offer to purchase the 2026 Notes at a price equal to 101% of their principal amount plus any accrued and unpaid interest.

0.6% Senior Unsecured Notes due in 2021. On April 11, 2018, we issued €300.0 million aggregate principal amount of senior unsecured notes due in 2021 (the "April 2021 Notes") in a registered public offering and received approximately €298.7 million of net proceeds from the issuance. The April 2021 Notes were issued at 99.95% of the principal amount, which resulted in a discount of €0.2 million. As of December 29, 2019, the April 2021 Notes had an aggregate carrying value of $334.2 million, net of $0.1 million of unamortized original issue discount and $1.1 million of unamortized debt issuance costs. As of December 30, 2018, the April 2021 Notes had an aggregate carrying value of $341.3 million, net of $0.1 million of unamortized original issue discount and $2.0 million of unamortized debt issuance costs. The April 2021 Notes mature in April 2021 and bear interest at an annual rate of 0.6%. Interest on the April 2021 Notes is payable annually on April 9th each year. Prior to the maturity date of the April 2021 Notes, we may redeem them in whole at any time or in part from time to time, at our option, at a redemption price equal to the greater of (i) 100% of the principal amount of the April 2021 Notes to be redeemed, or (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the April 2021 Notes being redeemed, discounted on an annual basis, at the applicable Comparable Government Bond Rate (as defined in the indenture governing the April 2021 Notes) plus 15 basis points; plus, in each case, accrued and unpaid interest. Upon a change of control (as defined in the indenture governing the April 2021 Notes) and a contemporaneous downgrade of the April 2021 Notes below investment grade, we will, in certain circumstances, make an offer to purchase the April 2021 Notes at a price equal to 101% of their principal amount, plus accrued and unpaid interest.

3.3% Senior Unsecured Notes due in 2029. On September 12, 2019, we issued $850.0 million aggregate principal amount of senior unsecured notes due in 2029 (the "2029 Notes") in a registered public offering and received $847.2 million of net proceeds from the issuance. The 2029 Notes were issued at 99.67% of the principal amount, which resulted in a discount of $2.8 million. As of December 29, 2019, the 2029 Notes had an aggregate carrying value of $839.9 million, net of $2.7 million of unamortized original issue discount and $7.4 million of unamortized debt issuance costs. The 2029 Notes mature in September 2029 and bear interest at an annual rate of 3.3%. Interest on the 2029 Notes is payable semi-annually on March 15th and September 15th each year. Proceeds from the 2029 Notes were used to repay all outstanding borrowings under our previous senior unsecured revolving credit facility with the remaining proceeds used in the redemption of the November 2021 Notes. Prior to June 15, 2029 (three months prior to their maturity date), we may redeem the 2029 Notes in whole or in part, at our option, at a redemption price equal to the greater of (i) 100% of the principal amount of the 2029 Notes to be redeemed, and (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the 2029 Notes being redeemed (not including any portion of such payments of interest accrued but unpaid as of the date of redemption) assuming that such 2029 Notes matured on June 15, 2029, discounted at the date of redemption on a semi-annual basis (assuming a 360-day year of twelve 30-day months), at the Treasury Rate (as defined in the indenture governing the 2029 Notes) plus 25 basis points, plus accrued and unpaid interest. At any time on or after June 15, 2029 (three months prior to their maturity date), we may redeem the 2029 Notes, at our option, at a redemption price equal to 100% of the principal amount of the 2029 Notes to be redeemed plus accrued and unpaid interest. Upon a change of control (as defined in the indenture governing the 2029 Notes) and a contemporaneous downgrade of the 2029 Notes below investment grade, each holder of 2029 Notes will have the right to require us to repurchase such holder's 2029 Notes for 101% of their principal amount, plus accrued and unpaid interest.

Other Debt Facilities. Our other debt facilities include Euro-denominated bank loans with an aggregate carrying value of $23.8 million (or €21.3 million) and $32.1 million (or €28.0 million) as of December 29, 2019 and December 30, 2018, respectively. These bank loans are primarily utilized for financing fixed assets and are required to be repaid in monthly or quarterly installments with maturity dates extending to 2028. Of these bank loans, loans in the aggregate amount of $23.7 million bear fixed interest rates between 1.1% and 4.3% and a loan in the amount of $0.1 million bears a variable interest rate based on the Euribor rate plus a margin of 1.5%. An aggregate amount of $6.3 million of the bank loans are secured by mortgages on real property and the remaining $17.5 million are unsecured. Certain credit agreements for the unsecured bank loans include financial covenants which are based on an equity ratio or an equity ratio and minimum interest coverage ratio. We were in compliance with all applicable debt covenants as of December 29, 2019.

In addition, we had secured bank loans in the amount of $1.9 million as of December 29, 2019, and unsecured revolving credit facilities and a secured bank loan in the amount of $5.8 million and $0.3 million, respectively, as of December 30, 2018. The unsecured revolving debt facilities had fixed interest at a rate of 2.3%. The secured bank loans of $1.9 million bear fixed annual interest rates between 1.95% and 21.5% and are required to be repaid in monthly installments until 2027.

Financing Lease Obligations. In fiscal year 2012, we entered into agreements with the lessors of certain buildings that we are currently occupying and leasing to expand those buildings. We provided a portion of the funds needed for the construction of the additions to the buildings, and as a result we were considered the owner of the buildings during the construction period. At the end of the construction period, we were not reimbursed by the lessors for all of the construction costs. We are therefore deemed to have continuing involvement and the leases qualify as financing leases under sale-leaseback accounting guidance, representing debt obligations for us and non-cash investing and financing activities. As a result, we capitalized $29.3 million in property, plant and equipment, net, representing the fair value of the buildings with a corresponding increase to debt. We have also capitalized $11.5 million in additional construction costs necessary to complete the renovations to the buildings, which were funded by the lessors, with a corresponding increase to debt. At December 30, 2018, we had $34.5 million recorded for these financing lease obligations, of which $1.5 million was recorded as short-term debt and $33.0 million was recorded as long-term debt. Prior to adoption of ASC 842, *Leases* ("ASC 842"), the buildings were depreciated on a straight-line basis over the terms of the leases to their estimated residual values, which will equal the remaining financing obligation at the end of the lease term. At the end of the lease term, the remaining balances in property, plant and equipment, net and debt will be reversed against each other. Upon adoption of ASC 842 in fiscal year 2019, we derecognized the impact of this build-to-suit arrangement.

Dividends

Our Board declared a regular quarterly cash dividend of $0.07 per share in each quarter of fiscal years 2019 and 2018, resulting in an annual dividend rate of $0.28 per share. At December 29, 2019, we had accrued $7.8 million for a dividend declared on October 24, 2019 for the fourth quarter of fiscal year 2019 that was paid in February 2020. On January 23, 2020, we announced that our Board had declared a quarterly dividend of $0.07 per share for the first quarter of fiscal year 2020 that will be payable in May 2020. In the future, our Board may determine to reduce or eliminate our common stock dividend in order to fund investments for growth, repurchase shares or conserve capital resources.

Contractual Obligations

The following table summarizes our contractual obligations at December 29, 2019 for continuing and discontinued operations. Purchase commitments are minimal and have been excluded from this table:

	Operating Leases	Sr. Unsecured Revolving Credit Facility Maturing 2024[(1)]	April 2021 Notes[(2)]	2026 Notes[(3)]	2029 Notes[(4)]	Other Debt Facilities[(5)]	Employee Benefit Payments[(6)]	Unrecognized Tax Benefits[(7)]	Total
					(In thousands)				
2020	$ 44,512	$ —	$ 2,012	$ 10,480	$ 28,050	$ 10,229	$ 30,870	$ 100	$ 126,253
2021	36,958	—	335,928	10,480	28,050	8,091	31,498	—	451,005
2022	25,419	—	—	10,480	28,050	3,875	31,697	—	99,521
2023	19,594	—	—	10,480	28,050	2,331	32,100	—	92,555
2024	17,721	325,377	—	10,480	28,050	1,311	32,845	—	415,784
2025 and thereafter	66,808	—	—	575,104	981,851	595	162,104	—	1,786,462
Total	$ 211,012	$ 325,377	$ 337,940	$ 627,504	$ 1,122,101	$ 26,432	$ 321,114	$ 100	$2,971,580

(1) The credit facility borrowings carry variable interest rates. As of December 29, 2019, the senior unsecured revolving credit facility had a carrying value of $322.0 million.

(2) The April 2021 Notes include interest obligations of $2.6 million. As of December 29, 2019, the April 2021 Notes had a carrying value of $334.2 million.

(3) The 2026 Notes include interest obligations of $68.6 million. As of December 29, 2019, the 2026 Notes had a carrying value of $552.2 million.

(4) The 2029 Notes include interest obligations of $272.1 million. As of December 29, 2019, the 2029 Notes had a carrying value of $839.9 million.

(5) The other debt facilities include interest obligations of $0.7 million. As of December 29, 2019, the other debt facilities had a carrying value of $25.7 million.
(6) Employee benefit payments only include obligations through fiscal year 2029.
(7) We expect to cash settle $0.1 million of uncertain tax positions during fiscal year 2020. We have excluded $2.6 million, including accrued interest, net of tax benefits, and penalties, from our uncertain tax positions, as we cannot make a reasonably reliable estimate of the amount and period of related future payments.

As of December 29, 2019, we may have to pay the former shareholders of certain of our acquisitions contingent consideration of up to $57.1 million. The table above does not reflect any of these obligations as the timing and amounts are uncertain. For further information related to our contingent consideration obligations, see Note 22 to our consolidated financial statements included in this annual report on Form 10-K.

Capital Expenditures

During fiscal year 2020, we expect to invest an amount for capital expenditures similar to that in fiscal year 2019, primarily to introduce new products, to improve our operating processes, to shift the production capacity to lower cost locations, and to develop information technology. We expect to use our available cash and internally generated funds to fund these expenditures.

Other Potential Liquidity Considerations

At December 29, 2019, we had cash and cash equivalents of $191.9 million, of which $172.9 million was held by our non-U.S. subsidiaries, and we had $663.2 million of additional borrowing capacity available under a senior unsecured revolving credit facility. We had no other liquid investments at December 29, 2019.

We utilize a variety of tax planning and financing strategies to ensure that our worldwide cash is available in the locations in which it is needed. The Tax Cuts and Jobs Act (the “Tax Act”) requires us to pay a one-time transition tax on the unremitted earnings of foreign subsidiaries. Based on available information, we estimated the tax on the deemed repatriation of our foreign earnings and recorded a tax expense of $85.0 million in continuing operations at December 31, 2017. During the fiscal years 2019 and 2018, we refined our calculations of the one-time transition tax based on newly issued guidance from the Internal Revenue Service and recorded a tax expense (benefit) of $2.7 million and $(4.6) million, respectively, in continuing operations related to the one-time transition tax. In addition, during fiscal year 2018, we determined that previously undistributed earnings of certain international subsidiaries no longer met the requirements of indefinite reinvestment and therefore recognized $2.9 million of income tax expense during the year. Our intent is to continue to reinvest the remaining undistributed earnings of our international subsidiaries indefinitely. No additional income tax expense has been provided for any remaining undistributed foreign earnings not subject to the transition tax, or any additional outside basis difference inherent in these entities, as these amounts continue to be indefinitely reinvested in foreign operations.

On July 23, 2018, our Board of Directors (the “Board”) authorized us to repurchase shares of common stock for an aggregate amount up to $250.0 million under a stock repurchase program (the “Repurchase Program”). The Repurchase Program will expire on July 23, 2020 unless terminated earlier by our Board and may be suspended or discontinued at any time. During fiscal year 2019, we had no stock repurchases under the Repurchase Program. As of December 29, 2019, $197.8 million remained available for aggregate repurchases of shares under the Repurchase Program.

In addition, our Board has authorized us to repurchase shares of common stock to satisfy minimum statutory tax withholding obligations in connection with the vesting of restricted stock awards and restricted stock unit awards granted pursuant to our equity incentive plans and to satisfy obligations related to the exercise of stock options made pursuant to our equity incentive plans. During the fiscal year 2019, we repurchased 68,536 shares of common stock for this purpose at an aggregate cost of $6.3 million. During fiscal year 2018, we repurchased 66,506 shares of common stock for this purpose at an aggregate cost of $5.2 million.

The repurchased shares have been reflected as additional authorized but unissued shares, with the payments reflected in common stock and capital in excess of par value. Any repurchased shares will be available for use in connection with corporate programs. If we continue to repurchase shares, the Repurchase Program will be funded using our existing financial resources, including cash and cash equivalents, and our existing senior unsecured revolving credit facility.

Distressed global financial markets could adversely impact general economic conditions by reducing liquidity and credit availability, creating increased volatility in security prices, widening credit spreads and decreasing valuations of certain investments. The widening of credit spreads may create a less favorable environment for certain of our businesses and may affect the fair value of financial instruments that we issue or hold. Increases in credit spreads, as well as limitations on the availability of credit at rates we consider to be reasonable, could affect our ability to borrow under future potential facilities on a secured or unsecured basis, which may adversely affect our liquidity and results of operations. In difficult global financial markets, we may be forced to fund our operations at a higher cost, or we may be unable to raise as much funding as we need to support our business activities.

Our pension plans have not experienced a material impact on liquidity or counterparty exposure due to the volatility and uncertainty in the credit markets. With respect to plans outside of the United States, we expect to contribute $6.6 million in the aggregate during fiscal year 2020. During fiscal years 2019 and 2018, we contributed $8.2 million and $8.5 million, in the aggregate, to pension plans outside of the United States, respectively. During fiscal year 2018, we contributed $15.0 million to our defined benefit pension plan in the United States for the plan year 2017. We could potentially have to make additional funding payments in future periods for all pension plans. We expect to use existing cash and external sources to satisfy future contributions to our pension plans.

Effects of Recently Issued and Adopted Accounting Pronouncements

See Note 1, *Nature of Operations and Accounting Policies,* in the Notes to Consolidated Financial Statements for a summary of recently adopted and issued accounting pronouncements.

Application of Critical Accounting Policies and Estimates

The preparation of consolidated financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates, including those related to revenue recognition, warranty costs, bad debts, inventories, accounting for business combinations and dispositions, long-lived assets, pensions and other postretirement benefits, restructuring, income taxes, contingencies and litigation. We base our estimates on historical experience and on various other assumptions that we believe 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 results may differ from these estimates under different assumptions or conditions.

We believe the following critical accounting policies affect our more significant judgments and estimates used in preparation of our consolidated financial statements.

Revenue recognition. We enter into contracts that can include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. We recognize revenue in an amount that reflects the consideration we expect to receive in exchange for the promised products or services when a performance obligation is satisfied by transferring control of those products or services to customers.

Taxes that are collected by us from a customer and assessed by a governmental authority, that are both imposed on and concurrent with a specific revenue-producing transaction, are excluded from revenue.

The majority of our sales relate to specific manufactured products or units rather than long-term customized projects, therefore we generally do not experience significant changes in original estimates. Further, we have not experienced any significant refunds or promotional allowances that require significant estimation.

Warranty costs. We provide for estimated warranty costs for products at the time of their sale. Warranty liabilities are estimated using expected future repair costs based on historical labor and material costs incurred during the warranty period.

Allowances for doubtful accounts. We maintain allowances for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. We generally compute our allowance for doubtful accounts by (i) applying specific percentage reserves on accounts that are past due and deemed uncollectible; and (ii) specifically reserving for customers known to be in financial difficulty. Therefore, if the financial condition of our customers were to deteriorate beyond our estimates, we may have to increase our allowance for doubtful accounts. This would reduce our earnings. Accounts are written-off only when all methods of recovery have been exhausted.

Inventory valuation. We value inventory at the lower of cost or market. Inventories are accounted for using the first-in, first-out method. We periodically review these values to ascertain that market value of the inventory continues to exceed its recorded cost. Generally, reductions in value of inventory below cost are caused by our maintenance of stocks of products in excess of demand, or technological obsolescence of the inventory. We regularly review inventory quantities on hand and, when necessary, record provisions for excess and obsolete inventory based on either our estimated forecast of product demand and production requirements, or historical trailing usage of the product. If our sales do not materialize as planned or at historic levels, we may have to increase our reserve for excess and obsolete inventory. This would reduce our earnings. If actual market conditions are more favorable than anticipated, inventory previously written down may be sold, resulting in lower costs of sales and higher income from operations than expected in that period.

Business combinations. Business combinations are accounted for at fair value. Acquisition costs are expensed as incurred and recorded in selling, general and administrative expenses; previously held equity interests are valued at fair value upon the acquisition of a controlling interest; in-process research and development ("IPR&D") is recorded at fair value as an intangible asset at the acquisition date; restructuring costs associated with a business combination are expensed subsequent to the acquisition date; and changes in deferred tax asset valuation allowances and income tax uncertainties after the acquisition date affect income tax expense. Measurement period adjustments are made in the period in which the amounts are determined and the current period income effect of such adjustments will be calculated as if the adjustments had been completed as of the acquisition date. All changes that do not qualify as measurement period adjustments are also included in current period earnings. The accounting for business combinations requires estimates and judgment as to expectations for future cash flows of the acquired business, and the allocation of those cash flows to identifiable intangible assets, in determining the estimated fair value for assets acquired and liabilities assumed. The fair values assigned to tangible and intangible assets acquired and liabilities assumed, including contingent consideration, are based on management's estimates and assumptions, as well as other information compiled by management, including valuations that utilize customary valuation procedures and techniques. If the actual results differ from the estimates and judgments used in these estimates, the amounts recorded in the financial statements could result in a possible impairment of the intangible assets and goodwill, require acceleration of the amortization expense of finite-lived intangible assets, or the recognition of additional consideration which would be expensed. The fair value of contingent consideration is remeasured each period based on relevant information and changes to the fair value are included in the operating results for the period.

Value of long-lived assets, including goodwill and other intangibles. We carry a variety of long-lived assets on our consolidated balance sheets including property and equipment, operating lease right of use assets, investments, identifiable intangible assets, and goodwill. We periodically review the carrying value of all of these assets based, in part, upon current estimated market values and our projections of anticipated future cash flows.

We undertake this review (i) on an annual basis for assets such as goodwill and non-amortizing intangible assets and (ii) on a periodic basis for other long-lived assets when facts and circumstances suggest that cash flows related to those assets may be diminished. Any impairment charge that we record reduces our earnings. The test consists of the comparison of the fair value to the carrying value of the reporting unit to determine if the carrying value exceeds the fair value. If the carrying value of the reporting unit exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of goodwill. We perform the annual impairment assessment on the later of January 1 or the first day of each fiscal year. This same impairment test will be performed at other times during the course of the year should an event occur which suggests that the recoverability of goodwill should be reconsidered. We completed the annual goodwill impairment test using a measurement date of January 1, 2019, and concluded that there was no goodwill impairment. At January 1, 2019, the fair value exceeded the carrying value by more than 20.0% for each reporting unit, except for our Tulip and EUROIMMUN reporting units. The range of the long-term terminal growth rates for the reporting units was 3.0% to 5.0% for the fiscal year 2019 impairment analysis. The range for the discount rates for the reporting units was 10.5% to 14.5%. Keeping all other variables constant, a 10.0% change in any one of these input assumptions for the various reporting units, except for our Tulip and EUROIMMUN reporting units, would still allow us to conclude that there was no impairment of goodwill. The fair values of our Tulip and EUROIMMUN reporting units approximated their respective carrying values given that these reporting units were relatively new acquisitions.

We consistently employed the income approach to estimate the current fair value when testing for impairment of goodwill. A number of significant assumptions and estimates are involved in the application of the income approach to forecast operating cash flows, including markets and market share, sales volumes and prices, costs to produce, tax rates, capital spending, discount rates and working capital changes. Cash flow forecasts are based on approved business unit operating plans for the early years' cash flows and historical relationships in later years. The income approach is sensitive to changes in long-term terminal growth rates and the discount rates. The long-term terminal growth rates are consistent with our historical long-term terminal growth rates, as the current economic trends are not expected to affect our long-term terminal growth rates. We corroborate the income approach with a market approach. While we believe that our estimates of current value are reasonable, if actual results differ from the estimates and judgments used including such items as future cash flows and the volatility inherent in markets which we serve, impairment charges against the carrying value of those assets could be required in the future.

Non-amortizing intangibles are also subject to an annual impairment test. We consistently employed the relief from royalty model to estimate the current fair value when testing for impairment of non-amortizing intangible asset. The impairment test consists of a comparison of the fair value of the non-amortizing intangible asset with its carrying amount. If the carrying amount of a non-amortizing intangible asset exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of the amortizing intangible asset. In addition, we evaluate the remaining useful life of our non-amortizing intangible asset at least annually to determine whether events or circumstances continue to support an indefinite useful life. If events or circumstances indicate that the useful life of our non-amortizing intangible asset is no longer indefinite, the asset will be tested for impairment. This intangible asset will then be amortized prospectively over their estimated remaining useful life and accounted for in the same manner as other intangible assets that are subject to amortization.

We performed our annual impairment testing as of January 1, 2019, and concluded that there was no impairment of non-amortizing intangible asset. An assessment of the recoverability of amortizing intangible assets takes place when events have occurred that may give rise to an impairment. No such events occurred during fiscal year 2019.

Employee compensation and benefits. We sponsor both funded and unfunded U.S. and non-U.S. defined benefit pension plans and other postretirement benefits. Retirement and postretirement benefit plans are a significant cost of doing business, and represent obligations that will be ultimately settled far in the future, and therefore are subject to estimation. Retirement and postretirement benefit plan expenses are allocated to cost of revenue, research and development, and selling, general and administrative expenses, in our consolidated statements of operations. We immediately recognize actuarial gains and losses in operating results in the year in which the gains and losses occur. Actuarial gains and losses are measured annually as of the calendar month-end that is closest to our fiscal year end and accordingly will be recorded in the fourth quarter, unless we are required to perform an interim remeasurement.

We recognized a loss of $26.1 million and $11.9 million in fiscal years 2019 and 2018, respectively, for our retirement and postretirement benefit plans, which includes the charge or benefit for the mark-to-market adjustment for the postretirement benefit plans, which was recorded in the fourth quarter of each fiscal year. The loss or income related to the mark-to-market adjustment on postretirement benefit plans was a pre-tax loss of $31.2 million in fiscal year 2019 and a pre-tax loss of $21.4 million in fiscal year 2018. We expect income of approximately $2.3 million in fiscal year 2020 for our retirement and postretirement benefit plans, excluding the charge for or benefit from the mark-to-market adjustment. It is difficult to reliably calculate and predict whether there will be a mark-to-market adjustment in fiscal year 2020. Mark-to-market adjustments are primarily driven by events and circumstances beyond our control, including changes in interest rates, the performance of the financial markets and mortality assumptions. To the extent the discount rates decrease or the value of our pension and postretirement investments decrease, mark-to market charges to operations will be recorded in fiscal year 2020. Conversely, to the extent the discount rates increase or the value of our pension and postretirement investments increase more than expected, mark-to market income will be recorded in fiscal year 2020. Pension accounting is intended to reflect the recognition of future benefit costs over the employee's approximate service period based on the terms of the plans and the investment and funding decisions made. We are required to make assumptions regarding such variables as the expected long-term rate of return on assets, the discount rate applied and mortality assumptions, to determine service cost and interest cost, in order to arrive at expected pension income or expense for the year. Beginning in fiscal year 2016, the approach we use to calculate the service and interest components of net periodic benefit cost for certain non-U.S. benefit plans was changed to provide a more precise measurement of service and interest costs. Prior to fiscal year 2016, we calculated these service and interest components utilizing a single weighted-average discount rate derived from a yield curve used to measure the benefit obligation at the beginning of the period. Beginning in fiscal year 2016, we have elected to utilize an approach that discounts the individual expected cash flows using the applicable spot rates derived from a yield curve over the projected cash flow period.

As of December 29, 2019, we estimate the expected long-term rate of return on assets in our pension and other postretirement benefit plans in the United States to be 7.25% and to be 2.20% for all plans outside the United States. In addition, as of December 29, 2019, we estimate the discount rate for our pension and other postretirement benefit plans in the United States to be 3.01% and to be 2.07% for all plans outside the United States. During fiscal year 2018, the Society of Actuaries issued an updated projection scale, MP-2018, which incorporated an additional year (2016) of U.S. population data and reduced the life expectancy used to determine the projected benefit obligation. We adopted MP-2018 as of December 30, 2018. The adoption of MP-2018 resulted in a $1.0 million decrease to the projected benefit obligation at December 30, 2018. During fiscal year 2019, the Society of Actuaries issued an updated projection scale, MP-2019, which incorporated an additional year (2017) of U.S. population data and reduced the life expectancy used to determine the projected benefit obligation. We adopted MP-2019 as of December 30, 2019. The adoption of MP-2019 resulted in a $4.4 million decrease to the projected benefit obligation at December 29, 2019. We have analyzed the rates of return on assets used and determined that these rates are reasonable based on the plans' historical performance relative to the overall markets in the countries where we invest the assets, as well as our current expectations for long-term rates of returns for our pension and other postretirement benefit assets. Our management will continue to assess the expected long-term rate of return on plan assets assumptions for each plan based on relevant market conditions, and will make adjustments to the assumptions as appropriate. Discount rate assumptions have been, and continue to be, based on the prevailing market long-term interest rates corresponding with expected benefit payments at the measurement date.

If any of our assumptions were to change as of December 29, 2019, our pension plan expenses would also change.

	Percentage Point Change	Increase (Decrease) at December 29, 2019 Non-U.S.	U.S.
Pension plans discount rate	+0.25	(13,531)	(7,747)
	-0.25	14,424	8,099
Rate of return on pension plan assets	+1.00	(1,799)	(2,545)
	-1.00	1,799	2,545
Postretirement medical plans discount rate	+0.25	N/A	(91)
	-0.25	N/A	95
Rate of return on postretirement medical plan assets	+1.00	N/A	(192)
	-1.00	N/A	192

We have reduced the volatility in our healthcare costs provided to our retirees by adopting a defined dollar plan feature in fiscal year 2001. Under the defined dollar plan feature, our total annual liability for healthcare costs to any one retiree is limited to a fixed dollar amount, regardless of the nature or cost of the healthcare needs of that retiree. Our maximum future liability, therefore, cannot be increased by future changes in the cost of healthcare.

Restructuring activities. Our consolidated financial statements detail specific charges relating to restructuring activities as well as the actual spending that has occurred against the resulting accruals. Our pre-tax restructuring charges are estimates based on our preliminary assessments of (i) severance benefits to be granted to employees, based on known benefit formulas and contractual agreements, (ii) costs to abandon certain facilities based on known lease costs of sub-rental income, (iii) costs to relocate facilities and (iv) impairment of assets as discussed above under "Value of long-lived assets, including goodwill and other intangibles." Because these accruals are estimates, they are subject to change as a result of deviations from initial restructuring plans or subsequent information that may come to our attention. For example, actual severance costs may be less than anticipated if employees voluntarily leave prior to the time at which they would be entitled to severance, or if anticipated legal hurdles in foreign jurisdictions prove to be less onerous than expected. In addition, unanticipated successes or difficulties in terminating leases and other contractual obligations may lead to changes in estimates. When such changes in estimates occur, they are reflected in our consolidated financial statements on our consolidated statements of operations line entitled "restructuring and other costs, net."

Dispositions. When we record the disposition of an asset or discontinuance of an operation, which meets the criteria to be reported as a discontinued operation, we make an estimate relative to the amount we expect to realize on the sale or disposition. This estimate is based on a variety of factors, including current interest in the market, alternative markets for the assets, and other relevant factors. If anticipated proceeds are less than the current carrying amount of the asset or operation, we record a loss. If anticipated proceeds are greater than the current carrying amount of the asset or operation, we recognize a gain net of expected contingencies when the transaction has been consummated. Accordingly, we may realize amounts different than were first estimated. Any such changes decrease or increase current earnings. During the fiscal year ended December 29, 2019, we had no disposition of discontinued operations.

Income taxes. Our business operations are global in nature, and we are subject to taxes in numerous jurisdictions. Tax laws and tax rates vary substantially in these jurisdictions and are subject to change given the political and economic climate in those countries. We report and pay income tax based on operational results and applicable law. Our tax provision contemplates tax rates currently in effect to determine our current tax provision as well as enacted tax rates expected to apply to taxable income in the fiscal years in which those temporary differences are expected to be recovered or settled to determine our deferred tax provision. Any significant fluctuation in rates or changes in tax laws could cause our estimates of taxes we anticipate either paying or recovering in the future to change. Such changes could lead to either increases or decreases in our effective tax rate.

The Tax Act made broad and complex changes to the U.S. Internal Revenue Code, which included reducing the corporate income tax rate from 35% to 21% and implementing a modified territorial tax system that includes a one-time transition tax on deemed repatriated earnings of foreign subsidiaries. The end of the measurement period for purposes of Staff Accounting Bulletin No. 118 was December 22, 2018. We have completed the analysis based on legislative updates relating to the Tax Act currently available and have recorded the impact in tax expense from continuing operations.

We will be subject to the new Global Intangible Low Tax Income ("GILTI") tax rules that are part of the modified territorial tax system imposed by the Tax Act. Under U.S. GAAP, we are allowed to make an accounting policy choice of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current-period expense when incurred (the "period cost method") or (2) factoring such amounts into our measurement of deferred taxes (the "deferred method"). We decided to adopt the period cost method and thus have not recorded any potential deferred tax effects related to GILTI and FDII in our financial statements for the fiscal year ended December 29, 2019.

Significant judgment is required in determining our worldwide provision for income taxes and recording the related tax assets and liabilities. In the ordinary course of our business, there are operational decisions, transactions, facts and circumstances, and calculations for which the ultimate tax determination is not certain. Furthermore, our tax positions are periodically subject to challenge by taxing authorities throughout the world. Every quarter we review our tax positions in each significant taxing jurisdiction in the process of evaluating our unrecognized tax benefits. Adjustments are made to our unrecognized tax benefits when: (i) facts and circumstances regarding a tax position change, causing a change in our judgment regarding that tax position; (ii) a tax position is effectively settled with a tax authority at a differing amount; and/or (iii) the statute of limitations expires regarding a tax position. Any significant impact as a result of changes in underlying facts, law, tax rates, tax audit, or review could lead to adjustments to our income tax expense, our effective tax rate, or our cash flow.

Additionally, we have established valuation allowances against a variety of deferred tax assets, including state net operating loss carryforwards, state income tax credit carryforwards, and certain foreign tax attributes. Valuation allowances take into consideration our ability to use these deferred tax assets and reduce the value of such items to the amount that is deemed more likely than not to be recoverable. In evaluating our ability to recover our deferred tax assets within the jurisdiction from which they arise, we consider all available positive and negative evidence, including reversals of deferred tax liabilities, projected future taxable income, tax planning strategies, and results of recent operations. In projecting future taxable income, we begin with historical results adjusted for the results of discontinued operations and incorporate assumptions about the future pretax operating income adjusted for items that do not have tax consequences. These assumptions about future taxable income require significant judgment and are consistent with the plans and estimates we are using to manage the underlying business. Changes in our assumptions regarding the appropriate amount for valuation allowances could result in the increase or decrease in the valuation allowance, with a corresponding charge or benefit to our tax provision.

Historically, deferred income tax expense has not been provided on the cumulative undistributed earnings of our international subsidiaries. In fiscal year 2018, we determined that previously undistributed earnings of certain international subsidiaries of approximately $1.4 billion no longer met the requirements of indefinite reinvestment. We recognized $2.9 million of income tax expense in fiscal year 2018 associated with the change in our assertion. In addition, during fiscal years 2019 and 2018, we refined our calculations of the one-time transition tax and recorded a tax expense (benefit) of $2.7 million and $(4.6) million, respectively. Our intent is to continue to reinvest the remaining undistributed earnings of our international subsidiaries indefinitely. While federal income tax expense has been recognized as a result of the Tax Act, we have not provided any additional deferred taxes with respect to items such as foreign withholding taxes, state income tax or foreign exchange gain or loss. As of December 29, 2019, the amount of foreign earnings that we have the intent and ability to keep invested outside the U.S. indefinitely and for which no additional incremental U.S. tax cost has been provided, other than the $86.0 million from the one-time transition tax on deemed repatriation, was approximately $449.2 million. It is not practicable to calculate the unrecognized deferred tax liability related to such incremental tax costs on those earnings.

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

Quantitative and Qualitative Disclosures about Market Risk

Financial Instruments

Financial instruments that potentially subject us to concentrations of credit risk consist principally of temporary cash investments, derivatives, marketable securities and accounts receivable. We believe we had no significant concentrations of credit risk as of December 29, 2019.

We use derivative instruments as part of our risk management strategy only, and include derivatives utilized as economic hedges that are not designated as hedging instruments. By nature, all financial instruments involve market and credit risks. We enter into derivative instruments with major investment grade financial institutions and have policies to monitor the credit risk of those counterparties. We do not enter into derivative contracts for trading or other speculative purposes, nor do we use leveraged financial instruments. Approximately 70% of our business is conducted outside of the United States, generally in foreign currencies. As a result, fluctuations in foreign currency exchange rates can increase the costs of financing, investing and operating the business.

In the ordinary course of business, we enter into foreign exchange contracts for periods consistent with our committed exposures to mitigate the effect of foreign currency movements on transactions denominated in foreign currencies. The intent of these economic hedges is to offset gains and losses that occur on the underlying exposures from these currencies, with gains and losses resulting from the forward currency contracts that hedge these exposures. Transactions covered by hedge contracts include intercompany and third-party receivables and payables. The contracts are primarily in European and Asian currencies, have maturities that do not exceed 12 months, have no cash requirements until maturity, and are recorded at fair value on our consolidated balance sheets. The unrealized gains and losses on our foreign currency contracts are recognized immediately in interest and other expense, net. The cash flows related to the settlement of these hedges are included in cash flows from operating activities within our consolidated statements of cash flows.

Principal hedged currencies include the Chinese Yuan, Euro, British Pound, Swedish Krona, and Singapore Dollar. We held forward foreign exchange contracts, designated as economic hedges, with U.S. dollar equivalent notional amounts totaling $277.6 million at December 29, 2019, $223.3 million at December 30, 2018, and $212.1 million at December 31, 2017, and the fair value of these foreign currency derivative contracts was insignificant. The gains and losses realized on these foreign currency derivative contracts are not material. The duration of these contracts was generally 30 days or less during each of fiscal years 2019, 2018 and 2017.

In addition, in connection with certain intercompany loan agreements utilized to finance its acquisitions and stock repurchase program, we enter into forward foreign exchange contracts intended to hedge movements in foreign exchange rates prior to settlement of such intercompany loans denominated in foreign currencies. We record these hedges at fair value on our consolidated balance sheets. The unrealized gains and losses on these hedges, as well as the gains and losses associated with the remeasurement of the intercompany loans, are recognized immediately in interest and other expense, net. The cash flows related to the settlement of these hedges are included in cash flows from financing activities within our consolidated statements of cash flows.

The outstanding forward exchange contracts designated as economic hedges, which were intended to hedge movements in foreign exchange rates prior to the settlement of certain intercompany loan agreements, included combined Euro notional amounts of €105.8 million and combined U.S. Dollar notional amounts of $5.6 million as of December 29, 2019, combined Euro notional amounts of €37.3 million and combined U.S. Dollar notional amounts of $5.7 million as of December 30, 2018, and combined Euro notional amounts of €57.2 million and combined U.S. Dollar notional amounts of $1.3 billion as of December 31, 2017. The net gains and losses on these derivatives, combined with the gains and losses on the remeasurement of the hedged intercompany loans were not material for each of the fiscal years 2019 and 2018. We paid $1.3 million and $34.1 million during the fiscal years 2019 and 2018, respectively, from the settlement of these hedges.

During fiscal year 2018, we designated a portion of the 2026 Notes to hedge our investments in certain foreign subsidiaries. Unrealized translation adjustments from a portion of the 2026 Notes were included in the foreign currency translation component of AOCI, which offsets translation adjustments on the underlying net assets of foreign subsidiaries. The cumulative translation gains or losses will remain in AOCI until the foreign subsidiaries are liquidated or sold. As of December 29, 2019, the total notional amount of the 2026 Notes that was designated to hedge investments in foreign subsidiaries was €203.3 million. The unrealized foreign exchange gains recorded in AOCI related to the net investment hedge were $4.9 million and $9.3 million during the fiscal years 2019 and 2018, respectively.

During fiscal year 2018, we designated the April 2021 Notes to hedge our investments in certain foreign subsidiaries. Unrealized translation adjustments from the April 2021 Notes were included in the foreign currency translation component of AOCI, which offsets translation adjustments on the underlying net assets of foreign subsidiaries. The cumulative translation gains or losses will remain in AOCI until the foreign subsidiaries are liquidated or sold. As of December 29, 2019, the total notional amount of the April 2021 Notes that was designated to hedge investments in foreign subsidiaries was €299.9 million. The unrealized foreign exchange gains recorded in AOCI related to the net investment hedge were $8.0 million and $27.5 million during the fiscal years 2019 and 2018, respectively.

During fiscal year 2019, we entered into a cross-currency swap designated as a net investment hedge to hedge the Euro currency exposure of our net investment in certain foreign subsidiaries. This agreement is a contract to exchange fixed-rate payments in one currency for fixed-rate payments in another currency. Changes in the fair value of this swap are recorded in equity as a component of AOCI in the same manner as foreign currency translation adjustments. In assessing the effectiveness of this hedge, we use a method based on changes in spot rates to measure the impact of foreign currency exchange rate fluctuations on both our foreign subsidiary net investment and the related swap. Under this method, changes in the fair value of the hedging instrument other than those due to changes in the spot rate are initially recorded in AOCI as a translation adjustment, and then are amortized into other (income) expense, net in the condensed consolidated statement of operations using a systematic and rational method over the instrument's term. Changes in the fair value associated with the effective portion (i.e. those changes due to the spot rate) are recorded in AOCI as a translation adjustment and are released and recognized in earnings only upon the sale or liquidation of the hedged net investment. The cross-currency swap has an initial notional value of €197.4 million or $220.0 million and matures on November 15, 2021. Interest on the cross-currency swap is payable semi-annually, in Euro, on May 15th and November 15th of each year based on the Euro notional value and a fixed rate of 2.47%. We receive interest in U.S. dollars on May 15th and November 15th of each year based on the U.S. dollar equivalent of the Euro notional value and a fixed rate of 5.00%. On December 29, 2019, the fair value of the cross-currency swap was $0.3 million, which was recorded in AOCI.

In connection with the early redemption of the November 2021 Notes, on September 11, 2019, we entered into a reverse treasury rate lock agreement with a financial intermediary with a notional amount of $500.0 million. We entered into the reverse treasury rate lock agreement in order to hedge the variability in the redemption payment on the entire principal amount of the November 2021 Notes. The reverse treasury rate lock substantively fixed the present value of the forecasted debt make-whole payment, which was priced on

October 10, 2019, to mitigate risk associated with the changes in the 2-year U.S. treasury yield. We received $1.0 million upon settlement of the reverse treasury rate lock.

Market Risk

Market Risk. We are exposed to market risk, including changes in interest rates and currency exchange rates. To manage the volatility relating to these exposures, we enter into various derivative transactions pursuant to our policies to hedge against known or forecasted market exposures.

Foreign Exchange Risk. The potential change in foreign currency exchange rates offers a substantial risk to us, as approximately 70% of our business is conducted outside of the United States, generally in foreign currencies. Our risk management strategy currently uses forward contracts to mitigate certain balance sheet foreign currency transaction exposures. The intent of these economic hedges is to offset gains and losses that occur on the underlying exposures, with gains and losses resulting from the forward contracts that hedge these exposures. Moreover, we are able to partially mitigate the impact that fluctuations in currencies have on our net income as a result of our manufacturing facilities located in countries outside the United States, material sourcing and other spending which occur in countries outside the United States, resulting in natural hedges.

Although we attempt to manage our foreign currency exchange risk through the above activities, when the U.S. dollar weakens against other currencies in which we transact business, sales and net income will in general be positively but not proportionately impacted. Conversely, when the U.S. dollar strengthens against other currencies in which we transact business, sales and net income will in general be negatively but not proportionately impacted.

Foreign Currency Risk—Value-at-Risk Disclosure. We utilize a Value-at-Risk model to determine the potential earning/fair value exposures presented by our foreign currency related financial instruments. As discussed above, we seek to minimize this exposure through our hedging program. Our Value-at-Risk computation is based on the Monte Carlo simulation, utilizing a 95% confidence interval and a holding period of 30 days. As of December 29, 2019, this computation estimated that there is a 5% chance that the market value of the underlying exposures and the corresponding derivative instruments either increase or decrease due to foreign currency fluctuations by more than $0.1 million. This Value-At-Risk measure is consistent with our financial statement disclosures relative to our foreign currency hedging program. Specifically, during each of the four quarters ended in fiscal year 2019, the Value-At-Risk ranged between $0.1 million and $0.5 million, with an average of approximately $0.3 million.

Interest Rate Risk. As of December 29, 2019, we had $325.4 million in outstanding borrowings under our senior unsecured revolving credit facility. As described above in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations-Liquidity and Capital Resources," amounts drawn under our senior unsecured revolving credit facility bear interest at variable rates. Our cash and cash equivalents, for which we receive interest at variable rates, were $191.9 million at December 29, 2019. Fluctuations in interest rates can therefore have a direct impact on both our short-term cash flows, as they relate to interest, and our earnings. To manage the volatility relating to these exposures, we periodically enter into various derivative transactions pursuant to our policies to hedge against known or forecasted interest rate exposures.

Interest Rate Risk—Sensitivity. Our current earnings exposure for changes in interest rates can be summarized as follows:

(i) Changes in interest rates can cause our cash flows to fluctuate. An increase of 10%, or approximately 27 basis points, in current interest rates would cause our cash outflows to increase by $0.9 million for fiscal year 2020.

(ii) Changes in interest rates can cause our interest income and cash flows to fluctuate.

Item 8. ***Financial Statements and Supplemental Data***

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of PerkinElmer, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of PerkinElmer, Inc. and subsidiaries (the "Company") as of December 29, 2019 and December 30, 2018, and the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 29, 2019, the related notes, and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 29, 2019 and December 30, 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 29, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 29, 2019, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 25, 2020 expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, effective December 31, 2018, the Company adopted FASB Accounting Standards Codification Topic 842, *Leases*, using the modified retrospective approach.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

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

Acquisitions / Business Combinations—Refer to Note 3 to the financial statements

Critical Audit Matter Description

The Company completed the acquisition of Cisbio Bioassays SAS for $219.9 million in cash during the second quarter of fiscal year 2019. Also, during the fourth quarter of fiscal year 2019, the Company completed the acquisition of Shandong Meizheng Bio-Tech Co., Ltd., for total consideration of $166.5 million in cash. The Company accounted for each of the acquisitions under the acquisition method of accounting for business combinations. Accordingly, the purchase price was allocated to the assets acquired and liabilities assumed, on a preliminary basis, based on their respective fair values, including identifiable intangible assets totaling $228.4 million. Of the identifiable intangible assets acquired, the most significant included Core technology of $126.5 million and Customer relationships of $92 million. Management estimated the fair value of its intangible assets using customary valuation procedures and techniques. The fair value determination of the intangible assets acquired required management to make significant estimates and assumptions related to future cash flows and the selection of the discount rates.

We identified the purchase accounting allocation as a critical audit matter because of the significant estimates and assumptions management makes to fair value the identifiable intangible assets acquired. This required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists, when performing audit procedures to evaluate the reasonableness of management's forecasts of future cash flows and the selection of the discount rates for the identified intangible assets.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the forecasts of future cash flows and the selection of the discount rates for the intangible assets included the following, among others:

- We tested the effectiveness of controls over the valuation of the identified intangible assets, including management's controls over forecasts of future cash flows and selection of the discount rates.
- We assessed the reasonableness of management's forecasts of future cash flows by comparing the projections to historical results including growth rates observed for similar businesses acquired by the Company and/or peer companies.
- With the assistance of our fair value specialists, we evaluated the reasonableness of the (1) valuation methodologies and (2) discount rates by:
    - Testing the source information underlying the determination of the discount rates and testing the mathematical accuracy of the calculation.
    - Developing a range of independent estimates and comparing those to the discount rates selected by management.
- We evaluated whether the estimated future cash flows were consistent with evidence obtained in other areas of the audit.

/s / DELOITTE & TOUCHE LLP

Boston, Massachusetts
February 25, 2020

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

CONSOLIDATED STATEMENTS OF OPERATIONS

For the Fiscal Years Ended

	December 29, 2019	December 30, 2018	December 31, 2017
	(In thousands, except per share data)		
Revenue			
Product revenue	$ 2,017,042	$ 1,935,493	$ 1,477,414
Service revenue	866,631	842,503	779,568
Total revenue	2,883,673	2,777,996	2,256,982
Cost of product revenue	956,398	908,228	707,962
Cost of service revenue	531,220	528,829	475,266
Selling, general and administrative expenses	815,318	811,913	626,018
Research and development expenses	189,336	193,998	139,464
Restructuring and other costs, net	29,428	11,144	12,657
Operating income from continuing operations	361,973	323,884	295,615
Interest and other expense, net	124,831	66,201	(1,103)
Income from continuing operations before income taxes	237,142	257,683	296,718
Provision for income taxes	9,389	20,208	139,828
Income from continuing operations	227,753	237,475	156,890
Income from discontinued operations before income taxes	—	—	650
(Loss) gain on disposition of discontinued operations before income taxes	—	(859)	179,615
Provision for (benefit from) income taxes on discontinued operations and dispositions	195	(1,311)	44,522
(Loss) gain from discontinued operations and dispositions	(195)	452	135,743
Net income	$ 227,558	$ 237,927	$ 292,633
Basic earnings per share:			
Income from continuing operations	$ 2.06	$ 2.15	$ 1.43
(Loss) gain from discontinued operations and dispositions	(0.00)	0.00	1.24
Net income	$ 2.06	$ 2.15	$ 2.67
Diluted earnings per share:			
Income from continuing operations	$ 2.04	$ 2.13	$ 1.42
(Loss) gain from discontinued operations and dispositions	(0.00)	0.00	1.22
Net income	$ 2.04	$ 2.13	$ 2.64

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

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

For the Fiscal Years Ended

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Net income	$ 227,558	$ 237,927	$ 292,633
Other comprehensive (loss) income			
Foreign currency translation adjustments, net of tax	(23,978)	(123,388)	54,341
Reclassification of taxes on foreign currency translation adjustments to earnings upon adoption of ASU 2018-02	—	(6,489)	—
Unrecognized prior service credit (cost), net of tax	807	(77)	(77)
Unrealized gains (losses) on securities, net of tax	6	(9)	79
Other comprehensive (loss) income	(23,165)	(129,963)	54,343
Comprehensive income	$ 204,393	$ 107,964	$ 346,976

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

CONSOLIDATED BALANCE SHEETS

As of the Fiscal Years Ended

	December 29, 2019	December 30, 2018
	(In thousands, except share and per share data)	
Current assets:		
Cash and cash equivalents	$ 191,877	$ 163,111
Accounts receivable, net	725,184	632,669
Inventories	356,937	338,347
Other current assets	100,381	100,507
Total current assets	1,374,379	1,234,634
Property, plant and equipment, net	318,223	318,590
Operating lease right-of-use assets	167,276	—
Intangible assets, net	1,283,286	1,199,667
Goodwill	3,111,227	2,952,608
Other assets, net	284,173	270,023
Total assets	$ 6,538,564	$ 5,975,522
Current liabilities:		
Current portion of long-term debt	$ 9,974	$ 14,856
Accounts payable	235,855	220,949
Short-term accrued restructuring and other costs	11,559	4,834
Accrued expenses and other current liabilities	503,332	528,827
Current liabilities of discontinued operations	2,112	2,165
Total current liabilities	762,832	771,631
Long-term debt	2,064,041	1,876,624
Long-term liabilities	751,468	742,312
Operating lease liabilities	146,399	—
Total liabilities	3,724,740	3,390,567
Commitments and contingencies (see Notes 14 and 17)		
Stockholders' equity:		
Preferred stock—$1 par value per share, authorized 1,000,000 shares; none issued or outstanding	—	—
Common stock—$1 par value per share, authorized 300,000,000 shares; issued and outstanding 111,140,000 and 110,597,000 shares at December 29, 2019 and December 30, 2018, respectively	111,140	110,597
Capital in excess of par value	90,357	48,772
Retained earnings	2,811,973	2,602,067
Accumulated other comprehensive loss	(199,646)	(176,481)
Total stockholders' equity	2,813,824	2,584,955
Total liabilities and stockholders' equity	$ 6,538,564	$ 5,975,522

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

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY

For the Three Fiscal Years Ended December 29, 2019

	Common Stock Amount	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity
			(In thousands)		
Balance, January 1, 2017	$ 109,617	$ 26,130	$ 2,118,684	$ (100,861)	$ 2,153,570
Net income	—	—	292,633	—	292,633
Other comprehensive income	—	—	—	54,343	54,343
Dividends	—	—	(30,800)	—	(30,800)
Exercise of employee stock options and related income tax benefits	578	17,426	—	—	18,004
Issuance of common stock for employee stock purchase plans	37	2,430	—	—	2,467
Purchases of common stock	(79)	(4,288)	—	—	(4,367)
Issuance of common stock for long-term incentive program	208	12,145	—	—	12,353
Stock compensation	—	4,985	—	—	4,985
Balance, December 31, 2017	$ 110,361	$ 58,828	$ 2,380,517	$ (46,518)	$ 2,503,188
Cumulative effect of adopting ASC 606	—	—	10,209	—	10,209
Impact of adopting ASU 2016-16	—	—	(2,062)	—	(2,062)
Impact of adopting ASU 2018-02	—	—	6,489	(6,489)	—
Net income	—	—	237,927	—	237,927
Other comprehensive loss	—	—	—	(123,474)	(123,474)
Dividends	—	—	(31,013)	—	(31,013)
Exercise of employee stock options and related income tax benefits	709	24,124	—	—	24,833
Issuance of common stock for employee stock purchase plans	21	1,464	—	—	1,485
Purchases of common stock	(717)	(56,676)	—	—	(57,393)
Issuance of common stock for long-term incentive program	223	15,650	—	—	15,873
Stock compensation	—	5,382	—	—	5,382
Balance, December 30, 2018	$ 110,597	$ 48,772	$ 2,602,067	$ (176,481)	$ 2,584,955
Impact of adopting ASC 842 (see Note 1)	—	—	13,289	—	13,289
Net income	—	—	227,558	—	227,558
Other comprehensive income	—	—	—	(23,165)	(23,165)
Dividends	—	—	(30,941)	—	(30,941)
Exercise of employee stock options and related income tax benefits	415	19,317	—	—	19,732
Issuance of common stock for employee stock purchase plans	33	2,743	—	—	2,776
Purchases of common stock	(67)	(6,246)	—	—	(6,313)
Issuance of common stock for long-term incentive program	162	19,145	—	—	19,307
Stock compensation	—	6,626	—	—	6,626
Balance, December 29, 2019	$ 111,140	$ 90,357	$ 2,811,973	$ (199,646)	$ 2,813,824

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

For the Fiscal Years Ended

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Operating activities:			
Net income	$ 227,558	$ 237,927	$ 292,633
Loss (gain) from discontinued operations and dispositions, net of income taxes	195	(452)	(135,743)
Income from continuing operations	227,753	237,475	156,890
Adjustments to reconcile income from continuing operations to net cash provided by continuing operations:			
Restructuring and other costs, net	29,428	11,144	12,657
Depreciation and amortization	214,025	180,588	105,000
Stock-based compensation	31,514	28,767	25,421
Pension and other post-retirement expense (benefits)	26,107	11,915	(10,439)
Change in fair value of contingent consideration	3,881	14,639	2,162
Deferred taxes	(61,353)	(51,103)	28,854
Contingencies and non-cash tax matters	(424)	(671)	182
Amortization of deferred debt issuance costs and accretion of discounts	3,846	3,341	2,592
Loss (gain) on disposition of businesses and assets, net	2,469	(12,844)	309
Amortization of acquired inventory revaluation	21,590	19,272	6,188
Gain on sale of investments, net	—	(557)	—
Change in fair value of financial securities	(3,249)	—	—
Debt extinguishment costs	32,541	—	—
Changes in assets and liabilities which provided (used) cash, excluding effects from companies acquired:			
Accounts receivable, net	(100,630)	(94,512)	(36,633)
Inventories	(9,607)	(30,183)	(17,923)
Accounts payable	7,351	8,900	34,331
Accrued expenses and other	(61,773)	(14,933)	(17,436)
Net cash provided by operating activities of continuing operations	363,469	311,238	292,155
Net cash used in operating activities of discontinued operations	—	(200)	(3,702)
Net cash provided by operating activities	363,469	311,038	288,453
Investing activities:			
Capital expenditures	(76,331)	(93,253)	(39,089)
Settlement of cash flow hedges	—	—	36,541
Purchases of investments	(6,387)	(7,019)	(10,783)
Purchases of licenses	(5,000)	—	—
Proceeds from disposition of businesses	550	38,027	1,100
Proceeds from surrender of life insurance policies	—	72	45
Activity related to acquisitions, net of cash and cash equivalents acquired	(400,405)	(97,686)	(1,527,183)
Net cash used in investing activities of continuing operations	(487,573)	(159,859)	(1,539,369)

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Net cash provided by investing activities of discontinued operations	—	—	272,779
Net cash used in investing activities	(487,573)	(159,859)	(1,266,590)
Financing activities:			
Payments on borrowings	(1,692,489)	(1,264,000)	(235,965)
Proceeds from borrowings	1,599,416	857,000	1,060,952
Payments of senior debt	(530,276)	—	—
Proceeds from sale of senior debt	847,195	369,340	—
Payments of debt financing costs	(9,879)	(2,634)	—
Net payments on other credit facilities	(14,975)	(28,383)	(2,831)
Settlement of cash flow hedges	(1,280)	(34,132)	(13,824)
Payments for acquisition-related contingent consideration	(29,942)	(12,800)	(8,940)
Proceeds from issuance of common stock under stock plans	19,732	24,833	18,004
Purchases of common stock	(6,313)	(57,445)	(3,834)
Dividends paid	(31,059)	(31,009)	(30,793)
Net cash provided by (used in) financing activities of continuing operations	150,130	(179,230)	782,769
Net cash used in financing activities of discontinued operations	—	—	(533)
Net cash provided by (used in) financing activities	150,130	(179,230)	782,236
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(447)	(8,004)	21,703
Net increase (decrease) in cash, cash equivalents and restricted cash	25,579	(36,055)	(174,198)
Cash, cash equivalents and restricted cash at beginning of year	166,315	202,370	376,568
Cash, cash equivalents and restricted cash at end of year	$ 191,894	$ 166,315	$ 202,370
Supplemental disclosures of cash flow information			
Reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total shown in the consolidated statements of cash flows:			
Cash and cash equivalents	191,877	163,111	202,134
Restricted cash included in other current assets	17	3,204	236
Total cash, cash equivalents and restricted cash shown in the consolidated statements of cash flows	$ 191,894	$ 166,315	$ 202,370
Cash paid during the year for:			
Interest	$ 82,693	$ 56,451	$ 35,780
Income taxes	$ 77,059	$ 59,844	$ 77,607

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1: Nature of Operations and Accounting Policies

Nature of Operations: PerkinElmer, Inc. is a leading provider of products, services and solutions to the diagnostics, life sciences and applied markets. Through its advanced technologies and differentiated solutions, critical issues are addressed that help to improve lives and the world around us.

The consolidated financial statements include the accounts of PerkinElmer, Inc. and its subsidiaries (the "Company"). All intercompany balances and transactions have been eliminated in consolidation.

The Company has two operating segments: Discovery & Analytical Solutions and Diagnostics. The Company's Discovery & Analytical Solutions segment focuses on service and innovating for customers spanning the life sciences and applied markets. The Company's Diagnostics segment is targeted towards meeting the needs of clinically-oriented customers, especially within the growing areas of reproductive health, emerging market diagnostics and applied genomics.

The Company's fiscal year ends on the Sunday nearest December 31. The Company reports fiscal years under a 52/53 week format and as a result, certain fiscal years will contain 53 weeks. Each of the fiscal years ended December 29, 2019 ("fiscal year 2019"), December 30, 2018 ("fiscal year 2018") and December 31, 2017 ("fiscal year 2017") included 52 weeks. The fiscal year ending January 3, 2021 ("fiscal year 2020") will include 53 weeks.

Accounting Policies and Estimates: The preparation of consolidated financial statements in accordance with United States ("U.S.") 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 assets and liabilities. On an ongoing basis, the Company evaluates its 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 results may differ from these estimates.

Revenue Recognition: The Company enters into contracts that can include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. The Company recognizes revenue in an amount that reflects the consideration the Company expects to receive in exchange for the promised products or services when a performance obligation is satisfied by transferring control of those products or services to customers.

Taxes that are collected by the Company from a customer and assessed by a governmental authority, that are both imposed on and concurrent with a specific revenue-producing transaction, are excluded from revenue.

Warranty Costs: The Company provides for estimated warranty costs for products at the time of their sale. Warranty liabilities are estimated using expected future repair costs based on historical labor and material costs incurred during the warranty period.

Shipping and Handling Costs: The Company reports shipping and handling revenue in revenue, to the extent they are billed to customers, and the associated costs in cost of product revenue.

Inventories: Inventories, which include material, labor and manufacturing overhead, are valued at the lower of cost or market. Inventories are accounted for using the first-in, first-out method of determining inventory costs. Inventory quantities on-hand are regularly reviewed, and where necessary, provisions for excess and obsolete inventory are recorded based primarily on the Company's estimated forecast of product demand and production requirements.

Income Taxes: The Company uses the asset and liability method of accounting for income taxes. Under the asset and liability method, deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases. This method also requires the recognition of future tax benefits such as net operating loss carryforwards, to the extent that realization of such benefits is more likely than not. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the fiscal years in which those temporary differences are expected to be recovered or settled. A valuation allowance is established for any deferred tax asset for which realization is not more likely than not. With respect to earnings expected to be indefinitely reinvested offshore, the Company does not accrue tax for the repatriation of such foreign earnings. When the Company determines during the period that previously undistributed earnings of certain international subsidiaries no longer meet the requirements of indefinite reinvestment, the Company recognizes the income tax expense in that period.

The Company provides reserves for potential payments of tax to various tax authorities related to uncertain tax positions and other issues. These reserves are based on a determination of whether and how much of a tax benefit taken by the Company in its tax filings or positions is more likely than not to be realized following resolution of any potential contingencies present related to the tax benefit. Potential interest and penalties associated with such uncertain tax positions is recorded as a component of income tax expense. See Note 7 below for additional details.

The Company uses an individual unit of account approach for releasing the income tax effects of unrealized gains and losses from Accumulated Other Comprehensive Income (“AOCI”).

Property, Plant and Equipment: The Company depreciates property, plant and equipment using the straight-line method over its estimated useful lives, which generally fall within the following ranges: buildings-10 to 40 years; leasehold improvements-estimated useful life or remaining term of lease, whichever is shorter; and machinery and equipment- 3 to 8 years. Certain tooling costs are capitalized and amortized over a 3-year life, while repairs and maintenance costs are expensed.

Asset Retirement Obligations: The Company records obligations associated with its lease obligations, the retirement of tangible long-lived assets and the associated asset retirement costs in accordance with authoritative guidance on asset retirement obligations. The Company reviews legal obligations associated with the retirement of long-lived assets that result from contractual obligations or the acquisition, construction, development and/or normal use of the assets. If it is determined that a legal obligation exists, regardless of whether the obligation is conditional on a future event, the fair value of the liability for an asset retirement obligation is recognized in the period in which it is incurred, if a reasonable estimate of fair value can be made. The fair value of the liability is added to the carrying amount of the associated asset, and this additional carrying amount is depreciated over the life of the asset. The difference between the gross expected future cash flow and its present value is accreted over the life of the related lease as interest expense. The amounts recorded in the consolidated financial statements are not material to any year presented.

Pension and Other Postretirement Benefits: The Company sponsors both funded and unfunded U.S. and non-U.S. defined benefit pension plans and other postretirement benefits. The Company immediately recognizes actuarial gains and losses in operating results in the year in which the gains and losses occur. Actuarial gains and losses are measured annually as of the calendar month-end that is closest to the Company’s fiscal year end and accordingly will be recorded in the fourth quarter, unless the Company is required to perform an interim remeasurement. The remaining components of pension expense, primarily service and interest costs and assumed return on plan assets, are recorded on a quarterly basis. The Company’s funding policy provides that payments to the U.S. pension trusts shall at least be equal to the minimum funding requirements of the Employee Retirement Income Security Act of 1974. Non-U.S. plans are accrued for, but generally not fully funded, and benefits are paid from operating funds.

Translation of Foreign Currencies: For foreign operations, asset and liability accounts are translated at current exchange rates; income and expenses are translated using weighted average exchange rates for the reporting period. Resulting translation adjustments, as well as translation gains and losses from certain intercompany transactions considered permanent in nature, are reported in accumulated other comprehensive (loss) income, a separate component of stockholders' equity. Gains and losses arising from transactions and translation of period-end balances denominated in currencies other than the functional currency are included in other expense, net.

Business Combinations: Business combinations are accounted for at fair value. Acquisition costs are expensed as incurred and recorded in selling, general and administrative expenses; previously held equity interests are valued at fair value upon the acquisition of a controlling interest; in-process research and development ("IPR&D") is recorded at fair value as an intangible asset at the acquisition date; restructuring costs associated with a business combination are expensed subsequent to the acquisition date; and changes in deferred tax asset valuation allowances and income tax uncertainties after the acquisition date affect income tax expense. Measurement period adjustments are made in the period in which the amounts are determined and the current period income effect of such adjustments will be calculated as if the adjustments had been completed as of the acquisition date. All changes that do not qualify as measurement period adjustments are also included in current period earnings. The accounting for business combinations requires estimates and judgment as to expectations for future cash flows of the acquired business, and the allocation of those cash flows to identifiable intangible assets, in determining the estimated fair value for assets acquired and liabilities assumed. The fair values assigned to tangible and intangible assets acquired and liabilities assumed, including contingent consideration, are based on management's estimates and assumptions, as well as other information compiled by management, including valuations that utilize customary valuation procedures and techniques. If the actual results differ from the estimates and judgments used in these estimates, the amounts recorded in the financial statements could result in a possible impairment of the intangible assets and goodwill, require acceleration of the amortization expense of finite-lived intangible assets, or the recognition of additional consideration which would be expensed.

Goodwill and Other Intangible Assets: The Company's intangible assets consist of (i) goodwill, which is not being amortized; (ii) indefinite lived intangibles, which consist of a trade name that is not subject to amortization; and (iii) amortizing intangibles, which consist of patents, trade names and trademarks, licenses, customer relationships and purchased technologies, which are being amortized over their estimated useful lives.

The process of testing goodwill for impairment involves the determination of the fair value of the applicable reporting units. The test consists of the comparison of the fair value to the carrying value of the reporting unit to determine if the carrying value exceeds the fair value. If the carrying value of the reporting unit exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of goodwill. This annual impairment assessment is performed by the Company on the later of January 1 or the first day of each fiscal year. Non-amortizing intangibles are also subject to an annual impairment test. The impairment test consists of a comparison of the fair value of the non-amortizing intangible asset with its carrying amount. If the carrying amount of a non-amortizing intangible asset exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of the amortizing intangible asset. In addition, the Company evaluates the remaining useful life of its non-amortizing intangible asset at least annually to determine whether events or circumstances continue to support an indefinite useful life. If events or circumstances indicate that the useful life of non-amortizing intangible asset is no longer indefinite, the asset will be tested for impairment. The intangible asset will then be amortized prospectively over its estimated remaining useful life and accounted for in the same manner as other intangible assets that are subject to amortization. Amortizing intangible assets are reviewed for impairment when indicators of impairment are present. When a potential impairment has been identified, forecasted undiscounted net cash flows of the operations to which the asset relates are compared to the current carrying value of the long-lived assets present in that operation. If such cash flows are less than such carrying amounts, long-lived assets, including such intangibles, are written down to their respective fair values. See Note 13 below for additional details.

Stock-Based Compensation: The Company accounts for stock-based compensation expense based on estimated grant date fair value, generally using the Black-Scholes option-pricing model. The fair value is recognized as expense in the consolidated financial statements over the requisite service period. The determination of fair value and the timing of expense using option pricing models such as the Black-Scholes model require the input of highly subjective assumptions, including the expected term and the expected price volatility of the underlying stock. The Company estimates the expected term assumption based on historical experience. In determining the Company's expected stock price volatility assumption, the Company reviews both the historical and implied volatility of the Company's common stock, with implied volatility based on the implied volatility of publicly traded options on the Company's common stock. The Company has one stock-based compensation plan from which it makes grants, which is described more fully in Note 19 below.

Marketable Securities and Investments: Investments in debt securities that are classified as available for sale are recorded at their fair values with unrealized gains and losses included in accumulated other comprehensive (loss) income until realized. Investments in equity securities are recorded at their fair values with unrealized holding gains and losses included in earnings. Investments in equity securities without a readily available fair value are carried at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer, with changes included in earnings.

Cash and Cash Equivalents: The Company considers all highly liquid unrestricted instruments with a purchased maturity of three months or less to be cash equivalents. The carrying amount of cash equivalents approximates fair value due to the short maturities of these instruments.

Environmental Matters: The Company accrues for costs associated with the remediation of environmental pollution when it is probable that a liability has been incurred and the Company's proportionate share of the amount can be reasonably estimated. The recorded liabilities have not been discounted.

Research and Development: Research and development costs are expensed as incurred. The fair value of acquired IPR&D costs are recorded at fair value as an intangible asset at the acquisition date and amortized once the product is ready for sale or expensed if abandoned.

Restructuring and Other Costs: In recent fiscal years, the Company has undertaken a series of restructuring actions related to the impact of acquisitions and divestitures, the alignment of its operations with its growth strategy, the integration of its business units and its productivity initiatives. In connection with these initiatives, the Company has recorded restructuring and other charges, as more fully described in Note 5 below, which include employee severance, other exit costs as well as costs of terminating certain lease agreements or contracts and other costs associated with relocating facilities. Generally, costs associated with an exit or disposal activity are recognized when the liability is incurred. Prior to recording restructuring charges for employee separation agreements, the Company notifies all employees of termination. Costs related to employee separation arrangements requiring future service beyond a specified minimum retention period are recognized over the service period. Prior to adoption of Accounting Standards Codification ("ASC") 842, *Leases*, costs related to lease terminations were recorded at the fair value of the liability based on the remaining lease rental payments, reduced by estimated sublease rentals that could be reasonably obtained for the property, at the date the Company ceased use.

Comprehensive Income: Comprehensive income is defined as net income or loss and other changes in stockholders' equity from transactions and other events from sources other than stockholders. Comprehensive income is reflected in the consolidated statements of comprehensive income.

Derivative Instruments and Hedging: Derivatives are recorded on the consolidated balance sheets at fair value. Accounting for gains or losses resulting from changes in the values of those derivatives depends on the use of the derivative instrument and whether it qualifies for hedge accounting.

For a cash flow hedge, the effective portion of the derivative's gain or loss is initially reported as a component of other comprehensive income and subsequently amortized into net earnings when the hedged exposure affects net earnings. Cash flow hedges related to anticipated transactions are designated and documented at the inception of each hedge by matching the terms of the contract to the underlying transaction. The Company classifies the cash flows from hedging transactions in the same categories as the cash flows from the respective hedged items. Once established, cash flow hedges are generally recorded in other comprehensive income, unless an anticipated transaction is no longer likely to occur, and subsequently amortized into net earnings when the hedged exposure affects net earnings. Discontinued or dedesignated cash flow hedges are immediately settled with counterparties, and the related accumulated derivative gains or losses are recognized into net earnings on the consolidated financial statements. Settled cash flow hedges related to forecasted transactions that remain probable are recorded as a component of other comprehensive (loss) income and are subsequently amortized into net earnings when the hedged exposure affects net earnings. Forward contract effectiveness for cash flow hedges is calculated by comparing the fair value of the contract to the change in value of the anticipated transaction using forward rates on a monthly basis. The Company also has entered into other foreign currency forward contracts that are not designated as hedging instruments for accounting purposes. These contracts are recorded at fair value, with the changes in fair value recognized into interest and other expense, net on the consolidated financial statements.

The Company also uses foreign currency denominated debt to hedge its investments in certain foreign subsidiaries. Realized and unrealized translation adjustments from these hedges are included in the foreign currency translation component of AOCI, as well as the offset translation adjustments on the underlying net assets of foreign subsidiaries. The cumulative translation gains or losses will remain in AOCI until the foreign subsidiaries are liquidated or sold.

Recently Issued Accounting Pronouncements: From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board (the "FASB") and are adopted by the Company as of the specified effective dates. Unless otherwise discussed, such pronouncements did not have or will not have a significant impact on the Company's consolidated financial position, results of operations and cash flows or do not apply to the Company's operations.

In December 2019, the FASB issued Accounting Standards Update No. 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes* ("ASU 2019-12"). ASU 2019-12 eliminates certain exceptions and adds guidance to reduce complexity in accounting for income taxes. Specifically, this guidance: (1) removes the intraperiod tax allocation exception to the incremental approach; (2) removes the ownership changes in investments exception in determining when a deferred tax liability is recognized after an investor in a foreign entity transitions to or from the equity method of accounting and applies this provision on a modified retrospective basis through a cumulative-effect adjustment to retained earnings at the beginning of the period of adoption; and (3) removes the exception to using the general methodology for calculating income taxes in an interim period when a year-to-date loss exceeds the anticipated loss for the year. ASU 2019-12 also simplifies accounting principles by making other changes, including requiring an entity to: (1) evaluate whether a step-up in tax basis of goodwill relates to a business combination or a separate transaction; (2) make a policy election to not allocate consolidated income taxes when a member of a consolidated tax return is not subject to income tax and to apply this provision retrospectively to all periods presented; and (3) recognize a franchise tax (or similar tax) that is partially based on income as an income-based tax and apply this provision either retrospectively for all periods presented or on a modified retrospective basis through a cumulative-effect adjustment to retained earnings as of the beginning of the period of adoption. The provisions of this guidance (except as specifically mentioned above) are to be applied prospectively upon their effective date. ASU 2019-12 is effective for annual reporting periods beginning after December 15, 2020, and interim periods within those years. Early adoption is permitted but requires simultaneous adoption of all provisions of this guidance. The Company is currently evaluating the requirements of this guidance and has not yet determined the impact of its adoption on the Company's consolidated financial position, results of operations and cash flows.

In April 2019, the FASB issued Accounting Standards Update No. 2019-04, *Codification Improvements to Topic 326, Financial Instruments—Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments* ("ASU 2019-04"). ASU 2019-04 clarifies certain aspects of previously issued accounting standards related to: (1) ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Statements* ("ASU 2016-13"), in areas of accrued interest receivable, transfers of loans and debt securities between classifications, recoveries and prepayments, (2) ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities* ("ASU 2017-12"), in areas of partial-term fair value hedges, fair value hedge basis adjustments, certain disclosures and transition requirements and (3) ASU 2016-01, *Financial Instruments-Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* ("ASU 2016-01"), in areas of remeasurement of equity securities under ASC 820, *Fair Value Measurement*, when using the measurement alternative and remeasurement of equity securities at historical exchange rates. The amendments related to ASU 2016-13 are required to be adopted in conjunction with that accounting standards update, as further described below. Since the Company has already adopted ASU 2017-12 and ASU 2016-01, the related amendments in ASU 2019-04 are effective for fiscal years beginning after December 15, 2019, including interim periods within those fiscal years, with early adoption permitted in any interim period. The amendments to ASU 2017-12 can either be adopted retrospectively as of the date of adoption of ASU 2017-12 or they can be adopted prospectively. The amendments to ASU 2016-01 are required to be applied using a modified-retrospective adoption approach with a cumulative-effect adjustment to retained earnings as of the date of adoption of ASU 2016-01, except for those related to equity securities without readily determinable fair values that are measured using the measurement alternative, which are required to be applied prospectively. The standard was effective for the Company beginning on December 30, 2019, the first day of the Company's fiscal year 2020. The Company will apply the provisions of this guidance prospectively. The adoption is not expected to have a material impact on the Company's consolidated financial position, results of operations and cash flows.

In August 2018, the FASB issued Accounting Standards Update No. 2018-15, *Intangibles-Goodwill and Other- Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That is a Service Contract* ("ASU 2018-15"). ASU 2018-15 aligns the accounting for implementation costs incurred in a hosting arrangement that is a service contract with the guidance on capitalizing costs associated with developing or obtaining internal-use software (and hosting arrangements that include an internal-use software license). The provisions of this guidance are to be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The standard was effective for the Company beginning on December 30, 2019, the first day of the Company's fiscal year 2020. The Company will apply the provisions of this guidance prospectively. The adoption is not expected to have a material impact on the Company's consolidated financial position, results of operations and cash flows.

In August 2018, the FASB issued Accounting Standards Update No. 2018-14, *Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans* ("ASU 2018-14"). ASU 2018-14 adds, removes, and clarifies disclosure requirements related to defined benefit pension and other postretirement plans. ASU 2018-14 adds requirements for an entity to disclose the weighted-average interest crediting rates used in the entity's cash balance pension plans and other similar plans; and an explanation of the reasons for significant gains and losses related to changes in the benefit obligation for the period. Further, ASU 2018-14 removes guidance that currently requires the following disclosures: the amounts in accumulated other comprehensive income expected to be recognized as part of net periodic benefit cost over the next year; the amount and timing of plan assets expected to be returned to the employer; information about (1) benefits covered by related-party insurance and annuity contracts and (2) significant transactions between the plan and related parties; and the effects of a one-percentage-point change on the assumed health care costs and the effect of this change in rates on service cost, interest cost, and the benefit obligation for postretirement health care benefits. ASU 2018-14 also clarifies the guidance in *Compensation-Retirement Benefits (Topic 715-20-50-3)* on defined benefit plans to require disclosure of (1) the projected benefit obligation ("PBO") and fair value of plan assets for pension plans with PBOs in excess of plan assets (the same disclosure with reference to the accumulated postretirement benefit obligation rather than the PBO is required for other postretirement benefit plans) and (2) the accumulated benefit obligation ("ABO") and fair value of plan assets for pension plans with ABOs in excess of plan assets. The provisions of this guidance are to be applied retrospectively to all periods presented upon their effective date. ASU 2018-14 is effective for annual reporting periods beginning after December 15, 2020, and interim periods within those years with early adoption permitted. The Company is currently evaluating the requirements of this guidance and has not yet determined the impact of its adoption on the Company's consolidated financial position, results of operations and cash flows.

In August 2018, the FASB issued Accounting Standards Update No. 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework—Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"). ASU 2018-13 adds, removes, and modifies certain disclosures related to fair value measurements. ASU 2018-13 adds requirements for an entity to disclose the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements held at the end of the reporting period; and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. Further, ASU 2018-13 removes the requirement to disclose the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy; the policy for timing of transfers between levels; and the valuation processes for Level 3 fair value measurements. ASU 2018-13 also modifies existing disclosure requirements related to measurement uncertainty. The amendments regarding changes in unrealized gains and losses, the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements, and the narrative description of measurement uncertainty are to be applied prospectively for only the most recent interim or annual period presented in the initial fiscal year of adoption. All other amendments are to be applied retrospectively to all periods presented upon their effective date. The standard was effective for the Company beginning on December 30, 2019, the first day of the Company's fiscal year 2020. The adoption is not expected to have a material impact on the Company's disclosures related to fair value measurements.

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, *Financial Instruments—Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments*. ASU 2016-13 changes how entities will measure credit losses for most financial assets and certain other instruments that are not measured at fair value through net income. The standard requires entities to use the expected loss impairment model and will apply to most financial assets measured at amortized cost and certain other instruments, including trade and other receivables, loans, held-to-maturity debt securities, net investments in leases and off-balance sheet credit exposures. Entities are required to estimate the lifetime "expected credit loss" for each applicable financial asset and record an allowance that, when deducted from the amortized cost basis of the financial asset, presents the net amount expected to be collected on the financial asset. The standard also amends the impairment model for available-for-sale ("AFS") debt securities and requires entities to determine whether all or a portion of the unrealized loss on an AFS debt security is a credit loss. An entity will recognize an allowance for credit losses on an AFS debt security as a contra-account to the amortized cost basis rather than as a direct reduction of the amortized cost basis of the investment. The provisions of this guidance are to be applied using a modified-retrospective approach. A prospective transition approach is required for debt securities for which an other-than-temporary impairment had been recognized before the effective date. Subsequent to the issuance of ASU 2016-13, in November 2018, the FASB issued Accounting Standards Update No. 2018-19, *Codification*

Improvements to Topic 326, Financial Instruments—Credit Losses ("ASU 2018-19"), in April 2019, the FASB issued ASU 2019-04, and in May 2019, the FASB issued Accounting Standards Update No. 2019-05, *Financial Instruments—Credit Losses (Topic 326), Targeted Transition Relief* ("ASU 2019-05"). The amendments in ASU 2018-19 clarify that receivables arising from operating leases are not within the scope of Subtopic 326-20, *Financial Instruments—Credit Losses—Measured at Amortized Cost*. Instead, impairment of receivables arising from operating leases should be accounted for in accordance with Topic 842, *Leases*. The amendments in ASU 2019-04 clarify the measurement of allowance for credit losses on accrued interest receivable; the inclusion of expected recoveries in the allowance for credit losses; the permission of a prepayment-adjusted effective interest rate when determining the allowance for credit losses; and the steps entities should take when recording the transfer of loans or debt securities between measurement classifications. The amendments in ASU 2019-05 provide an option to irrevocably elect the fair value option in Subtopic 825-10, *Financial Instruments-Overall*, on an instrument-by-instrument basis, for eligible financial assets measured at amortized cost basis upon adoption of ASU 2016-13, but this fair value option election does not apply to held-to-maturity debt securities. The effective date and transition requirements for the amendments in ASU 2018-19, ASU 2019-04 and ASU 2019-05 are the same as the effective date and transition requirements of ASU 2016-13, which is effective for annual reporting periods beginning after December 15, 2019, and interim periods within those years. The standards were effective for the Company beginning on December 30, 2019, the first day of the Company's fiscal year 2020. The Company adopted these standards using the modified-retrospective approach. The adoption of the standard resulted in a decrease in retained earnings at December 30, 2019 of approximately $1.3 million from the cumulative effect of initially applying the standards as of that date. In addition, the adoption of the standard resulted in an increase in reserve for doubtful accounts of $1.7 million and an increase in deferred tax assets of $0.5 million from the tax impact of the cumulative adjustments. The adoption did not have an impact on cash from or used in operating, investing or financing activities in the Company's consolidated statement of cash flows at December 30, 2019.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases* ("ASU 2016-02"). ASU 2016-02 requires organizations that lease assets to recognize assets and liabilities on the balance sheet related to the rights and obligations created by those leases, regardless of whether they are classified as finance or operating leases. Consistent with current guidance, the recognition, measurement, and presentation of expenses and cash flows arising from a lease of assets will primarily depend on its classification as a finance or operating lease. ASU 2016-02 also requires new disclosures to help financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases. The provisions of this guidance are effective for annual periods beginning after December 15, 2018, and interim periods within those years, with early adoption permitted. ASU 2016-02 is to be applied using a modified retrospective approach. Subsequent to the issuance of ASU 2016-02, in July 2018, the FASB issued Accounting Standards Update No. 2018-10, *Codification Improvements to Topic 842, Leases* ("ASU 2018-10") and Accounting Standards Update No. 2018-11, *Leases (Topic 842): Targeted Improvements* ("ASU 2018-11"), and in March 2019, the FASB issued Accounting Standards Update No. 2019-01, *Leases (Topic 842): Codification Improvements* ("ASU 2019-01"). The amendments in ASU 2018-10 clarify, correct or remove inconsistencies in the guidance provided under ASU 2016-02 related to sixteen specific issues identified. The amendments in ASU 2018-11 provide entities with an additional (and optional) transition method to adopt the new leases standard. Under the new transition method, an entity initially applies the new leases standard at the adoption date and recognizes a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption. Consequently, an entity's reporting for the comparative periods presented in the financial statements in the period of adoption will continue to be in accordance with Accounting Standards Codification ("ASC") 840, *Leases* ("ASC 840"). An entity that elects this additional (and optional) transition method must provide the required disclosures under ASC 840 for all periods that continue to be in accordance with ASC 840. ASU 2018-11 also provides lessors with a practical expedient, by class of underlying asset, to not separate nonlease components from the associated lease component and, instead, to account for those components as a single component if certain criteria are met. ASU 2019-01 provides clarification on implementation issues associated with adopting ASU 2016-02. ASU 2019-01 provides guidance on transition disclosures related to Topic 250, *Accounting*

Changes and Error Corrections, specifically paragraph 205-10-50-3, which requires entities to provide in the fiscal year in which a new accounting principle is adopted the identical disclosures for interim periods after the date of adoption. The guidance in ASU 2019-01 explicitly provides an exception to the paragraph 250-10-50-3 interim disclosure requirements in the Topic 842 transition disclosure requirements. The effective date and transition requirements for these standards are the same as the effective date and transition requirements of ASU 2016-02. The standards were effective for the Company beginning on December 31, 2018, the first day of the Company's fiscal year 2019. The Company did not early adopt these standards and adopted these standards using the optional transition method.

The Company applied the modified retrospective approach, and applied the new leases standards at December 31, 2018, with a cumulative effect adjustment recognized in the opening balance of retained earnings in fiscal year 2019. As a lessee, the most significant impact of the standards relates to the recognition of the right-of-use assets and lease liabilities for the operating leases in the balance sheet. In addition, the Company had deferred gains from sale-leaseback transactions that are being amortized in operating expenses over the lease terms and the leases are accounted for as operating leases under ASC 840. Under the new standards, the Company recognized the deferred gains from the sales as a cumulative effect adjustment in retained earnings at December 31, 2018. The Company also derecognized the impact of its build-to-suit arrangements in which the Company was the deemed owner during the construction period, for which the construction is complete and the lease commenced before the initial date of adoption. The adoption of the standards resulted in an increase in retained earnings at December 31, 2018 of approximately $13.3 million for the cumulative effect of initially applying the standards as of that date. In addition, the adoption of the standards resulted in the recognition of right-of-use assets of approximately $199.5 million and lease liabilities of approximately $147.1 million, primarily related to the facilities operating leases, a decrease in property and equipment of approximately $34.6 million and an increase in deferred tax liabilities of $4.6 million for the tax impact of the cumulative adjustments. The adoption did not have an impact on cash from or used in operating, investing or financing activities in the Company's consolidated statement of cash flows at December 31, 2018.

Note 2: Revenue

Nature of goods and services

The following is a description of principal activities, by reportable segments, from which the Company generates its revenue. For more detailed information about the reportable segments, see Note 24.

i. Discovery & Analytical Solutions

The Discovery & Analytical Solutions ("DAS") segment of the Company principally generates revenue from sales of (a) instruments, consumables and services in the applied markets and (b) instruments, reagents, informatics, detection and imaging technologies, extended warranties, training and services in the life sciences market. Products and services may be sold separately or in bundled packages. The typical length of a contract for service is 12 to 36 months.

For bundled packages, the Company accounts for individual products and services separately if they are distinct—i.e. if a product or service is separately identifiable from other items in the bundled package and if a customer can benefit from it on its own or with other resources that are readily available to the customer. The consideration (including any discounts) is allocated between separate products and services in a bundle based on their stand-alone selling prices. The stand-alone selling prices are determined based on the prices at which the Company separately sells the products, extended warranties, and services. For items that are not sold separately, the Company estimates stand-alone selling prices by reference to the amount charged for similar items on a stand-alone basis.

The Company sells products and services predominantly through its direct sales force. As a result, the use of distributors is generally limited to geographic regions where the Company has no direct sales force. The Company does not offer product return or exchange rights (other than those relating to defective goods under warranty) or price protection allowances to its customers, including distributors. Payment terms granted to distributors are the same as those granted to end-customers and payments are not dependent upon the distributor's receipt of payment from their end-user customers.

In instances where the timing of revenue recognition differs from the timing of invoicing, the Company determined that the contracts generally do not include a significant financing component. The primary purpose of its invoicing terms is to provide customers with simplified and predictable ways of purchasing products and services, rather than to receive financing from the customers or to provide customers with financing. Examples include invoicing at the beginning of a subscription term with revenue recognized ratably over the contract period, and multi-year software licenses or software subscriptions that are invoiced annually with revenue recognized upfront. In limited circumstances where the Company provides the customer with a significant benefit of financing, the Company uses the practical expedient and only adjusts the transaction price for the effects of the time value of money and only on contracts where the duration of financing is more than one year.

Products and services	Nature, timing of satisfaction of performance obligations, and significant payment terms
Instruments	For instruments that include installation, and if the installation meets the criteria to be considered a separate performance obligation, product revenue is generally recognized upon delivery or when title has transferred to the customer, which is generally the point in time where control of the products has been transferred to customers, and installation revenue is recognized when the installation is complete. Certain of the Company's products require specialized installation and configuration at the customer's site. Revenue for these products is deferred until installation is complete and customer acceptance has been received. Payment terms and conditions vary, although terms generally include a requirement of payment within 30 to 60 days.
Consumables and reagents	The Company recognizes revenue from the sale of consumables and reagents upon delivery or when title has transferred to the customer, which is generally the point in time where control of the products has been transferred to customers. Payment terms and conditions vary, although terms generally include a requirement of payment within 30 days.
Software licenses and subscriptions	Customers may purchase perpetual or term licenses, or subscribe to licenses, which provide customers with the same functionality and differ mainly in the duration over which the customer benefits from the software. The Company sells its software subscriptions or software licenses with maintenance services and, in some cases, with consulting services. The Company recognizes revenue for the software upfront at the point in time when the software is made available to the customer. For maintenance and consulting services, revenue is recognized ratably over the period in which the services are provided. Payment terms and conditions vary by contract type, although terms generally include a requirement of payment within 30 to 60 days. Subscription contracts are typically billed annually on the anniversary date of the contract. Software subscriptions and maintenance service contracts are non-cancelable.
Cloud services	Cloud services, which allow customers to use hosted software over the contract period without taking possession of the software, are provided on either a subscription or consumption basis. Revenue related to cloud services provided on a subscription basis is recognized ratably over the contract period. Revenue related to cloud services provided on a consumption basis, such as the amount of storage used in a period, is

Products and services	Nature, timing of satisfaction of performance obligations, and significant payment terms
	recognized based on the customer utilization of such resources. Payment terms are generally net 30 days from signing of contract and contracts are non-cancelable.
Extended warranty	The Company recognizes revenue for extended warranties on a straight-line basis over the extended warranty period in service revenue. In the majority of countries in which the Company operates, the customary warranty period is one year and the extended warranty covers periods beyond year one. Customers typically pay for extended warranties on an annual basis over the term of the warranty. In general, customers can cancel the extended warranty at any time with 30 days notice without significant penalty.
Laboratory services and training	The Company's service offerings include service contracts, field service, including related time and materials, and training. The Company recognizes revenue as the services are performed. Revenue for the service contracts is recognized over the contract period or at a point in time when the service is billable based on time and materials. The Company recognizes revenue as training is provided in service revenue. Payment terms and conditions vary by contract type, although terms generally include a requirement of payment within 30 to 60 days. In general, customers can cancel the service contracts at any time with 30 to 90 days notice without significant penalty.

ii. Diagnostics

The Diagnostics segment of the Company principally generates revenue from sales of instruments, solutions, consumables, reagents, extended warranties and services in the diagnostics market. Products and services may be sold separately or in bundled packages.

For bundled packages, the Company accounts for individual products and services separately if they are distinct—i.e. if a product or service is separately identifiable from other items in the bundled package and if a customer can benefit from it on its own or with other resources that are readily available to the customer. The consideration (including any discounts) is allocated between separate products and services in a bundle based on their stand-alone selling prices. The stand-alone selling prices are determined based on the prices at which the Company separately sells the products, extended warranties, and services. For items that are not sold separately, the Company estimates stand-alone selling prices by reference to the amount charged for similar items on a stand-alone basis.

The Company sells products and services predominantly through its direct sales force. As a result, the use of distributors is generally limited to geographic regions where the Company has no direct sales force. The Company does not offer product return or exchange rights (other than those relating to defective goods under warranty) or price protection allowances to its customers, including distributors. Payment terms granted to distributors are the same as those granted to end-customers and payments are not dependent upon the distributor's receipt of payment from their end-user customers.

In instances where the timing of revenue recognition differs from the timing of invoicing, the Company determined that the contracts generally do not include a significant financing component. The primary purpose of its invoicing terms is to provide customers with simplified and predictable ways of purchasing products and services, rather than to receive financing from the customers or to provide customers with financing. Examples include invoicing at the beginning of a storage period with revenue recognized ratably over the contract period. In limited circumstances where the Company provides the customer with a significant benefit of financing, the Company uses the practical expedient and only adjusts the transaction price for the effects of the time value of money and only on contracts where the duration of financing is more than one year.

Products and services	Nature, timing of satisfaction of performance obligations, and significant payment terms
Instruments	For instruments that include installation, and if the installation meets the criteria to be considered a separate performance obligation, product revenue is generally recognized upon delivery or when title has transferred to the customer, which is generally the point in time where control of the products has been transferred to customers, and installation revenue is recognized when the installation is complete. Certain of the Company's products require specialized installation and configuration at the customer's site. Revenue for these products is deferred until installation is complete and customer acceptance has been received. Payment terms and conditions vary, although terms generally include a requirement of payment within 30 to 60 days.
Consumables and reagents	The Company recognizes revenue from the sale of consumables and reagents upon delivery or when title has transferred to the customer, which is generally the point in time where control of the products has been transferred to customers. Payment terms and conditions vary, although terms generally include a requirement of payment within 30 days.
Solutions	When the Company sells the instrument and reagents that work only on those instruments to a customer or distributor, the Company considers the instrument and reagents as separate performance obligations. The Company recognizes revenue when an instrument is sold to the customer upon delivery or when title has transferred to the customer, which is generally the point in time where control of the products has been transferred to customers. Revenue from the sale of reagents is also recognized at the time of delivery or when title has transferred to the customer. Payment terms for instrument and reagent sales are usually net 30 days from invoice date.
	When the Company places the instrument at the customer's site and sells the reagents to a customer, the instrument and reagents are accounted for together as one performance obligation. The Company does not charge a fee for the use of the instrument and retains ownership of the placed instrument. The Company has a right to remove the instrument and replace it with another instrument at the customer's site at any time throughout the contract term. The Company recognizes revenue upon delivery of reagents, which is the point in time where the Company has performed its obligation to provide a screening solution to the customer. Payment terms are usually net 30 days from invoice date. Payment terms for certain contracts are based on equal installments over the duration of the contract.
Extended warranty	The Company recognizes revenue for extended warranties on a straight-line basis over the extended warranty period in service revenue. In the majority of countries in which the Company operates, the customary warranty period is one year and the extended warranty covers periods beyond year one. Customers typically pay for extended warranties on an annual basis over the term of the warranty. In general, customers can cancel the extended warranty at any time with 30 days notice without significant penalty.
Services	The Company's service offerings include cord blood processing and storage, and training. The Company recognizes revenue for the cord blood processing and training as the services are performed in service revenue. Revenue for the storage contracts are recognized over the contract period. Storage is typically for a period of 1, 20, or 25 years or lifetime. Lifetime storage is recognized over a certain period that is based on the life expectancy estimate from Social Security data. For cord blood processing, customers pay the processing fee in full at the point of sale. The processing fee is non-refundable unless the cord blood is non-viable for storage. For storage, customers are required to pay the storage fees in full upfront. Storage fees are refundable to the customer on a pro-rated basis if the contract is canceled.

Disaggregation of revenue

In the following tables, revenue is disaggregated by primary geographical market, end-markets and timing of revenue recognition. The tables also include a reconciliation of the disaggregated revenue with the reportable segments revenue.

	Reportable Segments					
	For the fiscal year ended					
	December 29, 2019			December 30, 2018		
	Discovery & Analytical Solutions	Diagnostics	Total	Discovery & Analytical Solutions	Diagnostics	Total
	(In thousands)					
Primary geographical markets						
Americas	$ 717,205	$ 401,591	$ 1,118,796	$ 680,117	$ 385,005	$ 1,065,122
Europe	495,768	291,610	787,378	494,707	283,385	778,092
Asia	533,188	444,311	977,499	518,387	416,395	934,782
	$ 1,746,161	$ 1,137,512	$ 2,883,673	$ 1,693,211	$ 1,084,785	$ 2,777,996
Primary end-markets						
Diagnostics	$ —	$ 1,137,512	$ 1,137,512	$ —	$ 1,084,785	$ 1,084,785
Life sciences	977,200	—	977,200	934,690	—	934,690
Applied markets	768,961	—	768,961	758,521	—	758,521
	$ 1,746,161	$ 1,137,512	$ 2,883,673	$ 1,693,211	$ 1,084,785	$ 2,777,996
Timing of revenue recognition						
Products and services transferred at a point in time	$ 1,276,499	$ 1,053,974	$ 2,330,473	$ 1,210,745	$ 1,002,213	$ 2,212,958
Services transferred over time	469,662	83,538	553,200	482,466	82,572	565,038
	$ 1,746,161	$ 1,137,512	$ 2,883,673	$ 1,693,211	$ 1,084,785	$ 2,777,996

Contract Balances

Contract assets: The unbilled receivables (contract assets) primarily relate to the Company’s right to consideration for work completed but not billed at the reporting date. The unbilled receivables are transferred to trade receivables when billed to customers. Contract assets are generally classified as current assets and are included in “Accounts receivable, net” in the consolidated balance sheets. The balances of contract assets as of December 29, 2019 and December 30, 2018 were $37.0 million and $31.9 million, respectively. The amount of unbilled receivables recognized at the beginning of fiscal year 2019 that were transferred to trade receivables during the fiscal year ended December 29, 2019 was $17.3 million. The increase in unbilled receivables during the fiscal year ended December 29, 2019 as a result of recognition of revenue before billing to customers, excluding amounts transferred to trade receivables during the period, amounted to $22.4 million. The amount of unbilled receivables recognized at the beginning of fiscal year 2018 that were transferred to trade receivables during the fiscal year ended December 30, 2018 was $21.9 million. The increase in unbilled receivables during the fiscal year ended December 30, 2018 as a result of recognition of revenue before billing to customers, excluding amounts transferred to trade receivables during the period, amounted to $31.1 million.

Contract liabilities: The contract liabilities primarily relate to the advance consideration received from customers for products and related installation for which transfer of control has not occurred at the balance sheet date. Contract liabilities are classified as either current in “Accounts payable” or long-term in “Long-term liabilities” in the consolidated balance sheets based on the timing of when the Company expects to recognize revenue. The balances of contract liabilities as of December 29, 2019 and December 30, 2018 were $29.9 million and $30.8 million, respectively. The increase in contract liabilities during the fiscal year ended December 29, 2019 due to cash received, excluding amounts recognized as revenue during the period, was $20.4 million. The amount of revenue recognized during the fiscal year ended December 29, 2019 that was included in the contract liability balance at the beginning of the period was $21.2 million. The increase in contract liabilities during the fiscal year ended December 30, 2018 due to cash received, excluding amounts recognized as revenue during the period, was $23.6 million. The amount of revenue recognized during the fiscal year ended December 30, 2018 that was included in the contract liability balance at the beginning of the period was $21.8 million.

Contract costs: The Company recognizes the incremental costs of obtaining a contract with a customer as an asset if it expects the benefit of those costs to be longer than one year. The Company determined that certain sales incentive programs meet the requirements to be capitalized. Total capitalized costs to obtain a contract were immaterial during the period and are included in other current and long-term assets on the consolidated balance sheet. The Company applies a practical expedient to expense costs as incurred for costs to obtain a contract with a customer when the amortization period would have been one year or less. These costs include the Company’s internal sales force compensation program, as the Company determined that annual compensation is commensurate with annual sales activities.

Transaction price allocated to the remaining performance obligations

The Company applies the practical expedient in ASC 606-10-50-14 and does not disclose information about remaining performance obligations that have original expected durations of one year or less. The estimated revenue expected to be recognized beyond one year in the future related to performance obligations that are unsatisfied (or partially unsatisfied) at the end of the period are not material to the Company. The remaining performance obligations primarily include noncancelable purchase orders and noncancelable software subscriptions and cloud service contracts.

Note 3: Business Combinations

Acquisitions in fiscal year 2019

During the fiscal year 2019, the Company completed the acquisition of five businesses for aggregate consideration of $433.1 million in cash. The acquired businesses include Cisbio Bioassays SAS (“Cisbio”), a company based in Codolet, France, which was acquired for a total consideration of $219.9 million in cash, Shandong Meizheng Bio-Tech Co., Ltd. (“Meizheng Group”), a company headquartered in Beijing, China, for a total consideration of $166.5 million in cash, and three other businesses which were acquired for a total consideration of $46.6 million in cash. The Company has a potential obligation to pay the former shareholders of certain of these acquired businesses additional contingent consideration of up to $31.8 million. The excess of the purchase prices over the fair values of the acquired businesses’ net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforces acquired, and has been allocated to goodwill, which is not tax deductible. The Company has reported the operations for these acquisitions within the results of the Company’s Diagnostics and Discovery & Analytical Solutions segments, as applicable, from the acquisition dates. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of these acquisitions had a weighted average amortization period of 11.0 years.

The total purchase price for the acquisitions in fiscal year 2019 has been allocated to the estimated fair values of assets acquired and liabilities assumed as follows:

	Cisbio	Meizheng	Other
		(In thousands)	
Fair value of business combination:			
Cash payments	$ 219,795	$ 145,000	$ 45,042
Other liability	—	6,446	638
Contingent consideration	—	12,100	634
Working capital and other adjustments	138	2,961	302
Less: cash acquired	(12,542)	(2,108)	(1,334)
Total	$ 207,391	$ 164,399	$ 45,282
Identifiable assets acquired and liabilities assumed:			
Current assets	$ 43,554	$ 15,160	$ 4,042
Property, plant and equipment	4,835	6,278	727
Other assets	100	32	481
Identifiable intangible assets:			
Core technology	90,000	36,500	27,667
Trade names	5,000	4,900	1,310
Customer relationships	39,000	53,000	6,700
Goodwill	72,341	81,457	17,006
Deferred taxes	(34,886)	(21,231)	(6,658)
Debt assumed	—	(706)	(2,698)
Liabilities assumed	(12,553)	(10,991)	(3,295)
Total	$ 207,391	$ 164,399	$ 45,282

Acquisitions in fiscal year 2018

During fiscal year 2018, the Company completed the acquisition of four businesses for aggregate consideration of $105.8 million. The excess of the purchase prices over the fair values of the acquired businesses' net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforces acquired, and has been allocated to goodwill, which is not tax deductible. The Company has reported the operations for these acquisitions within the results of the Company's Diagnostics and Discovery & Analytical Solutions segments from the acquisition dates. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of these acquisitions had a weighted average amortization period of 11.2 years.

The total purchase price for the acquisitions in fiscal year 2018 has been allocated to the estimated fair values of assets acquired and liabilities assumed as follows:

		(In thousands)
Fair value of business combination:		
Cash payments	$	95,950
Other liability		3,354
Contingent consideration		6,200
Working capital and other adjustments		261
Less: cash acquired		(1,132)
Total	$	104,633
Identifiable assets acquired and liabilities assumed:		
Current assets	$	4,905
Property, plant and equipment		1,166
Other assets		776
Identifiable intangible assets:		
Core technology		31,956
Trade names		1,070
GC Libraries		2,065
Customer relationships		10,200
Goodwill		65,886
Deferred taxes		(9,049)
Debt assumed		(461)
Liabilities assumed		(3,881)
Total	$	104,633

Acquisitions in fiscal year 2017

Acquisition of EUROIMMUN Medizinische Labordiagnostika AG. During fiscal year 2017, the Company completed the acquisition of 99.98% of the outstanding stock of EUROIMMUN Medizinische Labordiagnostika AG ("EUROIMMUN") for aggregate consideration of €1.2 billion (equivalent to $1.4 billion at December 19, 2017, the time of closing). The purchase price was funded by borrowings from the Company's senior unsecured revolving credit facility and senior unsecured term loan credit facility of $710.0 million and $200.0 million, respectively, and available cash on hand of $503.1 million. The excess of the purchase price over the fair value of the acquired net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforce acquired. As a result of the acquisition, the Company recorded goodwill of $591.3 million, which is not tax deductible, and intangible assets of $907.4 million. The Company has reported the operations for this acquisition within the results of the Company's Diagnostics segment from the acquisition date. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of this acquisition had a weighted average amortization period of 16.1 years.

Other acquisitions in 2017. During fiscal year 2017, the Company also completed the acquisition of two other businesses for aggregate consideration of $142.0 million. The acquired businesses were Tulip Diagnostics

Private Limited ("Tulip"), which was acquired for total consideration of $127.3 million in cash and one other business acquired for total consideration of $14.7 million in cash. At the acquisition date, the Company had a potential obligation to pay the former shareholders of Tulip up to INR1.6 billion in additional consideration over a two year period, equivalent to $25.2 million, and is accounted for as compensation expense in the Company's financial statements over a two year period and is excluded from the purchase price allocation shown below. The excess of the purchase prices over the fair values of the acquired businesses' net assets represents cost and revenue synergies specific to the Company, as well as non-capitalizable intangible assets, such as the employee workforces acquired, and has been allocated to goodwill, which is not tax deductible. The Company has reported the operations of Tulip within the results of the Company's Diagnostics segment and the other acquired business within the results of the Company's Discovery & Analytical Solutions segment from the acquisition date. Identifiable definite-lived intangible assets, such as core technology, trade names and customer relationships, acquired as part of these acquisitions had a weighted average amortization period of 11.8 years.

The total purchase price for the acquisitions in fiscal year 2017 have been allocated to the estimated fair values of assets acquired and liabilities assumed as follows:

	EUROIMMUN	Other
	(In thousands)	
Fair value of business combination:		
Cash payments	$ 1,413,113	$ 140,861
Other liability	—	1,273
Working capital and other adjustments	—	(93)
Less: cash acquired	(25,018)	(2,439)
Total	$ 1,388,095	$ 139,602
Identifiable assets acquired and liabilities assumed:		
Current assets	$ 121,174	$ 16,268
Property, plant and equipment	109,859	11,356
Other assets	71,621	1,691
Identifiable intangible assets:		
Core technology	160,000	12,400
Trade names	36,000	3,000
Customer relationships	710,000	43,700
In-process research and development ("IPR&D")	1,400	—
Goodwill	591,304	75,250
Deferred taxes	(251,886)	(15,735)
Liabilities assumed	(100,020)	(8,328)
Debt assumed	(61,357)	—
Total	$ 1,388,095	$ 139,602

EUROIMMUN's revenue and net loss for the period from the acquisition date to December 31, 2017 were $13.5 million and $1.0 million, respectively. The following unaudited pro forma information presents the combined financial results for the Company and EUROIMMUN as if the acquisition of EUROIMMUN had been completed at the beginning of fiscal year 2016:

	December 31, 2017
	(In thousands, except per share data)
Pro Forma Statement of Operations Information (Unaudited):	
Revenue	$ 2,562,580
Income from continuing operations	143,459
Basic earnings per share:	
Income from continuing operations	$ 1.31
Diluted earnings per share:	
Income from continuing operations	$ 1.29

The unaudited pro forma information for fiscal year 2017 has been calculated after applying the Company's accounting policies and the impact of acquisition date fair value adjustments. The fiscal year 2017 unaudited pro forma income from continuing operations was adjusted to exclude approximately $9.8 million of acquisition-related transaction costs. These pro forma condensed consolidated financial results have been prepared for comparative purposes only and include certain adjustments, such as fair value adjustment to inventory, increased interest expense on debt obtained to finance the transaction, and increased amortization for the fair value of acquired intangible assets.

The pro forma information does not reflect the effect of costs or synergies that would have been expected to result from the integration of the acquisition. The pro forma information does not purport to be indicative of the results of operations that actually would have resulted had the combination occurred at the beginning of each period presented, or of future results of the consolidated entities.

The Company does not consider the acquisitions completed during fiscal years 2019, 2018 and 2017, with the exception of the EUROIMMUN acquisition, to be material to its consolidated results of operations; therefore, the Company is only presenting pro forma financial information of operations for the EUROIMMUN acquisition. The aggregate revenue and the results of operations for the acquisitions completed during fiscal year 2019 for the period from their acquisition dates to December 29, 2019 were not material. The aggregate revenue and the results of operations for the acquisitions completed during fiscal year 2018 for the period from their acquisition dates to December 30, 2018 were not material. The aggregate revenue for the acquisitions, with the exception of EUROIMMUN, completed during fiscal year 2017 for the period from their acquisition dates to December 31, 2017 was $38.5 million and the results of operations were not material. The Company has also determined that the presentation of the results of operations for each of those acquisitions, from the date of acquisition, is impracticable due to the integration of the operations upon acquisition.

As of December 29, 2019, the allocations of purchase prices for acquisitions completed in fiscal years 2018 and 2017 were final. The preliminary allocations of the purchase prices for acquisitions completed in fiscal year 2019 were based upon initial valuations. The Company's estimates and assumptions underlying the initial valuations are subject to the collection of information necessary to complete its valuations within the measurement periods, which are up to one year from the respective acquisition dates. The primary areas of the preliminary purchase price allocations that are not yet finalized relate to the fair value of certain tangible and intangible assets acquired and liabilities assumed, assets and liabilities related to income taxes and related valuation allowances, and residual goodwill. The Company expects to continue to obtain information to assist in determining the fair values of the net assets acquired at the acquisition dates during the measurement periods. During the measurement periods, the Company will adjust assets or liabilities if new information is obtained about facts and circumstances that existed as of the acquisition dates that, if known, would have resulted in the recognition of those assets and liabilities as of those dates. These adjustments will be made in the periods in which the amounts are determined and the cumulative effect of such adjustments will be calculated as if the adjustments had been completed as of the acquisition dates. All changes that do not qualify as adjustments made during the measurement periods are also included in current period earnings.

During fiscal year 2019, the Company obtained information relevant to determining the fair values of certain tangible and intangible assets acquired, and liabilities assumed, related to recent acquisitions and adjusted its purchase price allocations. Based on this information, the Company recognized an increase in goodwill of $6.1 million, an increase in deferred tax liabilities of $5.1 million, a decrease in current assets of $1.6 million, a decrease in liabilities assumed of $0.4 million and a decrease in other assets of $0.1 million.

Allocations of the purchase price for acquisitions are based on estimates of the fair value of the net assets acquired and are subject to adjustment upon finalization of the purchase price allocations. The accounting for business combinations requires estimates and judgments as to expectations for future cash flows of the acquired business, and the allocation of those cash flows to identifiable intangible assets, in determining the estimated fair values for assets acquired and liabilities assumed. The fair values assigned to tangible and intangible assets acquired and liabilities assumed, including contingent consideration, are based on management's estimates and assumptions, as well as other information compiled by management, including valuations that utilize customary valuation procedures and techniques. Contingent consideration is measured at fair value at the acquisition date, based on the probability that revenue thresholds or product development milestones will be achieved during the earnout period, with changes in the fair value after the acquisition date affecting earnings to the extent it is to be settled in cash. Increases or decreases in the fair value of contingent consideration liabilities primarily result from changes in the estimated probabilities of achieving revenue thresholds or product development milestones during the earnout period.

As of December 29, 2019, the Company may have to pay contingent consideration, related to acquisitions with open contingency periods, of up to $57.1 million. As of December 29, 2019, the Company has recorded contingent consideration obligations of $35.5 million, of which $20.8 million was recorded in accrued expenses and other current liabilities, and $14.7 million was recorded in long-term liabilities. As of December 30, 2018, the Company has recorded contingent consideration obligations of $69.7 million, of which $67.0 million was recorded in accrued expenses and other current liabilities, and $2.7 million was recorded in long-term liabilities. The expected maximum earnout period for acquisitions with open contingency periods does not exceed 3.0 years from December 29, 2019, and the remaining weighted average expected earnout period at December 29, 2019 was 1.2 years. If the actual results differ from the estimates and judgments used in these fair values, the amounts recorded in the consolidated financial statements could result in a possible impairment of the intangible assets and goodwill, require acceleration of the amortization expense of definite-lived intangible assets or the recognition of additional contingent consideration which would be recognized as a component of operating expenses from continuing operations.

In connection with the purchase price allocations for acquisitions, the Company estimates the fair value of deferred revenue assumed with its acquisitions. The estimated fair value of deferred revenue is determined by the legal performance obligation at the date of acquisition, and is generally based on the nature of the activities to be performed and the related costs to be incurred after the acquisition date. The fair value of an assumed liability related to deferred revenue is estimated based on the current market cost of fulfilling the obligation, plus a normal profit margin thereon. The estimated costs to fulfill the deferred revenue are based on the historical direct costs related to providing the services. The Company does not include any costs associated with selling effort, research and development, or the related margins on these costs. In most acquisitions, profit associated with selling effort is excluded because the acquired businesses would have concluded the selling effort on the support contracts prior to the acquisition date. The estimated research and development costs are not included in the fair value determination, as these costs are not deemed to represent a legal obligation at the time of acquisition. The sum of the costs and operating income approximates, in theory, the amount that the Company would be required to pay a third-party to assume the obligation.

Total acquisition and divestiture-related costs for fiscal years 2019 and 2018 were $6.6 million and $15.8 million, respectively. These amounts include $0.5 million of compensation expense related to the Tulip acquisition and $2.6 million of net foreign exchange loss related mainly to the Company's acquisition of Cisbio for fiscal year 2019, and $6.9 million of compensation expense and $0.7 million of net foreign exchange gain related to the foreign currency denominated stay bonus associated with the Tulip acquisition for fiscal year 2018. Acquisition-related interest expenses were minimal in fiscal year 2019 and $0.7 million in fiscal year 2018. These acquisition and divestiture-related costs were expensed as incurred and recorded in selling, general and administrative expenses and interest and other (income) expense, net in the Company's consolidated statements of operations.

Note 4: Disposition of Businesses and Assets

As part of the Company's continuing efforts to focus on higher growth opportunities, the Company has discontinued certain businesses. When the discontinued operations represented a strategic shift that will have a major effect on the Company's operations and financial statements, the Company has accounted for these businesses as discontinued operations and accordingly, has presented the results of operations and related cash flows as discontinued operations. Any business deemed to be a discontinued operation prior to the adoption of Accounting Standards Update 2014-08, *Reporting Discontinued Operations and Disclosures of Disposals of Components of An Entity,* continues to be reported as a discontinued operation, and the results of operations and related cash flows are presented as discontinued operations for all periods presented. Any remaining assets and liabilities of these businesses have been presented separately, and are reflected within assets and liabilities from discontinued operations in the accompanying consolidated balance sheets as of December 29, 2019 and December 30, 2018.

The Company recorded the following pre-tax gains and losses, which have been reported as a net gain or loss on disposition of discontinued operations during the three fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
(Loss) gain on disposition of the Medical Imaging business	$ —	$ (793)	$ 179,615
Loss on disposition of Fluid Sciences business	—	(66)	—
(Loss) gain on disposition of discontinued operations before income taxes	$ —	$ (859)	$ 179,615

On May 1, 2017 (the "Closing Date"), the Company completed the sale of its Medical Imaging business to Varex Imaging Corporation ("Varex") pursuant to the terms of the Master Purchase and Sale Agreement, dated December 21, 2016 (the "Agreement"), by and between the Company and Varian Medical Systems, Inc. ("Varian") and the subsequent Assignment and Assumption Agreement, dated January 27, 2017, between Varian and Varex, pursuant to which Varian assigned its rights under the Agreement to Varex. On the Closing Date, the Company received consideration of approximately $277.4 million for the sale of the Medical Imaging business.

During fiscal year 2017, the Company paid Varex $4.2 million to settle a post-closing working capital adjustment. During fiscal year 2017, the Company recorded a pre-tax gain of $179.6 million and income tax expense of $43.1 million related to the sale of the Medical Imaging business in discontinued operations and dispositions. The corresponding tax liability was recorded within the other tax liabilities in the consolidated balance sheet, and the Company expects to utilize tax attributes to minimize the tax liability. Following the closing, the Company provided certain customary transitional services during a period of up to 12 months. Commercial transactions between the parties following the closing of the transaction were not significant.

During fiscal year 2018, the Company completed the sale of substantially all of the assets and liabilities related to its multispectral imaging business for aggregate consideration of $37.3 million, recognizing a pre-tax gain of $13.0 million. The pre-tax gain is included in interest and other expense, net in the consolidated statement of operations. The multispectral imaging business was a component of the Company's DAS segment. The divestiture of the multispectral imaging business has not been classified as a discontinued operation in this Form 10-K because the disposition does not represent a strategic shift that will have a major effect on the Company's operations and financial statements.

During fiscal year 2017, the Company sold Suzhou PerkinElmer Medical Laboratory Co., Ltd. ("Suzhou") for aggregate consideration of $2.3 million, recognizing a pre-tax loss of $1.1 million. The pre-tax loss is included in interest and other expense, net in the consolidated statement of operations. Suzhou was a component of the Company's Diagnostics segment. The divestiture of Suzhou has not been classified as a discontinued operation in this Form 10-K because the disposition does not represent a strategic shift that will have a major effect on the Company's operations and financial statements.

The summary pre-tax operating results of the discontinued operations were as follows during the three fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Revenue	$ —	$ —	$ 44,343
Cost of revenue	—	—	32,933
Selling, general and administrative expenses	—	—	5,869
Research and development expenses	—	—	4,891
Restructuring and other costs, net	—	—	—
Income from discontinued operations before income taxes	$ —	$ —	$ 650

The Company recorded a provision for (benefit from) income taxes of $0.2 million, $(1.3) million and $44.5 million on discontinued operations and dispositions in fiscal years 2019, 2018 and 2017, respectively.

Note 5: Restructuring and Other Costs, Net

The Company has undertaken a series of restructuring actions related to the impact of acquisitions and divestitures, the alignment of the Company's operations with its growth strategy, the integration of its business units and its productivity initiatives. The activities associated with these plans have been reported as restructuring and other costs, net, as applicable, and are included as a component of income from continuing operations. The current portion of restructuring and other costs is recorded in short-term accrued restructuring and other costs and accrued expense and other current liabilities. The long-term portion of restructuring and other costs is recorded in long-term liabilities and operating lease liabilities.

The Company implemented a restructuring plan in each quarter of fiscal year 2019 consisting of workforce reductions principally intended to realign resources to emphasize growth initiatives (the “Q1 2019 Plan”, “Q2 2019 Plan”, “Q3 2019 Plan” and “Q4 2019 Plan”, respectively). The Company implemented a restructuring plan in each of the first, third and fourth quarters of fiscal year 2018 consisting of workforce reductions principally intended to realign resources to emphasize growth initiatives (the “Q1 2018 Plan”, “Q3 2018 Plan” and “Q4 2018 Plan”, respectively). The Company implemented a restructuring plan in each of the fourth and third quarters of fiscal year 2017 consisting of workforce reductions principally intended to realign resources to emphasize growth initiatives (the “Q4 2017 Plan and “Q3 2017 Plan”, respectively). The Company implemented a restructuring plan in the first quarter of fiscal year 2017 consisting of workforce reductions and the closure of excess facility space principally intended to focus resources on higher growth end markets (the “Q1 2017 Plan”). All other previous restructuring plans were workforce reductions or the closure of excess facility space principally intended to integrate the Company’s businesses in order to realign operations, reduce costs, achieve operational efficiencies and shift resources into geographic regions and end markets that are more consistent with the Company’s growth strategy (the “Previous Plans”).

The following table summarizes the number of employees reduced, the initial restructuring or contract termination charges by operating segment, and the dates by which payments were substantially completed, or the expected dates by which payments will be substantially completed, for restructuring actions implemented during fiscal years 2019, 2018 and 2017 in continuing operations:

	Workforce Reductions			Closure of Excess Facility			(Expected) Date Payments Substantially Completed by	
	Headcount Reduction	Diagnostics	Discovery & Analytical Solutions	Diagnostics	Discovery & Analytical Solutions	Total	Severance	Excess Facility
	(In thousands, except headcount data)							
Q4 2019 Plan	22	$ 2,404	$ 177	$ —	$ —	$ 2,581	Q3 FY2020	—
Q3 2019 Plan	259	2,641	11,156	—	—	13,797	Q2 FY2020	—
Q2 2019 Plan	44	1,129	4,461	—	—	5,590	Q1 FY2020	—
Q1 2019 Plan	105	1,459	6,001	—	—	7,460	Q4 FY2019	—
Q4 2018 Plan	1	—	348	—	—	348	Q1 FY2019	—
Q3 2018 Plan	61	618	1,146	—	—	1,764	Q4 FY2019	—
Q1 2018 Plan	47	902	5,096	—	—	5,998	Q4 FY2019	—
Q4 2017 Plan	29	255	1,680	—	—	1,935	Q1 FY2019	—
Q3 2017 Plan	27	1,021	1,321	—	—	2,342	Q4 FY2018	—
Q1 2017 Plan	90	1,631	5,000	33	33	6,697	Q2 FY2018	Q2 FY2018

The Company expects to make payments under the Previous Plans for remaining residual lease obligations, with terms varying in length, through fiscal year 2022.

The Company has terminated various contractual commitments in connection with certain disposal activities and has recorded charges, to the extent applicable, for the costs of terminating these contracts before the end of their terms and the costs that will continue to be incurred for the remaining terms without economic benefit to the Company. The Company recorded additional pre-tax charges of $0.2 million, $5.0 million and $3.6 million in the Discovery & Analytical Solutions segment during fiscal years 2019, 2018 and 2017, respectively, and $0.2 million and $0.5 million during fiscal year 2019 and 2017, respectively, in the Diagnostics segment as a result of these contract terminations.

The Company recorded pre-tax charges of $0.8 million associated with relocating facilities during fiscal year 2019. The Company expects to make payments on these relocation activities through fiscal year 2021.

At December 29, 2019, the Company had $13.9 million recorded for accrued restructuring and other costs, of which $11.6 million was recorded in short-term accrued restructuring and other costs, $0.4 million was recorded in accrued expenses and other current liabilities, $0.8 million was recorded in long-term liabilities, and $1.1 million was recorded in operating lease liabilities. At December 30, 2018, the Company had $6.2 million recorded for accrued restructuring and other costs, of which $4.8 million was recorded in short-term accrued restructuring and other costs and $1.4 million was recorded in long-term liabilities. The following table summarizes the Company's restructuring accrual balances and related activity by restructuring plan, as well as other accrual balances and related activity, during fiscal years 2019, 2018 and 2017 in continuing operations:

	Balance at January 1, 2017	2017 Charges and Changes in Estimates, Net	2017 Amounts Paid	Balance at December 31, 2017	2018 Charges and Changes in Estimates, Net	2018 Amounts Paid	Balance at December 30, 2018	2019 Charges and Changes in Estimates, Net	2019 Amounts Paid	Balance at December 29, 2019
Severance:										
Q4 2019 Plan	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ 2,581	$ (1,692)	$ 889
Q3 2019 Plan	—	—	—	—	—	—	—	13,797	(7,486)	6,311
Q2 2019 Plan	—	—	—	—	—	—	—	5,590	(3,701)	1,889
Q1 2019 Plan	—	—	—	—	—	—	—	7,483	(5,354)	2,129
Q4 2018 Plan	—	—	—	—	348	—	348	3	(351)	—
Q3 2018 Plan(1)	—	—	—	—	2,054	(639)	1,415	(77)	(1,314)	24
Q1 2018 Plan(2)	—	—	—	—	5,998	(4,389)	1,609	(1,069)	(282)	258
Q4 2017 Plan	—	1,935	(16)	1,919	(381)	(1,538)	—	—	—	—
Q3 2017 Plan	—	2,342	(270)	2,072	(1,204)	(868)	—	—	—	—
Q1 2017 Plan(3)	—	6,631	(4,133)	2,498	(983)	(1,232)	283	(276)	(7)	—
Facility:										
Q1 2017 Plan	—	66	(33)	33	—	(33)	—	—	—	—
Previous Plans(4)	10,424	(1,568)	(4,457)	4,399	570	(2,581)	2,388	117	(1,140)	1,365
Restructuring	10,424	9,406	(8,909)	10,921	6,402	(11,280)	6,043	28,149	(21,327)	12,865
Contract Termination	117	3,251	(320)	3,048	4,742	(7,653)	137	452	(401)	188
Other Costs	—	—	—	—	—	—	—	827	—	827
Total Restructuring and Other Liabilities	$ 10,541	$ 12,657	$ (9,229)	$ 13,969	$ 11,144	$ (18,933)	$ 6,180	$ 29,428	$ (21,728)	$ 13,880

(1) During fiscal year 2019, the Company recognized pre-tax restructuring reversals of $0.4 million in the Diagnostics segment related to lower than expected costs associated with workforce reductions and an additional expense of $0.3 million in the Discovery & Analytical Solutions segment for the Q3 2018 Plan.

(2) During fiscal year 2019, the Company recognized pre-tax restructuring reversals of $1.1 million in the Discovery & Analytical Solutions segment related to lower than expected costs associated with workforce reductions for the Q1 2018 Plan.

(3) During fiscal year 2019, the Company recognized pre-tax restructuring reversals of $0.3 million in the Discovery & Analytical Solutions segment related to lower than expected costs associated with workforce reductions for the Q1 2017 Plan.

(4) During fiscal year 2019, the Company recognized pre-tax restructuring expense of $0.1 million in the Discovery & Analytical Solutions segment related to higher than expected costs associated with workforce reductions for the Previous Plans.

Note 6: Interest and Other Expense, Net

Interest and other expense, net, consisted of the following for the fiscal years ended:

	December 29, 2019	December 30, 2018	January 1, 2017
Interest income	$ (1,495)	$ (1,141)	$ (2,571)
Interest expense	63,627	66,976	43,940
Loss (gain) on disposition of businesses and assets, net (see Note 4)	2,469	(12,844)	309
Debt extinguishment costs (see Note 14)	32,541	—	—
Other expense (income), net	27,689	13,210	(42,781)
Total interest and other expense, net	$ 124,831	$ 66,201	$ (1,103)

Foreign currency transaction losses (gains) were $6.5 million, $(9.4) million and $(29.2) million in fiscal years 2019, 2018 and 2017, respectively. Net (gains) losses from forward currency hedge contracts were $(3.5) million, $11.7 million and $(4.5) million in fiscal years 2019, 2018 and 2017, respectively. The other components of net periodic pension cost (credit) were $25.3 million, $11.5 million and $(9.2) million in fiscal years 2019, 2018 and 2017, respectively. These amounts were included in other expense (income), net.

Note 7: Income Taxes

The Company regularly reviews its tax positions in each significant taxing jurisdiction in the process of evaluating its unrecognized tax benefits. The Company makes adjustments to its unrecognized tax benefits when: (i) facts and circumstances regarding a tax position change, causing a change in management's judgment regarding that tax position; (ii) a tax position is effectively settled with a tax authority at a differing amount; and/or (iii) the statute of limitations expires regarding a tax position.

The tabular reconciliation of the total amounts of unrecognized tax benefits is as follows for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Unrecognized tax benefits, beginning of year	$ 33,009	$ 30,308	$ 29,607
Gross increases—tax positions in prior periods	4,433	6,931	749
Gross decreases—tax positions in prior periods	(2,183)	(1,622)	(828)
Gross increases—current-period tax positions	152	—	2,346
Settlements	(45)	(2,253)	(324)
Lapse of statute of limitations	—	(181)	(1,371)
Foreign currency translation adjustments	181	(174)	129
Unrecognized tax benefits, end of year	$ 35,547	$ 33,009	$ 30,308

The Company classifies interest and penalties as a component of income tax expense. At December 29, 2019 and December 30, 2018, the Company had accrued interest and penalties of $4.1 million and $2.5 million, respectively. During fiscal years 2019, 2018 and 2017, the Company recognized a net expense (benefit) of $1.6 million, $0.4 million and $(0.3) million, respectively, for interest and penalties in its total tax provision which includes settlements and statutes of limitations that had lapsed. At December 29, 2019, the Company had gross tax effected unrecognized tax benefits of $35.5 million, of which $33.8 million, if recognized, would affect the continuing operations effective tax rate. The remaining amount, if recognized, would affect discontinued operations.

The Company believes that it is reasonably possible that approximately $2.4 million of its uncertain tax positions at December 29, 2019, including accrued interest and penalties, and net of tax benefits, may be resolved over the next twelve months as a result of lapses in applicable statutes of limitations and potential settlements. Various tax years after 2010 remain open to examination by certain jurisdictions in which the Company has significant business operations, such as Finland, Germany, Italy, Netherlands, Singapore, China and the United States. The tax years under examination vary by jurisdiction.

During fiscal year 2019, the Company recorded net discrete income tax benefit of $23.4 million, of which $12.3 million was a result of a valuation allowance reversal, $4.9 million related to the recognition of excess tax benefits on stock compensation, $6.7 million related to provision to return adjustments, and $3.7 million was a result of tax elections made during fiscal year 2019. The preceding discrete benefits were partially offset by $2.7 million expense related to the one-time transition tax under the Tax Cut and Jobs Act (the “Tax Act”) and additional discrete expense of $1.4 million related to other tax matters. During fiscal years 2018 and 2017, the Company recorded net discrete income tax benefits of $8.1 million and income tax expense of $98.6 million, respectively. The $8.1 million tax benefit in fiscal year 2018 was primarily due to a discrete benefit of $7.2 million related to the recognition of excess tax benefits on stock compensation, along with an additional discrete benefit of $2.0 million as a result of the Tax Act, partially offset by $1.1 million expense related to other tax matters. The $98.6 million of tax expense in fiscal year 2017 was primarily related to $106.5 million expense as a result of the Tax Act, partially offset by discrete benefits of $5.1 million related to the recognition of excess tax benefits on stock compensation and $2.8 million related to other tax matters.

The components of income from continuing operations before income taxes were as follows for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
U.S.	$ 29,252	$ 32,627	$ 3,743
Non-U.S.	207,890	225,056	292,975
Total	$ 237,142	$ 257,683	$ 296,718

On a U.S. income tax basis, the Company has reported significant taxable income over the three-year period ended December 29, 2019. The Company has utilized tax attributes to minimize cash taxes paid on that taxable income.

The components of the provision for income taxes on continuing operations were as follows:

	Current Expense	Deferred Expense (Benefit)	Total
		(In thousands)	
Fiscal year ended December 29, 2019			
Federal	$ 3,735	$ (267)	$ 3,468
State	4,425	(1,574)	2,851
Non-U.S.	62,582	(59,512)	3,070
Total	$ 70,742	$ (61,353)	$ 9,389
Fiscal year ended December 30, 2018			
Federal	$ 7,938	$ (5,250)	$ 2,688
State	2,345	2,572	4,917
Non-U.S.	61,028	(48,425)	12,603
Total	$ 71,311	$ (51,103)	$ 20,208
Fiscal year ended December 31, 2017			
Federal	$ 62,003	$ 35,435	$ 97,438
State	3,332	(792)	2,540
Non-U.S.	45,639	(5,789)	39,850
Total	$ 110,974	$ 28,854	$ 139,828

The total provision for (benefit from) income taxes included in the consolidated financial statements is as follows for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Continuing operations	$ 9,389	$ 20,208	$ 139,828
Discontinued operations	195	(1,311)	44,522
Total	$ 9,584	$ 18,897	$ 184,350

A reconciliation of income tax expense at the U.S. federal statutory income tax rate to the recorded tax provision is as follows for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Tax at statutory rate	$ 49,799	$ 54,114	$ 103,851
Non-U.S. rate differential, net	(32,124)	(27,281)	(65,836)
U.S. taxation of multinational operations	4,251	7,047	5,408
State income taxes, net	1,941	2,028	1,810
Prior year tax matters	(5,103)	1,124	(2,888)
Effect of stock compensation	(2,053)	(6,331)	(5,067)
General business tax credits	(4,325)	(3,738)	(8,249)
Change in valuation allowance	(1,117)	(759)	1,951
Tax elections	(3,700)	—	—
Impact of U.S. Tax Act	2,718	(2,025)	106,538
Others, net	(898)	(3,971)	2,310
Total	$ 9,389	$ 20,208	$ 139,828

The variation in the Company's effective tax rate for each year is primarily a result of the recognition of earnings in foreign jurisdictions, predominantly Singapore, Finland and The Netherlands, which are taxed at rates lower than the U.S. federal statutory rate, resulting in a benefit from income taxes of $16.7 million in fiscal year 2019, $18.7 million in fiscal year 2018 and $55.9 million in fiscal year 2017. These amounts include $10.4 million in fiscal year 2019, $10.3 million in fiscal year 2018 and $10.1 million in fiscal year 2017 of benefits derived from tax holidays in China and Singapore. The effect of these benefits derived from tax holidays on basic and diluted earnings per share for fiscal year 2019 was $0.09 and $0.09, respectively, for fiscal year 2018 was $0.09 and $0.09, respectively, and for fiscal year 2017 was $0.09 and $0.09, respectively. The tax holiday in China is renewed every three years. The Company expects to renew the tax holiday of one of its subsidiaries in China that expired in fiscal year 2019. The tax holiday in one of the Company's subsidiaries in Singapore is scheduled to expire in fiscal year 2023.

The tax effects of temporary differences and attributes that gave rise to deferred income tax assets and liabilities as of December 29, 2019 and December 30, 2018 were as follows:

	December 29, 2019	December 30, 2018
	(In thousands)	
Deferred tax assets:		
Inventory	$ 4,662	$ —
Reserves and accruals	46,817	39,487
Accrued compensation	18,953	21,709
Net operating loss and credit carryforwards	116,751	144,421
Accrued pension	35,890	31,146
Restructuring reserve	2,983	1,780
Deferred revenue	30,412	31,045
Operating lease liabilities	46,477	—
Total deferred tax assets	302,945	269,588
Deferred tax liabilities:		
Inventory	—	(278)
Postretirement health benefits	(4,106)	(3,406)
Depreciation and amortization	(330,768)	(309,958)
Operating lease right-of-use assets	(42,774)	—
All other, net	(1,780)	(1,879)
Total deferred tax liabilities	(379,428)	(315,521)
Valuation allowance	(88,449)	(102,087)
Net deferred tax liabilities	$ (164,932)	$ (148,020)

The components of net deferred tax liabilities as of December 29, 2019 and December 30, 2018 were recognized in the consolidated balance sheets as follows:

	December 29, 2019	December 30, 2018
	(In thousands)	
Other assets, net	$ 60,004	$ 79,312
Long-term liabilities	(224,936)	(227,332)
Total	$ (164,932)	$ (148,020)

At December 29, 2019, for income tax return purposes, the Company had U.S. federal net operating loss carryforwards of $33.6 million, state net operating loss carryforwards of $213.8 million, foreign net operating loss carryforwards of $408.7 million, state tax credit carryforwards of $6.7 million, general business tax credit carryforwards of $5.7 million, and foreign tax credit carryforwards of $0.1 million. These are subject to expiration in years ranging from 2020 to 2038, and without expiration for certain foreign net operating loss carryforwards and certain state credit carryforwards.

Valuation allowances take into consideration limitations imposed upon the use of the tax attributes and reduce the value of such items to the likely net realizable amount. The Company regularly evaluates positive and negative evidence available to determine if valuation allowances are required or if existing valuation allowances are no longer required. Valuation allowances have been provided on state net operating loss and state tax credit carryforwards and on certain foreign tax attributes that the Company has determined are not more likely than not to be realized. The decrease in the valuation allowance of $13.6 million in fiscal year 2019 is primarily due to the reversal of $12.3 million of valuation allowance related to the utilization of net operating loss carryforwards by some of the Company's non-U.S. subsidiaries.

The components of net deferred tax (liabilities) assets as of December 29, 2019 and December 30, 2018 were as follows:

	December 29, 2019	December 30, 2018
	(In thousands)	
U.S.	$ 43,683	$ 52,469
Non-U.S.	(208,615)	(200,489)
Total	$ (164,932)	$ (148,020)

Historically, deferred income tax expense has not been provided on the cumulative undistributed earnings of the Company's international subsidiaries. In fiscal year 2018, the Company determined that previously undistributed earnings of certain international subsidiaries of $1.4 billion no longer met the requirements of indefinite reinvestment. The Company recognized $2.9 million of income tax expense in fiscal year 2018 associated with the change in its assertion. In addition, during fiscal years 2019 and 2018, the Company refined its calculations of the one-time transition tax and recorded a tax expense (benefit) of $2.7 million and $(4.6) million, respectively. The Company's intent is to continue to reinvest the remaining undistributed earnings of its international subsidiaries indefinitely. While federal income tax expense has been recognized as a result of the Tax Act, the Company has not provided any additional deferred taxes with respect to items such as foreign withholding taxes, state income tax or foreign exchange gain or loss. In addition, no additional income taxes have been provided for any remaining undistributed foreign earnings not subject to the transition tax, or any additional outside basis difference inherent in these entities, as these amounts continue to be indefinitely reinvested in foreign operations. As of December 29, 2019, the amount of foreign earnings that the Company has the intent and ability to keep invested outside the U.S. indefinitely and for which no additional incremental tax cost has been provided, other than the $86.0 million from the one-time transition tax on deemed repatriation, was approximately $449.2 million. It is not practicable for the Company to calculate the unrecognized deferred tax liability related to such incremental tax costs on those earnings.

Note 8: Earnings Per Share

Basic earnings per share was computed by dividing net income by the weighted-average number of common shares outstanding during the period less restricted unvested shares. Diluted earnings per share was computed by dividing net income by the weighted-average number of common shares outstanding plus all potentially dilutive common stock equivalents, primarily shares issuable upon the exercise of stock options using the treasury stock method. The following table reconciles the number of shares utilized in the earnings per share calculations for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Number of common shares—basic	110,827	110,561	109,857
Effect of dilutive securities:			
Stock options	541	761	708
Restricted stock awards	133	212	294
Number of common shares—diluted	111,501	111,534	110,859
Number of potentially dilutive securities excluded from calculation due to antidilutive impact	364	349	287

Antidilutive securities include outstanding stock options with exercise prices and average unrecognized compensation cost in excess of the average fair market value of common stock for the related period. Antidilutive options were excluded from the calculation of diluted net income per share and could become dilutive in the future.

Note 9: Accounts Receivable, Net

Accounts receivable, net as of December 29, 2019 and December 30, 2018 consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
Accounts receivable, net, current	$ 725,184	$ 632,669
Long-term accounts receivable, net, included in Other assets	19,677	—
Total accounts receivable, net	$ 744,861	$ 632,669

Accounts receivable were net of reserves for doubtful accounts of $35.2 million and $30.6 million as of December 29, 2019 and December 30, 2018, respectively.

Note 10: Inventories

Inventories as of December 29, 2019 and December 30, 2018 consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
Raw materials	$ 130,673	$ 119,115
Work in progress	26,409	18,110
Finished goods	199,855	201,122
Total inventories	$ 356,937	$ 338,347

Note 11: Property, Plant and Equipment, Net

Property, plant and equipment as of December 29, 2019 and December 30, 2018, consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
At cost:		
Land	$ 5,272	$ 5,482
Building and leasehold improvements	250,639	272,277
Machinery and equipment	445,669	402,424
Total property, plant and equipment	701,580	680,183
Accumulated depreciation	(383,357)	(361,593)
Total property, plant and equipment, net	$ 318,223	$ 318,590

Depreciation expense on property, plant and equipment for the fiscal years ended December 29, 2019, December 30, 2018 and December 31, 2017 was $49.7 million, $44.7 million and $31.3 million, respectively.

Note 12: Marketable Securities and Investments

Investments as of December 29, 2019 and December 30, 2018 consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
Marketable securities	$ 2,906	$ 2,447
Equity investments	29,228	16,783
	$ 32,134	$ 19,230

Marketable securities. Marketable securities include equity and fixed-income securities held to meet obligations associated with the Company’s supplemental executive retirement plan and other deferred compensation plans. The Company has, accordingly, classified these securities as long-term.

The net unrealized holding gain and loss on marketable securities, net of deferred income taxes, reported as a component of other comprehensive income (loss) in the statements of stockholders’ equity, were not material in fiscal years 2019 and 2018. The proceeds from the sales of securities and the related gains and losses are not material for any period presented.

Marketable securities classified as available for sale as of December 29, 2019 and December 30, 2018 consisted of the following:

	Market Value	Gross Unrealized Holding Cost	Gains	(Losses)
	(In thousands)			
December 29, 2019				
Equity securities	$ 752	$ 1,109	$ —	$ (357)
Fixed-income securities	7	7	—	—
Other	2,147	2,210	—	(63)
	$ 2,906	$ 3,326	$ —	$ (420)
December 30, 2018				
Equity securities	$ 671	$ 1,037	$ —	$ (366)
Fixed-income securities	22	22	—	—
Other	1,754	1,817	—	(63)
	$ 2,447	$ 2,876	$ —	$ (429)

Equity investments. The Company has equity interests in privately-held entities over which the Company neither has significant influence nor control. These equity investments are carried at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer, with changes included in earnings. The Company also recognizes income for any dividends declared from distribution of investee's earnings.

The Company regularly reviews its investments for impairment, including when the carrying value of an investment exceeds its market value. If the Company determines that an investment has sustained an other-than-temporary decline in its value, the investment is written down to its fair value by a charge to earnings that is included in Interest and other expense, net in the consolidated statements of operations. Factors that are considered by the Company in determining whether an other-than-temporary decline in value has occurred include (i) the market value of the security in relation to its cost basis, (ii) the financial condition of the investee, and (iii) the Company's intent and ability to retain the investment for a sufficient period of time to allow for recovery in the market value of the investment.

For investments without a readily available fair value, the Company evaluates the available information (e.g., budgets, business plans, financial statements, etc.) in addition to quoted market prices, if any, in determining whether an other-than-temporary decline in value exists. Factors indicative of an other-than-temporary decline include recurring operating losses, credit defaults and subsequent rounds of financing at an amount below the cost basis of the Company's investment.

Note 13: Goodwill and Intangible Assets, Net

The Company tests goodwill and non-amortizing intangible assets at least annually for possible impairment. Accordingly, the Company completes the annual testing of impairment for goodwill and non-amortizing intangible assets on the later of January 1 or the first day of each fiscal year. In addition to its annual test, the Company regularly evaluates whether events or circumstances have occurred that may indicate a potential impairment of goodwill or non-amortizing intangible assets.

The process of testing goodwill for impairment involves the determination of the fair value of the applicable reporting units. The test consists of the comparison of the fair value to the carrying value of the reporting unit to determine if the carrying value exceeds the fair value. If the carrying value of the reporting unit exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of goodwill. The Company performed its annual impairment testing for its reporting units as of January 1, 2019, its annual impairment testing date for fiscal year 2019.

Non-amortizing intangibles are also subject to an annual impairment test. The Company consistently employed the relief from royalty model to estimate the current fair value when testing for impairment of non-amortizing intangible asset. The impairment test consists of a comparison of the fair value of the non-amortizing intangible asset with its carrying amount. If the carrying amount of a non-amortizing intangible asset exceeds its fair value, an impairment loss in an amount equal to that excess is recognized up to the amount of the amortizing intangible asset. In addition, the Company evaluates the remaining useful life of our non-amortizing intangible asset at least annually to determine whether events or circumstances continue to support an indefinite useful life. If events or circumstances indicate that the useful life of our non-amortizing intangible asset is no longer indefinite, the asset will be tested for impairment. This intangible asset will then be amortized prospectively over its estimated remaining useful life and accounted for in the same manner as other intangible assets that are subject to amortization.

The changes in the carrying amount of goodwill for fiscal years 2019 and 2018 are as follows:

	Discovery & Analytical Solutions	Diagnostics	Consolidated
Balance at December 31, 2017	$ 1,344,235	$ 1,657,963	$ 3,002,198
Foreign currency translation	(32,189)	(35,289)	(67,478)
Acquisitions, earnouts and other	22,946	(5,058)	17,888
Balance at December 30, 2018	1,334,992	1,617,616	2,952,608
Foreign currency translation	(8,559)	(9,725)	(18,284)
Acquisitions, earnouts and other	172,387	4,516	176,903
Balance at December 29, 2019	$ 1,498,820	$ 1,612,407	$ 3,111,227

Identifiable intangible asset balances at December 29, 2019 by category and by business segment were as follows:

	Discovery & Analytical Solutions	Diagnostics	Consolidated
Patents	$ 28,122	$ 2,709	$ 30,831
Less: Accumulated amortization	(27,142)	(281)	(27,423)
Net patents	980	2,428	3,408
Trade names and trademarks	39,859	48,138	87,997
Less: Accumulated amortization	(23,632)	(16,663)	(40,295)
Net trade names and trademarks	16,227	31,475	47,702
Licenses	50,393	8,103	58,496
Less: Accumulated amortization	(47,607)	(2,126)	(49,733)
Net licenses	2,786	5,977	8,763
Core technology	390,116	298,973	689,089
Less: Accumulated amortization	(205,263)	(115,663)	(320,926)
Net core technology	184,853	183,310	368,163
Customer relationships	313,898	847,628	1,161,526
Less: Accumulated amortization	(156,967)	(221,221)	(378,188)
Net customer relationships	156,931	626,407	783,338
IPR&D	—	1,328	1,328
Net amortizable intangible assets	361,777	850,925	1,212,702
Non-amortizing intangible asset:			
Trade name	70,584	—	70,584
Total	$ 432,361	$ 850,925	$ 1,283,286

Identifiable intangible asset balances at December 30, 2018 by category and business segment were as follows:

	Discovery & Analytical Solutions	Diagnostics	Consolidated
Patents	$ 28,030	$ 14,616	$ 42,646
Less: Accumulated amortization	(25,978)	(11,775)	(37,753)
Net patents	2,052	2,841	4,893
Trade names and trademarks	29,811	48,335	78,146
Less: Accumulated amortization	(21,728)	(12,073)	(33,801)
Net trade names and trademarks	8,083	36,262	44,345
Licenses	50,178	3,127	53,305
Less: Accumulated amortization	(44,376)	(1,174)	(45,550)
Net licenses	5,802	1,953	7,755
Core technology	240,734	300,177	540,911
Less: Accumulated amortization	(189,033)	(76,711)	(265,744)
Net core technology	51,701	223,466	275,167
Customer relationships	222,892	866,635	1,089,527
Less: Accumulated amortization	(128,142)	(165,822)	(293,964)
Net customer relationships	94,750	700,813	795,563
IPR&D	—	1,360	1,360
Net amortizable intangible assets	162,388	966,695	1,129,083
Non-amortizing intangible asset:			
Trade name	70,584	—	70,584
Total	$ 232,972	$ 966,695	$ 1,199,667

Total amortization expense related to definite-lived intangible assets was $164.3 million in fiscal year 2019, $135.9 million in fiscal year 2018 and $73.7 million in fiscal year 2017. Estimated amortization expense related to definite-lived intangible assets for each of the next five years is $188.8 million in fiscal year 2020, $173.0 million in fiscal year 2021, $156.6 million in fiscal year 2022, $132.6 million in fiscal year 2023, and $111.3 million in fiscal year 2024.

Note 14: Debt

Senior Unsecured Revolving Credit Facility. On September 17, 2019, the Company terminated its previous senior unsecured revolving credit facility and entered into a new senior unsecured revolving credit facility with a five-year term and a borrowing capacity of $1.0 billion. The new senior unsecured revolving credit facility provides for revolving loans that may be either US Dollar Base Rate loans or Eurocurrency Rate loans, as those terms are defined in the new credit agreement. As of December 29, 2019, undrawn letters of credit in the aggregate amount of $11.4 million were treated as issued and outstanding when calculating the borrowing availability under the new senior unsecured revolving credit facility. As of December 29, 2019, the Company had $663.2 million available for additional borrowing under the facility. The Company plans to use the new senior unsecured revolving credit facility for general corporate purposes, which may include working capital, refinancing existing indebtedness, capital expenditures, share repurchases, acquisitions and strategic alliances.

The interest rates on the Eurocurrency Rate loans are based on the Eurocurrency Rate at the time of borrowing, plus a percentage spread based on the credit rating of the Company's debt. The interest rates on the US Dollar Base Rate loans are based on the US Dollar Base Rate at the time of borrowing, plus a percentage spread based on the credit rating of the Company's debt. The base rate is the higher of (i) the Federal Funds Rate (as defined in the new credit agreement) plus 50 basis points, (ii) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its "prime rate," or (iii) the Eurocurrency Rate plus 1.00%. The Eurocurrency margin as of December 29, 2019 was 102.0 basis points. The weighted average Eurocurrency interest rate as of December 29, 2019 was 1.67%, resulting in a weighted average effective Eurocurrency Rate, including the margin, of 2.68%, which was the interest applicable to the borrowings outstanding as of December 29, 2019. As of December 29, 2019, the new senior unsecured revolving credit facility had outstanding borrowings of $325.4 million, and $3.4 million of unamortized debt issuance costs. As of December 30, 2018, the previous senior unsecured revolving credit facility had $418.0 million of outstanding borrowings, and $2.4 million of unamortized debt issuance costs. The credit agreement for the new facility contains affirmative, negative and financial covenants and events of default. The financial covenants include a debt-to-capital ratio that remains applicable for so long as the Company's debt is rated as investment grade. In the event that the Company's debt is not rated as investment grade, the debt-to-capital ratio covenant is replaced with a maximum consolidated leverage ratio covenant and a minimum consolidated interest coverage ratio covenant.

5% Senior Unsecured Notes due in 2021. On October 25, 2011, the Company issued $500.0 million aggregate principal amount of senior unsecured notes due in 2021 (the "November 2021 Notes") in a registered public offering and received $493.6 million of net proceeds from the issuance. The November 2021 Notes were issued at 99.4% of the principal amount, which resulted in a discount of $3.1 million. On October 13, 2019, the Company redeemed all of its outstanding November 2021 Notes. The redemption of the November 2021 Notes resulted in a pre-tax, non-operating charge of $32.3 million. The non-operating charge consists of a make-whole premium payment of $31.3 million, partially offset by $1.0 million of proceeds received from a reverse treasury rate lock settlement, to call the November 2021 Notes and $2.0 million associated with the write-off of the existing deferred costs and original issue discount. As of December 30, 2018, the November 2021 Notes had an aggregate carrying value of $497.4 million, net of $1.1 million of unamortized original issue discount and $1.6 million of unamortized debt issuance costs.

1.875% Senior Unsecured Notes due 2026. On July 19, 2016, the Company issued €500.0 million aggregate principal amount of senior unsecured notes due in 2026 (the "2026 Notes") in a registered public offering and received approximately €492.3 million of net proceeds from the issuance. The 2026 Notes were issued at 99.118% of the principal amount, which resulted in a discount of €4.4 million. The 2026 Notes mature in July 2026 and bear interest at an annual rate of 1.875%. Interest on the 2026 Notes is payable annually on July 19th each year. The proceeds from the 2026 Notes were used to pay in full the outstanding balance of the Company's previous senior unsecured revolving credit facility. As of December 29, 2019, the 2026 Notes had an aggregate carrying value of $552.2 million, net of $3.5 million of unamortized original issue discount and $3.3 million of unamortized debt issuance costs. As of December 30, 2018, the 2026 Notes had an aggregate carrying value of $564.5 million, net of $4.0 million of unamortized original issue discount and $3.8 million of unamortized debt issuance costs.

Prior to April 19, 2026 (three months prior to their maturity date), the Company may redeem the 2026 Notes in whole at any time or in part from time to time, at its option, at a redemption price equal to the greater of (i) 100% of the principal amount of the 2026 Notes to be redeemed, or (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the 2026 Notes being redeemed, discounted on an annual basis, at the applicable Comparable Government Bond Rate (as defined in the indenture governing the 2026 Notes) plus 35 basis points; plus, in each case, accrued and unpaid interest. In addition, at any time on or after April 19, 2026 (three months prior to their maturity date), the Company may redeem the 2026 Notes, at its option, at a redemption price equal to 100% of the principal amount of the 2026 Notes due to be redeemed plus accrued and unpaid interest.

Upon a change of control (as defined in the indenture governing the 2026 Notes) and a contemporaneous downgrade of the 2026 Notes below investment grade, the Company will, in certain circumstances, make an offer to purchase the 2026 Notes at a price equal to 101% of their principal amount plus any accrued and unpaid interest.

0.6% Senior Unsecured Notes due in 2021. On April 11, 2018, the Company issued €300.0 million aggregate principal amount of senior unsecured notes due in 2021 (the "April 2021 Notes") in a registered public offering and received approximately €298.7 million of net proceeds from the issuance. The April 2021 Notes were issued at 99.95% of the principal amount, which resulted in a discount of €0.2 million. As of December 29, 2019, the April 2021 Notes had an aggregate carrying value of $334.2 million, net of $0.1 million of unamortized original issue discount and $1.1 million of unamortized debt issuance costs. As of December 30, 2018, the April 2021 Notes had an aggregate carrying value of $341.3 million, net of $0.1 million of unamortized original issue discount and $2.0 million of unamortized debt issuance costs. The April 2021 Notes mature in April 2021 and bear interest at an annual rate of 0.6%. Interest on the April 2021 Notes is payable annually on April 9th each year. Prior to the maturity date of the April 2021 Notes, the Company may redeem them in whole at any time or in part from time to time, at its option, at a redemption price equal to the greater of (i) 100% of the principal amount of the April 2021 Notes to be redeemed, or (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the April 2021 Notes being redeemed, discounted on an annual basis, at the applicable Comparable Government Bond Rate (as defined in the indenture governing the April 2021 Notes) plus 15 basis points; plus, in each case, accrued and unpaid interest. Upon a change of control (as defined in the indenture governing the April 2021 Notes) and a contemporaneous downgrade of the April 2021 Notes below investment grade, the Company will, in certain circumstances, make an offer to purchase the April 2021 Notes at a price equal to 101% of their principal amount, plus accrued and unpaid interest.

3.3% Senior Unsecured Notes due in 2029. On September 12, 2019, the Company issued $850.0 million aggregate principal amount of senior unsecured notes due in 2029 (the "2029 Notes") in a registered public offering and received $847.2 million of net proceeds from the issuance. The 2029 Notes were issued at 99.67% of the principal amount, which resulted in a discount of $2.8 million. As of December 29, 2019, the 2029 Notes had an aggregate carrying value of $839.9 million, net of $2.7 million of unamortized original issue discount and $7.4 million of unamortized debt issuance costs. The 2029 Notes mature in September 2029 and bear interest at an annual rate of 3.3%. Interest on the 2029 Notes is payable semi-annually on March 15th and September 15th each year. Proceeds from the 2029 Notes were used to repay all outstanding borrowings under the Company's previous senior unsecured revolving credit facility with the remaining proceeds used in the redemption of the November 2021 Notes. Prior to June 15, 2029 (three months prior to their maturity date), the Company may redeem the 2029 Notes in whole or in part, at its option, at a redemption price equal to the greater of (i) 100% of the principal amount of the 2029 Notes to be redeemed, and (ii) the sum of the present values of the remaining scheduled payments of principal and interest in respect to the 2029 Notes being redeemed (not including any portion of such payments of interest accrued but unpaid as of the date of redemption) assuming that such 2029 Notes matured on June 15, 2029, discounted at the date of redemption on a semi-annual basis (assuming a 360-day year of twelve 30-day months), at the Treasury Rate (as defined in the indenture governing the 2029 Notes) plus 25 basis points, plus accrued and unpaid interest. At any time on or after June 15, 2029 (three months prior to their maturity date), the Company may redeem the 2029 Notes, at its option, at a redemption price equal to 100% of the principal amount of the 2029 Notes to be redeemed plus accrued and unpaid interest. Upon a change of control (as defined in the indenture governing the 2029 Notes) and a contemporaneous downgrade of the 2029 Notes below investment grade, each holder of 2029 Notes will have the right to require the Company to repurchase such holder's 2029 Notes for 101% of their principal amount, plus accrued and unpaid interest.

Other Debt Facilities. The Company's other debt facilities include Euro-denominated bank loans with an aggregate carrying value of $23.8 million (or €21.3 million) and $32.1 million (or €28.0 million) as of December 29, 2019 and December 30, 2018, respectively. These bank loans are primarily utilized for financing fixed assets and are required to be repaid in monthly or quarterly installments with maturity dates extending to 2028. Of these bank loans, loans in the aggregate amount of $23.7 million bear fixed interest rates between 1.1% and 4.3% and a loan in the amount of $0.1 million bears a variable interest rate based on the Euribor rate plus a margin of 1.5%. An aggregate amount of $6.3 million of the bank loans are secured by mortgages on real property and the remaining $17.5 million are unsecured. Certain credit agreements for the unsecured bank loans include financial covenants which are based on an equity ratio or an equity ratio and minimum interest coverage ratio.

In addition, the Company had secured bank loans in the amount of $1.9 million as of December 29, 2019, and unsecured revolving credit facilities and a secured bank loan in the amount of $5.8 million and $0.3 million, respectively, as of December 30, 2018. The unsecured revolving debt facilities had fixed interest at a rate of 2.3%. The secured bank loans of $1.9 million bear fixed annual interest rates between 1.95% and 21.5% and are required to be repaid in monthly installments until 2027.

Financing Lease Obligations. In fiscal year 2012, the Company entered into agreements with the lessors of certain buildings that the Company is currently occupying and leasing to expand those buildings. The Company provided a portion of the funds needed for the construction of the additions to the buildings, and as a result the Company was considered the owner of the buildings during the construction period. At the end of the construction period, the Company was not reimbursed by the lessors for all of the construction costs. The Company is therefore deemed to have continuing involvement and the leases qualify as financing leases under sale-leaseback accounting guidance, representing debt obligations for the Company and non-cash investing and financing activities. As a result, the Company capitalized $29.3 million in property, plant and equipment, net, representing the fair value of the buildings with a corresponding increase to debt. The Company has also capitalized $11.5 million in additional construction costs necessary to complete the renovations to the buildings, which were funded by the lessors, with a corresponding increase to debt. At December 30, 2018, the Company had $34.5 million recorded for these financing lease obligations, of which $1.5 million was recorded as short-term debt and $33.0 million was recorded as long-term debt. Prior to adoption of ASC 842, *Leases* ("ASC 842"), the buildings were depreciated on a straight-line basis over the terms of the leases to their estimated residual values, which will equal the remaining financing obligation at the end of the lease term. At the end of the lease term, the remaining balances in property, plant and equipment, net and debt will be reversed against each other. Upon adoption of ASC 842 in fiscal year 2019, the Company derecognized the impact of this build-to-suit arrangement.

The following table summarizes the maturities of the Company's indebtedness as of December 29, 2019:

	Sr. Unsecured Revolving Credit Facility Maturing 2024	April 2021 Notes	2026 Notes	2029 Notes	Other Debt Facilities	Total
			(In thousands)			
2020	$ —	$ —	$ —	$ —	$ 9,974	$ 9,974
2021	—	335,370	—	—	7,910	343,280
2022	—	—	—	—	3,759	3,759
2023	—	—	—	—	2,278	2,278
2024	325,377	—	—	—	1,287	326,664
2025 and thereafter	—	—	558,950	850,000	536	1,409,486
Total before unamortized discount and debt issuance costs	325,377	335,370	558,950	850,000	25,744	2,095,441
Unamortized discount and debt issuance costs	(3,356)	(1,194)	(6,756)	(10,120)	—	(21,426)
Total	$ 322,021	$ 334,176	$ 552,194	$ 839,880	$ 25,744	$ 2,074,015

Note 15: Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities as of December 29, 2019 and December 30, 2018 consisted of the following:

	December 29, 2019	December 30, 2018
	(In thousands)	
Payroll and incentives	$ 77,892	$ 86,549
Employee benefits	42,405	44,060
Deferred revenue	164,261	155,064
Federal, non-U.S. and state income taxes	29,876	30,687
Other accrued operating expenses	188,898	212,467
Total accrued expenses and other current liabilities	$ 503,332	$ 528,827

Note 16: Employee Benefit Plans

Savings Plan: The Company has a 401(k) Savings Plan for the benefit of all qualified U.S. employees, with such employees receiving matching contributions in the amount equal to 100.0% of the first 5.0% of eligible compensation up to applicable Internal Revenue Service limits. Savings plan expense was $13.6 million in fiscal year 2019, $13.2 million in fiscal year 2018, and $12.5 million in fiscal year 2017.

Pension Plans: The Company has a defined benefit pension plan covering certain U.S. employees and non-U.S. pension plans for certain non-U.S. employees. The principal U.S. defined benefit pension plan was closed to new hires effective January 31, 2001, and benefits for those employed by the Company's former Life Sciences business were frozen as of that date. Plan benefits were frozen as of March 2003 for those employed by the Company's former Analytical Instruments business and corporate employees. Plan benefits were frozen as of January 31, 2011 for all remaining employees that were still actively accruing in the plan. The plans provide benefits that are based on an employee's years of service and compensation near retirement.

Net periodic pension cost (credit) for U.S. and non-U.S. plans included the following components for fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Service and administrative costs	$ 6,598	$ 6,853	$ 4,951
Interest cost	16,546	16,146	16,707
Expected return on plan assets	(24,561)	(28,939)	(26,401)
Actuarial loss (gain)	27,134	17,146	(7,085)
Curtailment gain	(1,547)	—	—
Amortization of prior service (credit) cost	(152)	375	(195)
Net periodic pension cost (credit)	$ 24,018	$ 11,581	$ (12,023)

The Company recognizes actuarial gains and losses, unless an interim remeasurement is required, in the fourth quarter of the year in which the gains and losses occur, in accordance with the Company's accounting method for defined benefit pension plans and other postretirement benefits as described in Note 1, *Nature of Operations and Accounting Policies*. Such adjustments for gains and losses are primarily driven by events and circumstances beyond the Company's control, including changes in interest rates, the performance of the financial markets and mortality assumptions. Actuarial gains and losses, including other components of periodic pension cost, are recognized in the line item "Interest and other expense, net" in the consolidated statements of operations.

The following table sets forth the changes in the funded status of the principal U.S. pension plan and the principal non-U.S. pension plans and the amounts recognized in the Company's consolidated balance sheets as of December 29, 2019 and December 30, 2018.

	December 29, 2019		December 30, 2018	
	Non-U.S.	U.S.	Non-U.S.	U.S.
	(In thousands)			
Actuarial present value of benefit obligations:				
Accumulated benefit obligations	$ 338,722	$ 304,710	$ 304,065	$ 283,310
Change in benefit obligations:				
Projected benefit obligations at beginning of year	$ 311,168	$ 283,310	$ 343,410	$ 308,713
Service and administrative costs	4,248	2,350	4,528	2,325
Interest cost	5,448	11,098	5,484	10,662
Benefits paid and plan expenses	(12,778)	(21,162)	(13,081)	(19,709)
Participants' contributions	162	—	176	—
Business acquisitions	—	—	537	—
Plan amendments	—	—	533	—
Plan curtailments	(1,420)	—	—	—
Actuarial loss (gain)	34,602	29,114	(13,141)	(18,681)
Effect of exchange rate changes	25	—	(17,278)	—
Projected benefit obligations at end of year	$ 341,455	$ 304,710	$ 311,168	$ 283,310
Change in plan assets:				
Fair value of plan assets at beginning of year	$ 159,163	$ 234,342	$ 179,736	$ 253,427
Actual return on plan assets	19,873	41,270	(5,653)	(14,376)
Benefits paid and plan expenses	(12,778)	(21,162)	(13,081)	(19,709)
Employer's contributions	8,200	—	8,480	15,000
Participants' contributions	162	—	176	—
Effect of exchange rate changes	5,240	—	(10,495)	—
Fair value of plan assets at end of year	$ 179,860	$ 254,450	$ 159,163	$ 234,342
Net liabilities recognized in the consolidated balance sheets	$ (161,595)	$ (50,260)	$ (152,005)	$ (48,968)
Net amounts recognized in the consolidated balance sheets consist of:				
Other assets	$ 36,699	$ —	$ 31,419	$ —
Current liabilities	(6,764)	—	(6,752)	—
Long-term liabilities	(191,530)	(50,260)	(176,672)	(48,968)
Net liabilities recognized in the consolidated balance sheets	$ (161,595)	$ (50,260)	$ (152,005)	$ (48,968)
Net amounts recognized in accumulated other comprehensive income consist of:				
Prior service cost	$ —	$ —	$ (278)	$ —
Actuarial assumptions as of the year-end measurement date:				
Discount rate	1.34%	3.01%	2.07%	4.05%
Rate of compensation increase	3.36%	None	3.48%	None

Actuarial assumptions used to determine net periodic pension cost during the year were as follows:

	December 29, 2019		December 30, 2018		December 31, 2017	
	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.
Discount rate	2.07%	4.05%	1.99%	3.56%	2.06%	4.06%
Rate of compensation increase	3.48%	None	3.50%	None	3.64%	None
Expected rate of return on assets	5.30%	7.25%	5.90%	7.25%	6.00%	7.25%

The following table provides a breakdown of the non-U.S. benefit obligations and fair value of assets for pension plans that have benefit obligations in excess of plan assets:

	December 29, 2019	December 30, 2018
	(In thousands)	
Pension Plans with Projected Benefit Obligations in Excess of Plan Assets		
Projected benefit obligations	$ 198,294	$ 183,424
Fair value of plan assets	—	—
Pension Plans with Accumulated Benefit Obligations in Excess of Plan Assets		
Accumulated benefit obligations	$ 195,657	$ 180,560
Fair value of plan assets	—	—

Assets of the defined benefit pension plans are primarily equity and debt securities. Asset allocations as of December 29, 2019 and December 30, 2018, and target asset allocations for fiscal year 2020 are as follows:

	Target Allocation		Percentage of Plan Assets at			
	January 3, 2021		December 29, 2019		December 30, 2018	
Asset Category	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.
Equity securities	0-5%	40-60%	—%	41%	48%	39%
Debt securities	85-90%	40-60%	87%	59%	51%	61%
Other	10-15%	0-10%	13%	—%	1%	—%
Total	100%	100%	100%	100%	100%	100%

The Company maintains target allocation percentages among various asset classes based on investment policies established for the pension plans which are designed to maximize the total rate of return (income and appreciation) after inflation within the limits of prudent risk taking, while providing for adequate near-term liquidity for benefit payments.

The Company's expected rate of return on assets assumptions are derived from management's estimates, as well as other information compiled by management, including studies that utilize customary procedures and techniques. The studies include a review of anticipated future long-term performance of individual asset classes and consideration of the appropriate asset allocation strategy given the anticipated requirements of the plans to determine the average rate of earnings expected on the funds invested to provide for the pension plans benefits. While the study gives appropriate consideration to recent fund performance and historical returns, the assumption is primarily a long-term, prospective rate.

The Company's discount rate assumptions are derived from a range of factors, including a yield curve for certain plans, composed of the rates of return on high-quality fixed-income corporate bonds available at the measurement date and the related expected duration for the obligations, and a bond matching approach for certain plans.

During fiscal year 2017, for the plans in the United States, the Society of Actuaries issued an updated projection scale, MP-2017, as of December 31, 2017. The adoption of MP-2017 resulted in a $2.6 million decrease to the projected benefit obligation at December 31, 2017. During fiscal year 2018, the Society of Actuaries issued an updated projection scale, MP-2018, which incorporated an additional year (2016) of U.S. population data and reduced the life expectancy used to determine the projected benefit obligation. The Company adopted MP-2018 as of December 30, 2018. The adoption of MP-2018 resulted in a $1.0 million decrease to the projected benefit obligation at December 30, 2018. During fiscal year 2019, the Society of Actuaries issued an updated projection scale, MP-2019, which incorporated an additional year (2017) of U.S. population data and reduced the life expectancy used to determine the projected benefit obligation. The Company adopted MP-2019 as of December 29, 2019. The adoption of MP-2019 resulted in a $4.4 million decrease to the projected benefit obligation at December 29, 2019. The changes to the projected benefit obligations due to the adoption of the mortality base table and projection scale are included within "Actuarial loss (gain)" in the Change in Benefit Obligations for fiscal years 2019 and 2018 above.

The target allocations for plan assets are listed in the above table. Equity securities primarily include investments in large-cap and mid-cap companies located in the United States and abroad, and equity index funds. Debt securities include corporate bonds of companies from diversified industries, high-yield bonds, and U.S. government securities. Other types of investments include investments in non-U.S. government index linked bonds, multi-strategy hedge funds and venture capital funds that follow several different strategies.

The fair values of the Company's pension plan assets as of December 29, 2019 and December 30, 2018 by asset category, classified in the three levels of inputs described in Note 22 to the consolidated financial statements are as follows:

	Total Carrying Value at December 29, 2019	Fair Value Measurements at December 29, 2019 Using:		
		Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Cash	$ 6,177	$ 6,177	$ —	$ —
Equity securities:				
U.S. large-cap	57,797	57,797	—	—
International large-cap value	26,914	26,914	—	—
U.S. small mid-cap	2,700	2,700	—	—
Emerging markets growth	12,853	12,853	—	—
Domestic real estate funds	2,010	2,010	—	—
Foreign real estate funds	22,688	—	—	22,688
Fixed income securities:				
Non-U.S. treasury securities	93,473	—	93,473	—
Corporate and U.S. debt instruments	139,300	47,104	92,196	—
Corporate bonds	29,846	—	29,846	—
High yield bond funds	5,734	5,734	—	—
Other types of investments:				
Multi-strategy hedge funds	1,721	—	—	1,721
Non-U.S. government index linked bonds	33,097	—	33,097	—
Total assets measured at fair value	$ 434,310	$ 161,289	$ 248,612	$ 24,409

	Total Carrying Value at December 30, 2018	Fair Value Measurements at December 30, 2018 Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Cash	$ 6,326	$ 6,326	$ —	$ —
Equity Securities:				
U.S. large-cap	35,072	35,072	—	—
International large-cap value	24,175	24,175	—	—
U.S. small-cap	1,928	1,928	—	—
Emerging markets growth	11,993	11,993	—	—
Equity index funds	54,342	—	54,342	—
Domestic real estate funds	1,353	1,353	—	—
Foreign real estate funds	22,196	—	—	22,196
Commodity funds	886	886	—	—
Fixed income securities:				
Non-U.S. Treasury Securities	23,352	—	23,352	—
Corporate and U.S. debt instruments	131,211	48,133	83,078	—
Corporate bonds	24,848	—	24,848	—
High yield bond funds	5,186	5,186	—	—
Other types of investments:				
Multi-strategy hedge funds	16,934	—	—	16,934
Non-U.S. government index linked bonds	33,703	—	33,703	—
Total assets measured at fair value	$ 393,505	$ 135,052	$ 219,323	$ 39,130

Valuation Techniques: Valuation techniques utilized need to maximize the use of observable inputs and minimize the use of unobservable inputs. There have been no changes in the methodologies utilized at December 29, 2019 compared to December 30, 2018. The following is a description of the valuation techniques utilized to measure the fair value of the assets shown in the table above.

Equity Securities: Shares of registered investment companies that are publicly traded are categorized as Level 1 assets; they are valued at quoted market prices that represent the net asset value of the fund. These instruments have active markets.

Equity index funds are mutual funds that are not publicly traded and are comprised primarily of underlying equity securities that are publicly traded on exchanges. Price quotes for the assets held by these funds are readily observable and available. Equity index funds are categorized as Level 2 assets.

Fixed Income Securities: Fixed income mutual funds that are publicly traded are valued at quoted market prices that represent the net asset value of securities held by the fund and are categorized as Level 1 assets.

Fixed income index funds that are not publicly traded are stated at net asset value as determined by the issuer of the fund based on the fair value of the underlying investments and are categorized as Level 2 assets.

Individual fixed income bonds are categorized as Level 2 assets except where sufficient quoted prices exist in active markets, in which case such securities are categorized as Level 1 assets. These securities are valued using third-party pricing services. These services may use, for example, model-based pricing methods that utilize observable market data as inputs. Broker dealer bids or quotes of securities with similar characteristics may also be used.

Other Types of Investments: Non-U.S. government index link bond funds are not publicly traded and are stated at net asset value as determined by the issuer of the fund based on the fair value of the underlying investments. Underlying investments consist of bonds in which payment of income on the principal is related to a specific price index and are categorized as Level 2 assets.

Hedge funds, private equity funds, foreign real estate funds and venture capital funds are valued at fair value by using the net asset values provided by the investment managers and are updated, if necessary, using analytical procedures, appraisals, public market data and/or inquiry of the investment managers. The net asset values are determined based upon the fair values of the underlying investments in the funds. These other investments invest primarily in readily available marketable securities and allocate gains, losses, and expense to the investor based on the ownership percentage as described in the fund agreements. They are categorized as Level 3 assets.

The Company's policy is to recognize significant transfers between levels at the actual date of the event.

A reconciliation of the beginning and ending Level 3 assets for fiscal years 2019, 2018 and 2017 is as follows:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3):		
	Foreign Real Estate Funds	Multi-strategy Hedge Funds	Total
		(In thousands)	
Balance at January 1, 2017	$ —	$ 23,790	$ 23,790
Sales	—	(8,189)	(8,189)
Realized gains	—	1,542	1,542
Unrealized losses	—	(354)	(354)
Balance at December 31, 2017	—	16,789	16,789
Purchases	22,196	—	22,196
Unrealized gains	—	145	145
Balance at December 30, 2018	22,196	16,934	39,130
Sales	—	(15,586)	(15,586)
Realized gains	—	4,175	4,175
Unrealized gains (losses)	492	(3,802)	(3,310)
Balance at December 29, 2019	$ 22,688	$ 1,721	$ 24,409

With respect to plans outside of the United States, the Company expects to contribute $6.6 million in the aggregate during fiscal year 2020. During fiscal years 2019, 2018 and 2017, the Company contributed $8.2 million, $8.5 million and $8.4 million in the aggregate, respectively, to pension plans outside of the United States. During fiscal year 2018, the Company contributed $15.0 million to its defined benefit pension plan in the United States for the plan year 2017.

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

	Non-U.S.	U.S.
	(In thousands)	
2020	$ 11,540	$ 19,200
2021	12,006	19,346
2022	12,083	19,449
2023	12,362	19,561
2024	13,119	19,539
2025-2029	66,950	94,159

The Company also sponsors a supplemental executive retirement plan to provide senior management with benefits in excess of normal pension benefits. Effective July 31, 2000, this plan was closed to new entrants. At December 29, 2019 and December 30, 2018, the projected benefit obligations were $25.7 million and $22.1 million, respectively. Assets with a fair value of $2.1 million and $1.8 million, segregated in a trust (which is included in marketable securities and investments on the consolidated balance sheets), were available to meet this obligation as of December 29, 2019 and December 30, 2018, respectively. Pension expenses and income for this plan netted to expense of $4.8 million in fiscal year 2019, income of $0.3 million in fiscal year 2018 and expense of $3.2 million in fiscal year 2017.

Postretirement Medical Plans: The Company provides healthcare benefits for eligible retired U.S. employees under a comprehensive major medical plan or under health maintenance organizations where available. Eligible U.S. employees qualify for retiree health benefits if they retire directly from the Company and have at least ten years of service. Generally, the major medical plan pays stated percentages of covered expenses after a deductible is met and takes into consideration payments by other group coverage and by Medicare. The plan requires retiree contributions under most circumstances and has provisions for cost-sharing charges. Effective January 1, 2000, this plan was closed to new hires. For employees retiring after 1991, the Company has capped its medical premium contribution based on employees' years of service. The Company funds the amount allowable under a 401(h) provision in the Company's defined benefit pension plan. Assets of the plan are primarily equity and debt securities and are available only to pay retiree health benefits.

Net periodic postretirement medical benefit (credit) cost included the following components for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Service cost	$ 87	$ 106	$ 92
Interest cost	116	120	125
Expected return on plan assets	(1,175)	(1,254)	(1,114)
Actuarial (gain) loss	(1,776)	1,621	(741)
Net periodic postretirement medical benefit (credit) cost	$ (2,748)	$ 593	$ (1,638)

The following table sets forth the changes in the postretirement medical plan's funded status and the amounts recognized in the Company's consolidated balance sheets as of December 29, 2019 and December 30, 2018.

	December 29, 2019	December 30, 2018
	(In thousands)	
Actuarial present value of benefit obligations:		
Retirees	$ 583	$ 688
Active employees eligible to retire	362	408
Other active employees	1,966	2,317
Accumulated benefit obligations at beginning of year	2,911	3,413
Service cost	87	106
Interest cost	116	120
Benefits paid	(122)	(117)
Actuarial loss (gain)	108	(611)
Change in accumulated benefit obligations during the year	189	(502)
Retirees	611	583
Active employees eligible to retire	420	362
Other active employees	2,069	1,966
Accumulated benefit obligations at end of year	$ 3,100	$ 2,911
Change in plan assets:		
Fair value of plan assets at beginning of year	$ 16,279	$ 17,374
Actual return on plan assets	2,937	(993)
Benefits reimbursements paid	—	(102)
Fair value of plan assets at end of year	$ 19,216	$ 16,279
Net assets recognized in the consolidated balance sheets	$ 16,116	$ 13,368
Net amounts recognized in the consolidated balance sheets consist of:		
Other assets	$ 16,116	$ 13,368
Net amounts recognized in accumulated other comprehensive income consist of:		
Prior service cost	$ —	$ —
Actuarial assumptions as of the year-end measurement date:		
Discount rate	3.09%	4.09%

Actuarial assumptions used to determine net cost during the year are as follows:

	December 29, 2019	December 30, 2018	December 31, 2017
Discount rate	4.09%	3.60%	4.11%
Expected rate of return on assets	7.25%	7.25%	7.25%

The Company maintains a master trust for plan assets related to the U.S. defined benefit plans and the U.S. postretirement medical plan. Accordingly, investment policies, target asset allocations and actual asset allocations are the same as those disclosed for the U.S. defined benefit plans.

The fair values of the Company's plan assets at December 29, 2019 and December 30, 2018 by asset category, classified in the three levels of inputs described in Note 22, are as follows:

	Total Carrying Value at December 29, 2019	Fair Value Measurements at December 29, 2019 Using:		
		Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Cash	$ 408	$ 408	$ —	$ —
Equity securities:				
U.S. large-cap	4,365	4,365	—	—
International large-cap value	2,033	2,033	—	—
U.S. small mid-cap	204	204	—	—
Emerging markets growth	971	971	—	—
Domestic real estate funds	152	152	—	—
Fixed income securities:				
Corporate debt instruments	10,520	3,557	6,963	—
High yield bond funds	433	433	—	—
Other types of investments:				
Multi-strategy hedge funds	130	—	—	130
Total assets measured at fair value	$ 19,216	$ 12,123	$ 6,963	$ 130

	Total Carrying Value at December 30, 2018	Fair Value Measurements at December 30, 2018 Using:		
		Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Cash	$ 390	$ 390	$ —	$ —
Equity securities:				
U.S. large-cap	2,436	2,436	—	—
International large-cap value	1,679	1,679	—	—
U.S. small mid-cap	134	134	—	—
Emerging markets growth	833	833	—	—
Domestic real estate funds	94	94	—	—
Commodity funds	62	62	—	—
Fixed income securities:				
Corporate debt instruments	9,115	3,344	5,771	—
High yield bond funds	360	360	—	—
Other types of investments:				
Multi-strategy hedge funds	1,176	—	—	1,176
Total assets measured at fair value	$ 16,279	$ 9,332	$ 5,771	$ 1,176

Valuation Techniques: Valuation techniques are the same as those disclosed for the U.S. defined benefit plans above.

A reconciliation of the beginning and ending Level 3 assets for fiscal years 2019, 2018 and 2017 is as follows:

	Fair Value Measurements Using Significant Unobservable Inputs (Level 3): Multi-strategy Hedge Funds (In thousands)
Balance at January 1, 2017	$ 1,508
Sales	(562)
Realized gains	229
Unrealized losses	(24)
Balance at December 31, 2017	1,151
Unrealized gains	25
Balance at December 30, 2018	1,176
Sales	(1,074)
Realized gains	315
Unrealized losses	(287)
Balance at December 29, 2019	$ 130

The Company does not expect to make any contributions to the postretirement medical plan during fiscal year 2020.

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

Postretirement Medical Plan	(In thousands)
2020	$ 130
2021	146
2022	165
2023	177
2024	187
2025-2029	995

Deferred Compensation Plans: During fiscal year 1998, the Company implemented a nonqualified deferred compensation plan that provides benefits payable to officers and certain key employees or their designated beneficiaries at specified future dates, or upon retirement or death. The plan was amended to eliminate deferral elections, with the exception of Company 401(k) excess contributions for eligible participants, for plan years beginning January 1, 2011. Benefit payments under the plan are funded by contributions from participants, and for certain participants, contributions by the Company. The obligations related to the deferred compensation plan totaled $1.1 million at each of December 29, 2019 and December 30, 2018.

Note 17: Contingencies

The Company is conducting a number of environmental investigations and remedial actions at current and former locations of the Company and, along with other companies, has been named a potentially responsible party (“PRP”) for certain waste disposal sites. The Company accrues for environmental issues in the accounting period that the Company’s responsibility is established and when the cost can be reasonably estimated. The Company has accrued $7.7 million and $7.9 million as of December 29, 2019 and December 30, 2018, respectively, in accrued expenses and other current liabilities, which represents its management’s estimate of the cost of the remediation of known environmental matters, and does not include any potential liability for related personal injury or property damage claims. The Company’s environmental accrual is not discounted and does not reflect the recovery of any material amounts through insurance or indemnification arrangements. The cost estimates are subject to a number of variables, including the stage of the environmental investigations, the magnitude of the possible contamination, the nature of the potential remedies, possible joint and several liability, the time period over which remediation may occur, and the possible effects of changing laws and regulations. For sites where the Company has been named a PRP, management does not currently anticipate any additional liability to result from the inability of other significant named parties to contribute. The Company expects that the majority of such accrued amounts could be paid out over a period of up to ten years. As assessment and remediation activities progress at each individual site, these liabilities are reviewed and adjusted to reflect additional information as it becomes available. There have been no environmental problems to date that have had, or are expected to have, a material adverse effect on the Company’s consolidated financial statements. While it is possible that a loss exceeding the amounts recorded in the consolidated financial statements may be incurred, the potential exposure is not expected to be materially different from those amounts recorded.

The Company is subject to various claims, legal proceedings and investigations covering a wide range of matters that arise in the ordinary course of its business activities. Although the Company has established accruals for potential losses that it believes are probable and reasonably estimable, in the opinion of the Company’s management, based on its review of the information available at this time, the total cost of resolving these contingencies at December 29, 2019 should not have a material adverse effect on the Company’s consolidated financial statements. 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.

Note 18: Warranty Reserves

The Company provides warranty protection for certain products usually for a period of one year beyond the date of sale. The majority of costs associated with warranty obligations include the replacement of parts and the time for service personnel to respond to repair and replacement requests. A warranty reserve is recorded based upon historical results, supplemented by management’s expectations of future costs. Warranty reserves are included in “Accrued expenses and other current liabilities” on the consolidated balance sheets.

A summary of warranty reserve activity for the fiscal years ended December 29, 2019, December 30, 2018 and December 31, 2017 is as follows:

	(In thousands)
Balance at January 1, 2017	$ 9,012
Provision charged to income	13,700
Payments	(14,245)
Adjustments to previously provided warranties, net	(815)
Foreign currency translation and acquisitions	1,398
Balance at December 31, 2017	9,050
Provision charged to income	13,545
Payments	(13,775)
Adjustments to previously provided warranties, net	(157)
Foreign currency translation and acquisitions	(270)
Balance at December 30, 2018	8,393
Provision charged to income	12,199
Payments	(14,613)
Adjustments to previously provided warranties, net	2,889
Foreign currency translation and acquisitions	(56)
Balance at December 29, 2019	$ 8,812

Note 19: Stock Plans

Stock-Based Compensation:

The Company’s 2019 Incentive Plan (the “2019 Plan”) authorizes the issuance of incentive stock options intended to qualify under Section 422 of the Internal Revenue Code of 1986, as amended, non-statutory stock options, stock appreciation rights, restricted stock, restricted stock units, other stock-based awards and cash awards as part of the Company’s compensation programs. The 2019 Plan was approved by the Company’s Board on January 24, 2019 and by the Company’s shareholders on April 23, 2019. The 2019 Plan replaced the Company’s 2009 Incentive Plan (the “2009 Plan”), under which the Company’s common stock was made available for stock option grants, restricted stock awards, performance restricted stock units, performance units and stock awards as part of the Company’s compensation programs. Upon shareholder approval of the 2019 Plan, 6.25 million shares of the Company’s common stock, as well as shares of the Company’s common stock previously granted under the 2009 Plan that expire, terminate or are otherwise surrendered, canceled, forfeited or repurchased by the Company at their original issuance price subject to a contractual repurchase right, became available for grant under the 2019 Plan. Awards granted under the 2009 Plan prior to its expiration remain outstanding. As part of the Company’s compensation programs, the Company also offers shares of its common stock under its Employee Stock Purchase Plan.

The following table summarizes total pre-tax compensation expense recognized related to the Company's stock options, restricted stock, restricted stock units, performance restricted stock units, performance units and stock grants, net of estimated forfeitures, included in the Company's consolidated statements of operations for fiscal years 2019, 2018 and 2017:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Cost of product and service revenue	$ 1,620	$ 1,466	$ 1,254
Research and development expenses	1,061	1,359	1,389
Selling, general and administrative expenses	28,833	25,942	22,778
Total stock-based compensation expense	$ 31,514	$ 28,767	$ 25,421

The total income tax benefit recognized in the consolidated statements of operations for stock-based compensation was $11.6 million in fiscal year 2019, $13.6 million in fiscal year 2018 and $14.5 million in fiscal year 2017. Stock-based compensation costs capitalized as part of inventory were $0.3 million as of each of December 29, 2019 and December 30, 2018. Stock compensation expense from acceleration of vesting of certain stock awards to the Company's former Chief Executive Officer was $7.7 million for fiscal year 2019.

Stock Options: The Company has granted options to purchase common shares at prices equal to the market price of the common shares on the date the option is granted. Conditions of vesting are determined at the time of grant. Options are generally exercisable in equal annual installments over a period of three years, and will generally expire seven years after the date of grant. Options replaced in association with business combination transactions are generally issued with the same terms of the respective plans under which they were originally issued.

The fair value of each option grant is estimated using the Black-Scholes option pricing model. The fair value is then amortized on a straight-line basis over the requisite service periods of the awards, which is generally the vesting period. Use of a valuation model requires management to make certain assumptions with respect to selected model inputs. Expected volatility was calculated based on the historical and implied volatility of the Company's stock. The average expected life was based on the contractual term of the option and historic exercise experience. The risk-free interest rate is based on United States Treasury zero-coupon issues with a remaining term equal to the expected life assumed at the date of grant. The Company's weighted-average assumptions used in the Black-Scholes option pricing model were as follows for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
Risk-free interest rate	2.5%	3.0%	2.0%
Expected dividend yield	0.3%	0.4%	0.4%
Expected lives	5 years	5 years	5 years
Expected stock volatility	22.8%	20.7%	22.4%

The following table summarizes stock option activity for the fiscal year ended December 29, 2019:

	Number of Shares	Weighted-Average Exercise Price
	(Shares in thousands)	
Outstanding at beginning of year	1,765	$ 52.91
Granted	304	93.66
Exercised	(415)	47.60
Canceled	(3)	75.52
Forfeited	(116)	78.71
Outstanding at end of year	1,535	$ 60.42
Exercisable at end of year	954	$ 48.65

The aggregate intrinsic value for stock options outstanding at December 29, 2019 was $56.2 million with a weighted-average remaining contractual term of 3.8 years. The aggregate intrinsic value for stock options exercisable at December 29, 2019 was $46.2 million with a weighted-average remaining contractual term of 2.9 years. At December 29, 2019, there were 1.5 million stock options that were vested, and expected to vest in the future, with an aggregate intrinsic value of $56.2 million and a weighted-average remaining contractual term of 3.8 years.

The weighted-average per-share grant-date fair value of options granted during fiscal years 2019, 2018 and 2017 was $22.63, $17.56, and $11.83, respectively. The total intrinsic value of options exercised during fiscal years 2019, 2018 and 2017 was $19.1 million, $35.0 million, and $17.6 million, respectively. Cash received from option exercises for fiscal years 2019, 2018 and 2017 was $19.7 million, $24.8 million, and $18.0 million, respectively. The total compensation expense recognized related to the Company’s outstanding options was $6.7 million in fiscal year 2019, $5.4 million in fiscal year 2018 and $4.7 million in fiscal year 2017.

There was $6.3 million of total unrecognized compensation cost related to nonvested stock options granted as of December 29, 2019. This cost is expected to be recognized over a weighted-average period of 1.8 years.

Restricted Stock Awards: The Company has awarded shares of restricted stock and restricted stock units to certain employees and non-employee directors at no cost to them, which cannot be sold, assigned, transferred or pledged during the restriction period. The restricted stock and restricted stock units vest through the passage of time, assuming continued employment. The fair value of the award at the time of the grant is expensed on a straight line basis primarily in selling, general and administrative expenses over the vesting period, which is generally 3 years. These awards were granted under the Company’s 2009 Plan. Recipients of the restricted stock have the right to vote such shares and receive dividends.

The following table summarizes restricted stock award activity for the fiscal year ended December 29, 2019:

	Number of Shares	Weighted-Average Grant-Date Fair Value
	(Shares in thousands)	
Nonvested at beginning of year	465	$ 61.72
Granted	163	94.80
Vested	(218)	55.20
Forfeited	(65)	76.72
Nonvested at end of year	345	$ 78.69

The fair value of restricted stock awards vested during fiscal years 2019, 2018 and 2017 was $12.0 million, $10.4 million, and $10.6 million, respectively. The total compensation expense recognized related to the restricted stock awards was $12.7 million in fiscal year 2019, $11.7 million in fiscal year 2018 and $10.3 million in fiscal year 2017.

As of December 29, 2019, there was $14.8 million of total unrecognized compensation cost, related to nonvested restricted stock awards. That cost is expected to be recognized over a weighted-average period of 1.4 years.

Performance Restricted Stock Units: As part of the Company's executive compensation program, the Company granted 76,218 and 39,133 performance restricted stock units during fiscal years 2019 and 2018, respectively, that will vest based on performance of the Company. The weighted-average per-share grant date fair value of performance restricted stock units granted during fiscal years 2019 and 2018 was $92.95 and $80.31, respectively. During fiscal year 2019, 18,777 performance restricted stock units were forfeited. The total compensation expense recognized related to the performance restricted stock units was $5.9 million in fiscal year 2019 and $3.2 million in fiscal year 2018. As of December 29, 2019, there were 145,114 performance restricted stock units outstanding.

Performance Units: The Company's performance unit program provides a cash award based on the achievement of specific performance criteria. A target number of units are granted at the beginning of a three-year performance period. The number of units earned at the end of the performance period is determined by multiplying the number of units granted by a performance factor ranging from 0% to 200%. Awards are determined by multiplying the number of units earned by the stock price at the end of the performance period, and are paid in cash and accounted for as a liability based award. The compensation expense associated with these units is recognized over the period that the performance targets are expected to be achieved. No performance units were granted during the fiscal year 2019. The Company granted 37,281 performance units and 49,845 performance units during fiscal years 2018 and 2017, respectively. The weighted-average per-share grant-date fair value of performance units granted during fiscal years 2018 and 2017 was $73.23 and $52.69, respectively. During fiscal years 2019, 2018 and 2017, 10,116 performance units, zero performance units and 15,139 performance units were forfeited, respectively. The total compensation expense related to performance units was $5.6 million, $7.7 million, and $8.7 million for fiscal years 2019, 2018 and 2017, respectively. As of December 29, 2019, there were 71,213 performance units outstanding subject to forfeiture, with a corresponding liability of $10.4 million recorded in accrued expenses and long-term liabilities.

Stock Awards: The Company's stock award program provides an annual equity award to non-employee directors. For fiscal years 2019, 2018 and 2017, the award equaled the number of shares of the Company's common stock which has an aggregate fair market value of $100,000 on the date of the award. The stock award is prorated for non-employee directors who serve for only a portion of the year. The compensation expense associated with these stock awards is recognized when the stock award is granted. In fiscal years 2019, 2018 and 2017, the Company awarded 7,301 shares, 11,088 shares, and 12,006 shares, respectively, to non-employee directors. The weighted-average per-share grant-date fair value of stock awards granted during fiscal years 2019, 2018 and 2017 was $95.84, $72.17, and $63.14, respectively. The total compensation expense recognized related to these stock awards was $0.7 million in fiscal year 2019 and $0.8 million in each of fiscal years 2018 and 2017.

Employee Stock Purchase Plan:

In April 1999, the Company's shareholders approved the 1998 Employee Stock Purchase Plan. In April 2005, the Compensation and Benefits Committee of the Board voted to amend the Employee Stock Purchase Plan, effective July 1, 2005, whereby participating employees have the right to purchase common stock at a price equal to 95% of the closing price on the last day of each six-month offering period. The number of shares which an employee may purchase, subject to certain aggregate limits, is determined by the employee's voluntary contribution, which may not exceed 10% of the employee's base compensation. During fiscal year 2019, the Company issued 33,843 shares of common stock under the Company's Employee Stock Purchase Plan at a weighted-average price of $82.25 per share. During fiscal year 2018, the Company issued 21,321 shares under this plan at a weighted-average price of $69.57 per share. During fiscal year 2017, the Company issued 36,769 shares under this plan at a weighted-average price of $67.09 per share. At December 29, 2019 there remains available for sale to employees an aggregate of 0.8 million shares of the Company's common stock out of the 5.0 million shares authorized by shareholders for issuance under this plan.

Note 20: Stockholders' Equity

Comprehensive Income:

The components of accumulated other comprehensive (loss) income consisted of the following:

	Foreign Currency Translation Adjustment, net of tax	Unrecognized Prior Service Costs, net of tax	Unrealized (Losses) Gains on Securities, net of tax	Accumulated Other Comprehensive Income (Loss)
		(In thousands)		
Balance, January 1, 2017	$ (100,923)	$ 399	$ (337)	$ (100,861)
Current year change	54,341	(77)	79	54,343
Balance, December 31, 2017	(46,582)	322	(258)	(46,518)
Current year change	(123,388)	(77)	(9)	(123,474)
Reclassification to retained earnings upon adoption of ASU 2018-02	(6,489)	—	—	(6,489)
Balance, December 30, 2018	(176,459)	245	(267)	(176,481)
Current year change	(23,978)	807	6	(23,165)
Balance, December 29, 2019	$ (200,437)	$ 1,052	$ (261)	$ (199,646)

During fiscal years 2019, 2018 and 2017, pre-tax credit (cost) of $0.8 million, $(0.1) million, and $(0.1) million, respectively, was reclassified from accumulated other comprehensive income into selling, general and administrative expenses as a component of net periodic pension cost.

Stock Repurchases:

On July 23, 2018, the Board of Directors (the “Board”) authorized the Company to repurchase shares of common stock for an aggregate amount up to $250.0 million under a stock repurchase program (the “Repurchase Program”). The Repurchase Program will expire on July 23, 2020 unless terminated earlier by the Board and may be suspended or discontinued at any time. During fiscal year 2019, the Company had no stock repurchases under the Repurchase Program. As of December 29, 2019, $197.8 million remained available for aggregate repurchases of shares under the Repurchase Program.

In addition, the Board has authorized the Company to repurchase shares of common stock to satisfy minimum statutory tax withholding obligations in connection with the vesting of restricted stock awards and restricted stock unit awards granted pursuant to the Company’s equity incentive plans and to satisfy obligations related to the exercise of stock options made pursuant to the Company’s equity incentive plans. During the fiscal year 2019, the Company repurchased 68,536 shares of common stock for this purpose at an aggregate cost of $6.3 million. During fiscal year 2018, the Company repurchased 66,506 shares of common stock for this purpose at an aggregate cost of $5.2 million. During fiscal year 2017, the Company repurchased 78,644 shares of common stock for this purpose at an aggregate cost of $4.4 million. The repurchased shares have been reflected as additional authorized but unissued shares, with the payments reflected in common stock and capital in excess of par value.

Dividends:

The Board declared a regular quarterly cash dividend of $0.07 per share in each quarter of fiscal years 2019 and 2018. At December 29, 2019, the Company had accrued $7.8 million for a dividend declared on October 24, 2019 for the fourth quarter of fiscal year 2019 that was paid in February 2020. On January 23, 2020, the Company announced that the Board had declared a quarterly dividend of $0.07 per share for the first quarter of fiscal year 2020 that will be payable in May 2020. In the future, the Board may determine to reduce or eliminate the Company’s common stock dividend in order to fund investments for growth, repurchase shares or conserve capital resources.

Note 21: Derivatives and Hedging Activities

The Company uses derivative instruments as part of its risk management strategy only, and includes derivatives utilized as economic hedges that are not designated as hedging instruments. By nature, all financial instruments involve market and credit risks. The Company enters into derivative instruments with major investment grade financial institutions and has policies to monitor the credit risk of those counterparties. The Company does not enter into derivative contracts for trading or other speculative purposes, nor does the Company use leveraged financial instruments. Approximately 70% of the Company’s business is conducted outside of the United States, generally in foreign currencies. As a result, fluctuations in foreign currency exchange rates can increase the costs of financing, investing and operating the business.

In the ordinary course of business, the Company enters into foreign exchange contracts for periods consistent with its committed exposures to mitigate the effect of foreign currency movements on transactions denominated in foreign currencies. The intent of these economic hedges is to offset gains and losses that occur on the underlying exposures from these currencies, with gains and losses resulting from the forward currency contracts that hedge these exposures. Transactions covered by hedge contracts include intercompany and third-party receivables and payables. The contracts are primarily in European and Asian currencies, have maturities that do not exceed 12 months, have no cash requirements until maturity, and are recorded at fair value on the Company’s consolidated balance sheets. The unrealized gains and losses on the Company’s foreign currency contracts are recognized immediately in interest and other expense, net. The cash flows related to the settlement of these hedges are included in cash flows from operating activities within the Company’s consolidated statements of cash flows.

Principal hedged currencies include the Chinese Yuan, Euro, British Pound, Swedish Krona, and Singapore Dollar. The Company held forward foreign exchange contracts, designated as economic hedges, with U.S. dollar equivalent notional amounts totaling $277.6 million at December 29, 2019, $223.3 million at December 30, 2018, and $212.1 million at December 31, 2017, and the fair value of these foreign currency derivative contracts was insignificant. The gains and losses realized on these foreign currency derivative contracts are not material. The duration of these contracts was generally 30 days or less during each of fiscal years 2019, 2018 and 2017.

In addition, in connection with certain intercompany loan agreements utilized to finance its acquisitions and stock repurchase program, the Company enters into forward foreign exchange contracts intended to hedge movements in foreign exchange rates prior to settlement of such intercompany loans denominated in foreign currencies. The Company records these hedges at fair value on the Company's consolidated balance sheets. The unrealized gains and losses on these hedges, as well as the gains and losses associated with the remeasurement of the intercompany loans, are recognized immediately in interest and other expense, net. The cash flows related to the settlement of these hedges are included in cash flows from financing activities within the Company's consolidated statements of cash flows.

The outstanding forward exchange contracts designated as economic hedges, which were intended to hedge movements in foreign exchange rates prior to the settlement of certain intercompany loan agreements, included combined Euro notional amounts of €105.8 million and combined U.S. Dollar notional amounts of $5.6 million as of December 29, 2019, combined Euro notional amounts of €37.3 million and combined U.S. Dollar notional amounts of $5.7 million as of December 30, 2018, and combined Euro notional amounts of €57.2 million and combined U.S. Dollar notional amounts of $1.3 billion as of December 31, 2017. The net gains and losses on these derivatives, combined with the gains and losses on the remeasurement of the hedged intercompany loans were not material for each of the fiscal years 2019 and 2018. The Company paid $1.3 million and $34.1 million during the fiscal years 2019 and 2018, respectively, from the settlement of these hedges.

During fiscal year 2018, the Company designated a portion of the 2026 Notes to hedge its investments in certain foreign subsidiaries. Unrealized translation adjustments from a portion of the 2026 Notes were included in the foreign currency translation component of AOCI, which offsets translation adjustments on the underlying net assets of foreign subsidiaries. The cumulative translation gains or losses will remain in AOCI until the foreign subsidiaries are liquidated or sold. As of December 29, 2019, the total notional amount of the 2026 Notes that was designated to hedge investments in foreign subsidiaries was €203.3 million. The unrealized foreign exchange gains recorded in AOCI related to the net investment hedge were $4.9 million and $9.3 million during the fiscal years 2019 and 2018, respectively.

During fiscal year 2018, the Company designated the April 2021 Notes to hedge its investments in certain foreign subsidiaries. Unrealized translation adjustments from the April 2021 Notes were included in the foreign currency translation component of AOCI, which offsets translation adjustments on the underlying net assets of foreign subsidiaries. The cumulative translation gains or losses will remain in AOCI until the foreign subsidiaries are liquidated or sold. As of December 29, 2019, the total notional amount of the April 2021 Notes that was designated to hedge investments in foreign subsidiaries was €299.9 million. The unrealized foreign exchange gains recorded in AOCI related to the net investment hedge were $8.0 million and $27.5 million during the fiscal years 2019 and 2018, respectively.

During fiscal year 2019, the Company entered into a cross-currency swap designated as a net investment hedge to hedge the Euro currency exposure of the Company's net investment in certain foreign subsidiaries. This agreement is a contract to exchange fixed-rate payments in one currency for fixed-rate payments in another currency. Changes in the fair value of this swap are recorded in equity as a component of AOCI in the same manner as foreign currency translation adjustments. In assessing the effectiveness of this hedge, the Company uses a method based on changes in spot rates to measure the impact of the foreign currency exchange rate fluctuations on both its foreign subsidiary net investment and the related swap. Under this method, changes in the fair value of the hedging instrument other than those due to changes in the spot rate are initially recorded in AOCI as a translation adjustment, and then are amortized into other (income) expense, net in the condensed consolidated statement of operations using a systematic and rational method over the instrument's term. Changes in the fair value associated with the effective portion (i.e. those changes due to the spot rate) are recorded in AOCI as a translation adjustment and are released and recognized in earnings only upon the sale or liquidation of the hedged net investment. The cross-currency swap has an initial notional value of €197.4 million or $220.0 million and matures on November 15, 2021. Interest on the cross-currency swap is payable semi-annually, in Euro, on May 15th and November 15th of each year based on the Euro notional value and a fixed rate of 2.47%. The Company receives interest in U.S. dollars on May 15th and November 15th of each year based on the U.S. dollar equivalent of the Euro notional value and a fixed rate of 5.00%. On December 29, 2019, the fair value of the cross-currency swap was $0.3 million, which was recorded in AOCI.

In connection with the early redemption of the November 2021 Notes, on September 11, 2019, the Company entered into a reverse treasury rate lock agreement with a financial intermediary with a notional amount of $500.0 million. The Company entered into the reverse treasury rate lock agreement in order to hedge the variability in the redemption payment on the entire principal amount of the November 2021 Notes. The reverse treasury rate lock substantively fixed the present value of the forecasted debt make-whole payment, which was priced on October 10, 2019, to mitigate risk associated with the changes in the 2-year U.S. treasury yield. The Company received $1.0 million upon settlement of the reverse treasury rate lock agreement.

The Company does not expect any material net pre-tax gains or losses to be reclassified from accumulated other comprehensive (loss) income into interest and other expense, net within the next twelve months.

Note 22: Fair Value Measurements

Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of cash equivalents, derivatives, marketable securities and accounts receivable. The Company believes it had no significant concentrations of credit risk as of December 29, 2019.

The Company uses the market approach technique to value its financial instruments and there were no changes in valuation techniques during fiscal years 2019 and 2018. The Company's financial assets and liabilities carried at fair value are primarily comprised of marketable securities, derivative contracts used to hedge the Company's currency risk, and acquisition related contingent consideration. The Company has not elected to measure any additional financial instruments or other items at fair value.

Valuation Hierarchy: The following summarizes the three levels of inputs required to measure fair value. For Level 1 inputs, the Company utilizes quoted market prices as these instruments have active markets. For Level 2 inputs, the Company utilizes quoted market prices in markets that are not active, broker or dealer quotations, or utilizes alternative pricing sources with reasonable levels of price transparency. For Level 3 inputs, the Company utilizes unobservable inputs based on the best information available, including estimates by management primarily based on information provided by third-party fund managers, independent brokerage firms and insurance companies. A financial asset's or liability's classification within the hierarchy is determined based on the lowest level input that is significant to the fair value measurement. In determining fair value, the Company utilizes valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs to the extent possible.

The following tables show the assets and liabilities carried at fair value measured on a recurring basis as of December 29, 2019 and December 30, 2018 classified in one of the three classifications described above:

	Total Carrying Value at December 29, 2019	Fair Value Measurements at December 29, 2019 Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Marketable securities	$ 2,906	$ 2,906	$ —	$ —
Foreign exchange derivative assets	451	—	451	—
Foreign exchange derivative liabilities	(1,538)	—	(1,538)	—
Contingent consideration	(35,481)	—	—	(35,481)

	Total Carrying Value at December 30, 2018	Fair Value Measurements at December 30, 2018 Using: Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(In thousands)			
Marketable securities	$ 2,447	$ 2,447	$ —	$ —
Foreign exchange derivative assets	750	—	750	—
Foreign exchange derivative liabilities, net	(594)	—	(594)	—
Contingent consideration	(69,661)	—	—	(69,661)

Level 1 and Level 2 Valuation Techniques: The Company's Level 1 and Level 2 assets and liabilities are comprised of investments in equity and fixed-income securities as well as derivative contracts. For financial assets and liabilities that utilize Level 1 and Level 2 inputs, the Company utilizes both direct and indirect observable price quotes, including common stock price quotes, foreign exchange forward prices and bank price quotes. Below is a summary of valuation techniques for Level 1 and Level 2 financial assets and liabilities.

Marketable securities: Include equity and fixed-income securities measured at fair value using the quoted market prices in active markets at the reporting date.

Foreign exchange derivative assets and liabilities: Include foreign exchange derivative contracts that are valued using quoted forward foreign exchange prices at the reporting date. The Company's foreign exchange derivative contracts are subject to master netting arrangements that allow the Company and its counterparties to net settle amounts owed to each other. Derivative assets and liabilities that can be net settled under these arrangements have been presented in the Company's consolidated balance sheet on a net basis and are recorded in other assets. As of both December 29, 2019 and December 30, 2018, none of the master netting arrangements involved collateral.

Level 3 Valuation Techniques: The Company's Level 3 liabilities are comprised of contingent consideration related to acquisitions. For liabilities that utilize Level 3 inputs, the Company uses significant unobservable inputs. Below is a summary of valuation techniques for Level 3 liabilities.

Contingent consideration: Contingent consideration is measured at fair value at the acquisition date using projected milestone dates, discount rates, probabilities of success and projected revenues (for revenue-based considerations). Projected risk-adjusted contingent payments are discounted back to the current period using a discounted cash flow model.

During fiscal year 2015, the Company acquired all the shares of Vanadis. Under the terms of the acquisition, the initial purchase consideration was $32.0 million, net of cash and the Company will be obligated to make potential future milestone payments, based on completion of a proof of concept, regulatory approvals and product sales, of up to $93.0 million ranging from 2016 to 2019. The key assumptions used to determine the fair value of the contingent consideration included projected milestone dates of 2016 to 2019, discount rates ranging from 3.1% to 11.3%, conditional probabilities of success of each individual milestone ranging from 85% to 95% and cumulative probabilities of success for each individual milestone ranging from 53% to 90%. The fair value of the contingent consideration as of the acquisition date was estimated at $56.9 million. During fiscal year 2019, the Company updated the fair value of the contingent consideration and recorded a liability of $19.0 million as of December 29, 2019. The key assumptions used to determine the fair value of the contingent consideration as of December 29, 2019 included projected milestone dates within fiscal year 2020, discount rates ranging from 3.5% to 4.4%, conditional and cumulative probabilities of success of each individual milestone ranging from 95% to 98%. A significant delay in the product development (including projected regulatory milestone) achievement date in isolation could result in a significantly lower fair value measurement; a significant acceleration in the product development (including projected regulatory milestone) achievement date in isolation would not have a material impact on the fair value measurement; a significant change in the discount rate in isolation would not have a material impact on the fair value measurement; and a significant change in the probabilities of success in isolation could result in a significant change in fair value measurement.

During the fiscal years 2019 and 2018, the Company recorded a contingent consideration obligation relating to other acquisitions with an estimated fair value of $12.7 million and $6.5 million, respectively. During the fiscal year 2019, the Company paid $50.9 million of contingent consideration, of which $29.9 million was included in financing activities and $20.9 million was included in operating activities in the consolidated statements of cash flows. During the fiscal year 2018, the Company paid $16.5 million of contingent consideration, of which $12.8 million was included in financing activities and $3.7 million was included in operating activities in the consolidated statements of cash flows.

The fair values of contingent consideration are calculated on a quarterly basis based on a collaborative effort of the Company’s regulatory, research and development, operations, finance and accounting groups, as appropriate. Potential valuation adjustments are made as additional information becomes available, including the progress towards achieving proof of concept, regulatory approvals and revenue targets as compared to initial projections, the impact of market competition and market landscape shifts from non-invasive prenatal testing products, with the impact of such adjustments being recorded in the consolidated statements of operations.

As of December 29, 2019, the Company may have to pay contingent consideration, related to acquisitions with open contingency periods, of up to $57.1 million. The expected maximum earnout period for acquisitions with open contingency period does not exceed 3.0 years from December 29, 2019, and the remaining weighted average expected earnout period at December 29, 2019 was 1.2 years.

A reconciliation of the beginning and ending Level 3 net liabilities for contingent consideration is as follows:

	(In thousands)
Balance at January 1, 2017	$ (63,201)
Amounts paid and foreign currency translation	35
Change in fair value (included within selling, general and administrative expenses)	(2,162)
Balance at December 31, 2017	(65,328)
Additions	(6,200)
Amounts paid and foreign currency translation	16,506
Change in fair value (included within selling, general and administrative expenses)	(14,639)
Balance at December 30, 2018	(69,661)
Additions	(12,734)
Amounts paid and foreign currency translation	50,795
Change in fair value (included within selling, general and administrative expenses)	(3,881)
Balance at December 29, 2019	$ (35,481)

The carrying amounts of cash and cash equivalents, accounts receivable, accounts payable and accrued expenses approximate fair value due to the short-term maturities of these assets and liabilities. If measured at fair value, cash and cash equivalents would be classified as Level 1.

As of December 29, 2019, the Company's new senior unsecured revolving credit facility, which provides for $1.0 billion of revolving loans, had a carrying value of $322.0 million, net of $3.4 million of unamortized debt issuance costs. As of December 30, 2018, the Company's previous senior unsecured revolving credit facility had a carrying value of $415.6 million, net of $2.4 million of unamortized debt issuance costs. The interest rate on the Company's new senior unsecured revolving credit facility is reset at least monthly to correspond to variable rates that reflect currently available terms and conditions for similar debt. The Company had no change in credit standing during fiscal year 2019. Consequently, the carrying value approximates fair value and were classified as Level 2.

The Company's 2026 Notes, with a face value of €500.0 million, had an aggregate carrying value of $552.2 million, net of $3.5 million of unamortized original issue discount and $3.3 million of unamortized debt issuance costs as of December 29, 2019. The 2026 Notes had an aggregate carrying value of $564.5 million, net of $4.0 million of unamortized original issue discount and $3.8 million of unamortized debt issuance costs as of December 30, 2018. The 2026 Notes had a fair value of €518.5 million and €496.1 million as of December 29, 2019 and December 30, 2018, respectively. The fair value of the 2026 Notes is estimated using market quotes from brokers and is based on current rates offered for similar debt.

The Company's April 2021 Notes, with a face value of €300.0 million, had an aggregate carrying value of $334.2 million, net of $0.1 million of unamortized original issue discount and $1.1 million of unamortized debt issuance costs as of December 29, 2019. The April 2021 Notes had an aggregate carrying value of $341.3 million, net of $0.1 million of unamortized original issue discount and $2.0 million of unamortized debt issuance costs as of December 30, 2018. The April 2021 Notes had a fair value of €301.9 million and €300.5 million as of December 29, 2019 and December 30, 2018. The fair value of the April 2021 Notes is estimated using market quotes from brokers and is based on current rates offered for similar debt.

The Company's 2029 Notes, with a face value of $850.0 million, had an aggregate carrying value of $839.9 million, net of $2.7 million of unamortized original issue discount and $7.4 million of unamortized debt issuance costs as of December 29, 2019. The 2029 Notes had a fair value of $872.3 million as of December 29, 2019. The fair value of the 2029 Notes is estimated using market quotes from brokers and is based on current rates offered for similar debt.

The Company's other debt facilities had an aggregate carrying value of $25.7 million and $38.2 million as of December 29, 2019 and December 30, 2018, respectively. As of December 29, 2019, these consisted of bank loans in the aggregate amount of $25.6 million bearing fixed interest rates between 1.1% and 21.5% and a bank loan in the amount of $0.1 million bearing a variable interest rate based on the Euribor rate plus a margin of 1.5%. The Company had no change in credit standing during fiscal year 2019. Consequently, the carrying value approximates fair value.

As of December 29, 2019, the April 2021 Notes, 2026 Notes, 2029 Notes and other debt facilities were classified as Level 2.

As of December 29, 2019, there has not been any significant impact to the fair value of the Company's derivative liabilities due to credit risk. Similarly, there has not been any significant adverse impact to the Company's derivative assets based on the evaluation of its counterparties' credit risks.

Note 23: Leases

Changes in significant accounting policies

Except for the changes below, the Company consistently applied the accounting policies to all periods presented in these condensed consolidated financial statements.

The Company adopted ASC 842 with a date of initial application of December 31, 2018 ("transition date"). As a result, the Company has changed its accounting policy for leases as detailed below. The Company applied ASC 842 using the modified retrospective method and applied the new leases standard at transition date, with a cumulative effect adjustment recognized in the opening balance of retained earnings in fiscal year 2019. Therefore, the comparative information has not been adjusted and continues to be reported under ASC 840.

As a lessee, the Company recognized operating leases in the consolidated balance sheet under ASC 842. Operating leases are included in operating lease right-of-use ("ROU") assets, other current liabilities, and operating lease liabilities in the Company's consolidated balance sheet. ROU assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities were recognized at the transition date based on the present value of the remaining lease payments over the lease term. As most of the Company's leases as of the transition date did not provide an implicit rate, the Company used its incremental borrowing rate based on the information available at transition date in determining the present value of lease payments. The Company used the implicit rate when readily determinable. The operating lease ROU asset excludes lease incentives. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

The Company has lease agreements with lease and non-lease components, which are generally accounted for separately. For certain equipment leases, such as cars, the Company accounts for the lease and non-lease components as a single lease component. Additionally, for certain equipment leases, the Company applies a portfolio approach to effectively account for the operating lease ROU assets and liabilities.

The Company has made an accounting policy election not to recognize ROU assets and lease liabilities that arise from short-term leases for facilities and equipment. Instead, the Company recognizes the lease payments in the consolidated statement of operations on a straight-line basis over the lease term and variable lease payments in the period in which the obligation for those payments is incurred.

As a lessor, the Company applies the practical expedient to not separate non-lease components from the associated lease component and instead accounts for those components as a single component if the non-lease components otherwise would be accounted for under ASC 606, *Revenue From Contracts With Customers* ("ASC 606"), and both of the following criteria are met: 1) the timing and pattern of transfer of the non-lease component or components and associated lease component are the same; and 2) the lease component, if accounted for separately, would be classified as an operating lease. If the non-lease component or components associated with the lease component are the predominant component of the combined component, the Company accounts for the combined component in accordance with ASC 606. Otherwise, the Company accounts for the combined component as an operating lease in accordance with ASC 842.

Lessee Disclosures

The Company leases certain property and equipment under operating and finance leases. The Company's leases have remaining lease terms of less than 1 year to 41 years, some of which include options to extend the lease for up to 5 years, and some of which include options to terminate the lease within 1 year. Finance leases are not material to the Company.

The components of lease expense were as follows:

	December 29, 2019
	(In thousands)
Lease cost:	
Operating lease cost	61,205

Supplemental cash flow information related to leases was as follows:

	December 29, 2019
	(In thousands)
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	50,155

Supplemental balance sheet information related to leases was as follows:

	December 29, 2019
	(In thousands, except lease term and discount rate)
Operating Leases:	
Operating lease right-of-use assets	$ 167,276
Accrued expenses and other current liabilities	$ 36,573
Operating lease liabilities	146,399
Total operating liabilities	$ 182,972
Weighted Average Remaining Lease Term in Years	
Operating leases	7.5
Weighted Average Remaining Discount Rate	
Operating leases	3.3%

Maturities of lease liabilities as of December 29, 2019 were as follows:

	Operating Leases
	(In thousands)
2020	$ 44,512
2021	36,958
2022	25,419
2023	19,594
2024	17,721
2025 and thereafter	66,808
Total lease payments	211,012
Less imputed interest	(28,040)
Total	$ 182,972

Under ASC 840, minimum rental commitments under noncancelable operating leases as of December 30, 2018 were as follows: $56.4 million in fiscal year 2019, $46.6 million in fiscal year 2020, $33.5 million in fiscal year 2021, $22.1 million in fiscal year 2022, $15.6 million in fiscal year 2023 and $67.6 million in fiscal year 2024 and thereafter.

Lessor Disclosures

Certain of the Company's contracts require that it place its instrument at the customer's site and sell reagents to the customer. As the predominant component in these contracts are the sales of reagents, the Company accounts for the combined component under ASC 606 only when both of the criteria above are met. When only one of the criteria above is met, the Company accounts for the non-lease component under ASC 606 and the lease component under ASC 842. Profit or loss, interest income and aggregate net investment in sales-type leases that did not qualify for the practical expedient are not material to the Company.

Note 24: Industry Segment and Geographic Area Information

The Company discloses information about its operating segments based on the way that management organizes the segments within the Company for making operating decisions and assessing financial performance. The Company evaluates the performance of its operating segments based on revenue and operating income. Intersegment revenue and transfers are not significant. The accounting policies of the operating segments are the same as those described in Note 1.

The principal products and services of the Company's two operating segments are:

- *Discovery & Analytical Solutions*. Provides products and services targeted towards the life sciences and applied markets.
- *Diagnostics*. Develops diagnostics, tools and applications focused on clinically-oriented customers, especially within the reproductive health, emerging market diagnostics and applied genomics markets. The Diagnostics segment serves the diagnostics market.

The Company has included the expenses for its corporate headquarters, such as legal, tax, audit, human resources, information technology, and other management and compliance costs, as well as the activity related to the mark-to-market adjustment on postretirement benefit plans, as "Corporate" below. The Company has a process to allocate and recharge expenses to the reportable segments when these costs are administered or paid by the corporate headquarters based on the extent to which the segment benefited from the expenses. These amounts have been calculated in a consistent manner and are included in the Company's calculations of segment results to internally plan and assess the performance of each segment for all purposes, including determining the compensation of the business leaders for each of the Company's operating segments.

Revenue and operating income (loss) from continuing operations by operating segment are shown in the table below for the fiscal years ended:

	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Discovery & Analytical Solutions			
Product revenue	$ 1,054,862	$ 1,010,899	$ 941,328
Service revenue	691,299	682,312	637,131
Total revenue	1,746,161	1,693,211	1,578,459
Operating income from continuing operations[1]	238,331	230,481	205,259
Diagnostics			
Product revenue	962,180	924,594	536,086
Service revenue	175,332	160,191	142,437
Total revenue	1,137,512	1,084,785	678,523
Operating income from continuing operations	189,330	153,196	146,862
Corporate			
Operating loss from continuing operations[2]	(65,688)	(59,793)	(56,506)
Continuing Operations			
Product revenue	2,017,042	1,935,493	1,477,414
Service revenue	866,631	842,503	779,568
Total revenue	2,883,673	2,777,996	2,256,982
Operating income from continuing operations	361,973	323,884	295,615
Interest and other expense, net (see Note 6)	124,831	66,201	(1,103)
Income from continuing operations before income taxes	$ 237,142	$ 257,683	$ 296,718

(1) Legal costs for significant litigation matters in the Company's Discovery & Analytical Solutions segment were \$2.2 million, \$5.3 million and \$2.7 million for fiscal years 2019, 2018 and 2017, respectively. Legal costs for significant litigation matters in the Company's Diagnostics segment were \$0.1 million and \$0.2 million for fiscal years 2019 and 2018, respectively.

(2) Stock compensation expense from acceleration of executive compensation was \$7.7 million for fiscal year 2019.

Additional information relating to the Company's reporting segments is as follows for the three fiscal years ended December 29, 2019:

	Depreciation and Amortization Expense			Capital Expenditures		
	December 29, 2019	December 30, 2018	December 31, 2017	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)			(In thousands)	
Discovery & Analytical Solutions	$ 74,445	$ 70,362	$ 72,590	$ 27,778	$ 34,852	$ 26,200
Diagnostics	136,476	107,434	31,204	46,863	54,737	11,262
Corporate	3,104	2,792	1,206	1,690	3,664	1,627
Continuing operations	$ 214,025	$ 180,588	$ 105,000	$ 76,331	$ 93,253	$ 39,089
Discontinued operations	$ —	$ —	$ 929	$ —	$ —	$ 182

	Total Assets		
	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
Discovery & Analytical Solutions	$ 3,082,917	$ 2,567,054	$ 2,611,737
Diagnostics	3,368,598	3,358,964	3,447,437
Corporate	87,049	49,504	32,289
Total assets	$ 6,538,564	$ 5,975,522	$ 6,091,463

The following geographic area information for continuing operations includes revenue based on location of external customers for the three fiscal years ended December 29, 2019 and net long-lived assets based on physical location as of December 29, 2019 and December 30, 2018:

	Revenue		
	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
U.S.	$ 974,187	$ 906,398	$ 837,018
International:			
China	581,688	559,865	374,931
Germany	146,577	142,411	91,669
Italy	101,461	95,908	77,477
India	97,423	92,327	84,812
France	96,994	97,990	80,153
Japan	82,478	79,238	76,322
United Kingdom	70,703	72,124	65,164
Other international	732,162	731,735	569,436
Total international	1,909,486	1,871,598	1,419,964
Total sales	$ 2,883,673	$ 2,777,996	$ 2,256,982

	Net Long-Lived Assets*		
	December 29, 2019	December 30, 2018	December 31, 2017
		(In thousands)	
U.S.	$ 269,183	$ 201,649	$ 210,116
International:			
Germany	119,612	99,181	88,249
China	71,216	61,261	64,815
United Kingdom	51,659	33,429	28,028
Finland	29,052	16,211	14,764
Singapore	23,063	14,942	9,240
India	19,691	14,636	14,820
Italy	14,152	11,324	10,334
Brazil	9,126	8,237	7,963
Poland	7,216	3,212	2,269
Canada	6,485	5,454	5,201
Other international	39,150	20,775	20,245
Total international	390,422	288,662	265,928
Total net long-lived assets	$ 659,605	$ 490,311	$ 476,044

* Long-lived assets consist of property and equipment, net, operating lease right-of-use assets, rental equipment, software and other long-term assets.

Note 25: Quarterly Financial Information (Unaudited)

Selected quarterly financial information is as follows for the fiscal years ended:

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter[(1)]	Year
	(In thousands, except per share data)				
December 29, 2019					
Revenue	$648,737	$722,517	$706,923	$805,496	$2,883,673
Gross profit	307,806	347,793	342,275	398,181	1,396,055
Restructuring and other costs, net	7,639	6,161	14,068	1,560	29,428
Operating income from continuing operations	53,330	91,735	78,660	138,248	361,973
Income from continuing operations before income taxes	36,765	71,827	63,254	65,296	237,142
Income from continuing operations	35,453	69,141	58,610	64,549	227,753
Loss from discontinued operations and dispositions	(41)	(54)	(52)	(48)	(195)
Net income	35,412	69,087	58,558	64,501	227,558
Basic earnings per share:					
Income from continuing operations	$ 0.32	$ 0.62	$ 0.53	$ 0.58	$ 2.06
Loss from discontinued operations and dispositions	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Net income	0.32	0.62	0.53	0.58	2.06
Diluted earnings per share:					
Income from continuing operations	$ 0.32	$ 0.62	$ 0.53	$ 0.58	$ 2.04
Loss from discontinued operations and dispositions	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Net income	0.32	0.62	0.52	0.58	2.04
Cash dividends declared per common share	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.28
December 30, 2018					
Revenue	$643,972	$703,362	$674,313	$756,349	$2,777,996
Gross profit	292,222	340,140	332,327	376,250	1,340,939
Restructuring and other costs, net	6,578	—	6,508	(1,942)	11,144
Operating income from continuing operations	39,935	88,064	80,202	115,683	323,884
Income from continuing operations before income taxes	28,505	71,708	78,041	79,429	257,683
Income from continuing operations	26,035	64,673	75,445	71,322	237,475
(Loss) gain from discontinued operations and dispositions	(11)	(610)	1,103	(30)	452
Net income	26,024	64,063	76,548	71,292	237,927
Basic earnings per share:					
Income from continuing operations	$ 0.24	$ 0.59	$ 0.68	$ 0.64	$ 2.15
(Loss) gain from discontinued operations and dispositions	(0.00)	(0.01)	0.01	(0.00)	0.00
Net income	0.24	0.58	0.69	0.64	2.15
Diluted earnings per share:					
Income continuing operations	$ 0.23	$ 0.58	$ 0.68	$ 0.64	$ 2.13
(Loss) gain from discontinued operations and dispositions	(0.00)	(0.01)	0.01	(0.00)	0.00
Net income	0.23	0.57	0.69	0.64	2.13
Cash dividends declared per common share	$ 0.07	$ 0.07	$ 0.07	$ 0.07	$ 0.28

(1) The fourth quarter of fiscal year 2019 includes a pre-tax loss of $31.2 million as a result of the mark-to-market adjustment on postretirement benefit plans. The fourth quarter of fiscal year 2018 includes a pre-tax loss of $21.4 million as a result of the mark-to-market adjustment on postretirement benefit plans. See Note 1 for a discussion of this accounting policy.

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

Not applicable.

Item 9A. *Controls and Procedures*

Conclusion Regarding the Effectiveness of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of December 29, 2019. The term "disclosure controls and procedures" as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), means controls and other procedures of a company that are designed 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 Securities and Exchange Commission's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company's management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of December 29, 2019, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

There were no changes in our internal control over financial reporting during the fiscal quarter ended December 29, 2019, that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) or 15d-15(f) promulgated under the Exchange Act as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, 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, and includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company;
- 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

- 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. 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.

Our management assessed the effectiveness of our internal control over financial reporting as of December 29, 2019. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in the 2013 Internal Control-Integrated Framework.

Based on this assessment, our management concluded that, as of December 29, 2019, our internal control over financial reporting was effective based on those criteria.

Our registered public accounting firm has issued an attestation report on our internal control over financial reporting. This report appears below.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of PerkinElmer, Inc.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of PerkinElmer, Inc. and subsidiaries (the "Company") as of December 29, 2019, 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 Company maintained, in all material respects, effective internal control over financial reporting as of December 29, 2019, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 29, 2019 of the Company and our report dated February 25, 2020 expressed an unqualified opinion on those financial statements, and included an explanatory paragraph relating to the adoption of FASB Accounting Standards Codification Topic 842, *Leases*, on December 31, 2018.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Deloitte & Touche LLP

Boston, Massachusetts
February 25, 2020

Changes in Internal Control Over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the fiscal quarter ended December 29, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. ***Other Information***

Not applicable.

PART III

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

The information required to be disclosed by this Item pursuant to Item 401 of Regulation S-K with respect to our executive officers is contained in Part I of this annual report on Form 10-K under the caption, "Information About Our Executive Officers". The remaining information required to be disclosed by the Item pursuant to Item 401 and Item 407 of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the captions "Proposal No. 1 Election of Directors" and "Information Relating to Our Board of Directors and Its Committees" and is incorporated in this annual report on Form 10-K by reference.

We have adopted a code of ethics, our Standards of Business Conduct, that applies to our principal executive officer, principal financial officer, principal accounting officer or controller, and persons performing similar functions. Our Standards of Business Conduct, as well as our corporate governance guidelines and the charters for the audit, compensation and benefits, nominating and corporate governance, executive and finance committees of our Board of Directors, are each accessible under the "Corporate Governance" heading of the "Investors" section of our website, http://www.perkinelmer.com. This information is also available in print to any stockholder who requests it, by writing to PerkinElmer, Inc., 940 Winter Street, Waltham, Massachusetts 02451, Attention: Investor Relations. We also intend to disclose in the same location on our website, any amendments to, or waivers from, our Standards of Business Conduct that are required to be disclosed pursuant to the disclosure requirements of Item 5.05 of Form 8-K.

Item 11. *Executive Compensation*

The information required to be disclosed by this Item pursuant to Item 402 and Item 407(e) of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the captions "Director Compensation," "Information Relating to Our Board of Directors and Its Committees—Compensation Committee Interlocks and Insider Participation," and "Executive Compensation," and is incorporated in this annual report on Form 10-K by reference.

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

The information required to be disclosed by this Item pursuant to Item 403 of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the caption "Beneficial Ownership of Common Stock," and is incorporated in this annual report on Form 10-K by reference.

The information required to be disclosed by this Item pursuant to Item 201(d) of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the caption "Executive Compensation—Equity Compensation Plan Information," and is incorporated in this annual report on Form 10-K by reference.

Item 13. *Certain Relationships and Related Transactions, and Director Independence*

The information required to be disclosed by this Item pursuant to Item 404 of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the caption "Information Relating to Our Board of Directors and Its Committees—Certain Relationships and Policies on Related Party Transactions," and is incorporated in this annual report on Form 10-K by reference.

The information required to be disclosed by this Item pursuant to Item 407(a) of Regulation S-K is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the caption "Information Relating to Our Board of Directors and Its Committees—Determination of Independence," and is incorporated in this annual report on Form 10-K by reference.

Item 14. *Principal Accountant Fees and Services*

The information required to be disclosed by this Item pursuant to Item 9(e) of Schedule 14A is contained in the proxy statement for our annual meeting of stockholders to be held on April 28, 2020 under the caption "Information Relating to Our Board of Directors and Its Committees—Independent Registered Public Accounting Firm Fees and Other Matters", and is incorporated in this annual report on Form 10-K by reference.

PART IV

Item 15. ***Exhibits and Financial Statement Schedules***

(a) DOCUMENTS FILED AS PART OF THIS REPORT:

1. FINANCIAL STATEMENTS

Included in Part II, Item 8:

Report of Independent Registered Public Accounting Firm

Consolidated Statements of Operations for Each of the Three Fiscal Years in the Period Ended December 29, 2019

Consolidated Statements of Comprehensive Income for Each of the Three Fiscal Years in the Period Ended December 29, 2019

Consolidated Balance Sheets as of December 29, 2019 and December 30, 2018

Consolidated Statements of Stockholders' Equity for Each of the Three Fiscal Years in the Period Ended December 29, 2019

Consolidated Statements of Cash Flows for Each of the Three Fiscal Years in the Period Ended December 29, 2019

Notes to Consolidated Financial Statements

2. FINANCIAL STATEMENT SCHEDULE

Schedule II—Valuation and Qualifying Accounts

We have omitted financial statement schedules, other than those we note above, because of the absence of conditions under which they are required, or because the required information is given in the financial statements or notes thereto.

3. EXHIBITS

Exhibit No.	Exhibit Title
2.1	Share Sale and Transfer Agreement, dated June 16, 2017, by and among PerkinElmer, Inc., Prof. Dr. Winfried Stöcker and Stöcker Vermögensverwaltungsgesellschaft mbH & Co. KG, filed with the Commission on August 8, 2017 as Exhibit 2.2 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
2.2	Amendment Agreement, dated December 19, 2017, to the Share Sale and Transfer Agreement, dated as of June 16, 2017, by and among PerkinElmer, Inc., Prof. Dr. Winfried Stöcker, Stöcker Vermögensverwaltungsgesellschaft mbH & Co. KG and PerkinElmer Germany Diagnostics GmbH filed with the Commission on February 27, 2018 as Exhibit 2.5 to our annual report on Form 10-K (file No. 001-05075) and herein incorporated by reference.
3.1	PerkinElmer, Inc.'s Restated Articles of Organization, filed with the Commission on May 11, 2007 as Exhibit 3.1 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
3.2	PerkinElmer, Inc.'s Amended and Restated By-laws, filed with the Commission on December 13, 2018 as Exhibit 3.2 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.

Exhibit No.	Exhibit Title
4.1	Specimen Certificate of PerkinElmer, Inc.'s Common Stock, $1 par value, filed with the Commission on August 15, 2001 as Exhibit 4.1 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
4.2	Description of PerkinElmer, Inc.'s Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934, attached hereto as Exhibit 4.2.
4.3	Indenture dated as of October 25, 2011 between PerkinElmer, Inc. and U.S. Bank National Association, filed with the Commission on October 27, 2011 as Exhibit 99.1 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
4.4	Supplemental Indenture dated as of October 25, 2011 between PerkinElmer, Inc. and U.S. Bank National Association, filed with the Commission on October 27, 2011 as Exhibit 99.2 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
4.5	Second Supplemental Indenture dated as of December 22, 2011 between PerkinElmer, Inc. and U.S. Bank National Association, filed with the Commission on February 28, 2012 as Exhibit 4.4 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
4.6	Third Supplemental Indenture, dated as of July 19, 2016, among PerkinElmer, Inc., U.S. Bank National Association, as trustee, and Elavon Financial Services DAC, UK Branch, as paying agent, filed with the Commission on July 19, 2016 as Exhibit 4.2 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
4.7	Paying Agency Agreement, dated July 19, 2016, among PerkinElmer, Inc., U.S. Bank National Association, as trustee, Elavon Financial Services DAC, UK Branch, as paying agent, and Elavon Financial Services DAC, as transfer agent and registrar, filed with the Commission on July 19, 2016 as Exhibit 4.3 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
4.8	Fourth Supplemental Indenture, dated as of April 11, 2018, among PerkinElmer, Inc., U.S. Bank National Association, as trustee, and Elavon Financial Services DAC, UK Branch, as paying agent (including the form of note contained therein) filed with the Commission on April 11, 2018 as Exhibit 4.2 to our current report on Form 8-K (File No. 001-05075)) and herein incorporated by reference
4.9	Paying Agency Agreement, dated as of April 11, 2018, among PerkinElmer, Inc., U.S. Bank National Association, as trustee, transfer agent and registrar, and Elavon Financial Services DAC, UK Branch, as paying agent, filed with the Commission on April 11, 2018 as Exhibit 4.3 to our current report on Form 8-K (File No. 001-05075)) and herein incorporated by reference.
4.10	Fifth Supplemental Indenture, dated as of September 12, 2019, by and between PerkinElmer, Inc. and U.S. Bank National Association, as trustee (including the form of note contained therein) filed with the Commission on September 12, 2019 as Exhibit 4.2 to our current report on Form 8-K (File No. 001-05075)) and herein incorporated by reference.
10.1	Credit Agreement, dated as of September 17, 2019, among the Registrant, PerkinElmer Health Sciences, Inc., PerkinElmer Life Sciences International Holdings, PerkinElmer Global Holdings S.à r.l. and PerkinElmer Health Sciences B.V. as Borrowers, Bank of America, N.A. as Administrative Agent, Swing Line Lender and an L/C Issuer, the Lenders party thereto and the other L/C Issuers party thereto, filed with the Securities and Exchange Commission on September 17, 2019 as Exhibit 10.1 to the Registrant's Current Report on Form 8-K (File No. 001-05075) and incorporated herein by reference.

Exhibit No.	Exhibit Title
10.2	First Amendment to Credit Agreement, dated as of October 21, 2019, among PerkinElmer, Inc., PerkinElmer Health Sciences, Inc., PerkinElmer Life Sciences International Holdings, PerkinElmer Global Holdings S.à r.l. and PerkinElmer Health Sciences B.V., as Borrowers, Bank of America, N.A. as Administrative Agent, Swing Line Lender and an L/C Issuer, the Lenders party thereto and the other L/C Issuers party thereto, attached hereto as Exhibit 10.2.
10.3*	Employment Contracts:
	(1) Amended and Restated Employment Agreement, dated as of August 21, 2019, by and between Dr. Prahlad R. Singh and the Registrant, filed with the Securities and Exchange Commission on August 21, 2019 as Exhibit 99.1 to the Registrant's Current Report on Form 8-K (File No. 001-05075) and incorporated herein by reference.
	(2) Third Amended and Restated Employment Agreement between PerkinElmer, Inc. and Robert F. Friel, dated as of December 16, 2008, filed with the Commission on February 26, 2009 as Exhibit 10.4(2) to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference;
	(3) Employment Agreement by and between Joel S. Goldberg and PerkinElmer, Inc. dated as of July 21, 2008, filed with the Commission on August 8, 2008 as Exhibit 10.1 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference;
	(4) Form of Amendment, entered into by and between PerkinElmer, Inc. and Joel S. Goldberg on December 3, 2010 filed with the Commission on March 1, 2011 as Exhibit 10.4(7) to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
	(5) Employment Agreement between James Corbett and PerkinElmer, Inc. dated as of February 1, 2012, filed with the Commission on May 8, 2012 as Exhibit 10.1 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
	(6) Amended and Restated Employment Agreement between Andrew Okun and PerkinElmer, Inc. dated as of January 1, 2014, filed with the Commission on February 25, 2014 as Exhibit 10.2(10) to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
	(7) Employment Agreement between Daniel R. Tereau and PerkinElmer, Inc. dated as of February 1, 2016, filed with the Commission on March 1, 2016 as Exhibit 10.2(8) to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
	(8) Employment Agreement between Deborah A. Butters and PerkinElmer, Inc. dated as of July 11, 2016, filed with the Commission on November 8, 2016 as Exhibit 10.2(9) to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
	(9) Employment Agreement between Tajinder Vohra and PerkinElmer, Inc. dated January 29, 2018, filed with the Commission on May 8, 2018 as Exhibit 10.1 to our quarterly report on Form 10-Q (File No. 001-05075) and herein incorporated by reference.
	(10) Employment Agreement between James Mock and PerkinElmer, Inc., dated as of April 10, 2018, filed with the Commission on April 13, 2018 as Exhibit 99.1 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.4*	PerkinElmer, Inc.'s 2009 Incentive Plan, filed with the Commission on March 12, 2014 as Appendix A to our definitive proxy statement on Schedule 14A (File No. 001-05075) and herein incorporated by reference.
10.5*	PerkinElmer, Inc.'s 2008 Deferred Compensation Plan, filed with the Commission on December 12, 2008 as Exhibit 10.1 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.

Exhibit No.	Exhibit Title
10.6*	First Amendment to PerkinElmer, Inc.'s 2008 Deferred Compensation Plan, filed with the Commission on March 1, 2011 as Exhibit 10.9 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.7*	PerkinElmer, Inc.'s 2008 Supplemental Executive Retirement Plan, filed with the Commission on December 12, 2008 as Exhibit 10.2 to our current report on Form 8-K and herein incorporated by reference.
10.8*	PerkinElmer, Inc.'s Performance Unit Program Description, filed with the Commission on February 26, 2009 as Exhibit 10.10 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.9*	PerkinElmer, Inc. 1998 Employee Stock Purchase Plan as Amended and Restated on December 10, 2009, filed with the Commission on March 1, 2010 as Exhibit 10.15 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.10*	Form of Stock Option Agreement given by PerkinElmer, Inc. to its chief executive officer for use under the 2009 Incentive Plan, filed with the Commission on April 28, 2009 as Exhibit 10.2 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.11*	Form of Stock Option Agreement given by PerkinElmer, Inc. to its executive officers for use under the 2009 Incentive Plan, filed with the Commission on April 28, 2009 as Exhibit 10.3 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.12*	Form of Stock Option Agreement given by PerkinElmer, Inc. to its non-employee directors for use under the 2009 Incentive Plan, filed with the Commission on April 28, 2009 as Exhibit 10.4 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.13*	Form of Restricted Stock Unit Agreement given by PerkinElmer, Inc. to its non-employee directors for use under the 2009 Incentive Plan, filed with the Commission on February 24, 2015 as Exhibit 10.25 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.14*	Form of 162(m)-compliant Restricted Stock Agreement with single-trigger acceleration for use under the 2009 Incentive Plan, filed with the Commission on February 28, 2017 as Exhibit 10.19 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.15*	Form of 162(m)-compliant Restricted Stock Agreement with double-trigger acceleration for use under the 2009 Incentive Plan, filed with the Commission on February 28, 2017 as Exhibit 10.20 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.16*	Form of 162(m)-compliant Restricted Stock Unit Agreement with single-trigger acceleration for use under the 2009 Incentive Plan, filed with the Commission on February 28, 2017 as Exhibit 10.21 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.17*	Form of 162(m)-compliant Restricted Stock Unit Agreement with double-trigger acceleration for use under the 2009 Incentive Plan, filed with the Commission on February 28, 2017 as Exhibit 10.22 to our annual report on Form 10-K (File No. 001-05075) and herein incorporated by reference.
10.18*	PerkinElmer, Inc. Savings Plan Amended and Restated effective January 1, 2012, as further amended, filed with the Commission on February 26, 2019 as Exhibit 10.25 to our annual report on Form 10-K (file No. 001-05075) and herein incorporated by reference.
10.19*	PerkinElmer, Inc. Employees Retirement Plan Amended and Restated effective January 1, 2012, as further amended, filed with the Commission on February 26, 2019 as Exhibit 10.26 to our annual report on Form 10-K (file No. 001-05075) and herein incorporated by reference.
10.20*	PerkinElmer, Inc. Amended and Restated Global Incentive Compensation Plan (Executive Officers) effective December 30, 2019, attached hereto as Exhibit 10.20.

Exhibit No.	Exhibit Title
10.21*	PerkinElmer, Inc.'s 2019 Incentive Plan, filed with the Commission on March 13, 2019 as Appendix B to our definitive proxy statement on Schedule 14A (File No. 001-05075) and herein incorporated by reference.
10.22*	Form of Restricted Stock Unit Agreement for grants to non-employee directors under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.2 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.23*	Form of Restricted Stock Unit Agreement (Performance-based vesting) with single-trigger vesting acceleration upon a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.3 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.24*	Form of Restricted Stock Unit Agreement (Performance-based vesting) with double-trigger vesting acceleration following a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.4 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.25*	Form of Stock Option Agreement with single-trigger vesting acceleration upon a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.5 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.26*	Form of Stock Option Agreement with double-trigger vesting acceleration following a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.6 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.27*	Form of Restricted Stock Agreement with single-trigger vesting acceleration upon a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.7 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
10.28*	Form of Restricted Stock Agreement with double-trigger vesting acceleration following a change of control for grants to executive officers under the 2019 Incentive Plan, filed with the Commission on April 24, 2019 as Exhibit 99.8 to our current report on Form 8-K (File No. 001-05075) and herein incorporated by reference.
21	Subsidiaries of PerkinElmer, Inc., attached hereto as Exhibit 21.
23	Consent of Independent Registered Public Accounting Firm, attached hereto as Exhibit 23.
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, attached hereto as Exhibit 31.1.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) under the Securities Exchange Act of 1934, attached hereto as Exhibit 31.2.
32.1	Certification of Chief Executive Officer and Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, attached hereto as Exhibit 32.1.
101.INS	Inline XBRL Instance Document—the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Calculation Linkbase Document.
101.DEF	Inline XBRL Definition Linkbase Document.

Exhibit No.	Exhibit Title
101.LAB	Inline XBRL Labels Linkbase Document.
101.PRE	Inline XBRL Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as inline XBRL with applicable taxonomy extension information contained in Exhibits 101).

* Management contract or compensation plan or arrangement required to be filed as an exhibit pursuant to Item 15(b) of Form 10-K.

Attached as Exhibit 101 to this report are the following formatted in XBRL (Extensible Business Reporting Language):

(i) Consolidated Statements of Operations for each of the three years in the period ended December 29, 2019, (ii) Consolidated Balance Sheets as of December 29, 2019 and December 30, 2018, (iii) Consolidated Statements of Comprehensive Income for each of the three years in the period ended December 29, 2019, (iv) Consolidated Statements of Stockholders' Equity for each of the three years in the period ended December 29, 2019, (v) Consolidated Statements of Cash Flows for each of the three years in the period ended December 29, 2019, (vi) Notes to Consolidated Financial Statements, and (vii) Financial Schedule of Valuation and Qualifying Accounts.

SCHEDULE II

PERKINELMER, INC. AND SUBSIDIARIES

VALUATION AND QUALIFYING ACCOUNTS
For the Three Years Ended December 29, 2019

Description	Balance at Beginning of Year	Provisions	Charges/ Write-offs	Other[1]	Balance at End of Year
			(In thousands)		
Reserve for doubtful accounts:					
Year ended December 31, 2017	$ 29,212	$ 2,038	$ (1,900)	$ 1,931	$ 31,281
Year ended December 30, 2018	31,281	2,503	(2,295)	(899)	30,590
Year ended December 29, 2019	30,590	6,853	(3,009)	798	35,232

(1) Other amounts primarily relate to the impact of acquisitions, discontinued operations and foreign exchange movements.

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

Not applicable.

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.

PERKINELMER, INC.

	Signature	Title	Date
By:	/s/ PRAHLAD SINGH, PhD Prahlad Singh, PhD	President and Chief Executive Officer (Principal Executive Officer)	February 25, 2020
By:	/s/ JAMES M. MOCK James M. Mock	Sr. Vice President and Chief Financial Officer (Principal Financial Officer)	February 25, 2020
By:	/s/ ANDREW OKUN Andrew Okun	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 25, 2020

POWER OF ATTORNEY AND SIGNATURES

We, the undersigned officers and directors of PerkinElmer, Inc., hereby severally constitute Prahlad Singh and James M. Mock, and each of them singly, our true and lawful attorneys with full power to them, and each of them singly, to sign for us and in our names, in the capacities indicated below, this Annual Report on Form 10-K and any and all amendments to said Annual Report on Form 10-K, and generally to do all such things in our name and behalf in our capacities as officers and directors to enable PerkinElmer, Inc. to comply with the provisions of the Securities Exchange Act of 1934, and all requirements of the Securities and Exchange Commission, hereby rectifying and confirming signed by our said attorneys, and any and all amendments thereto.

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

	Signature	Title	Date
By:	/s/ PRAHLAD SINGH, PhD Prahlad Singh, PhD	President, Chief Executive Officer and Director (Principal Executive Officer)	February 25, 2020
By:	/s/ JAMES M. MOCK James M. Mock	Sr. Vice President and Chief Financial Officer (Principal Financial Officer)	February 25, 2020
By:	/s/ ANDREW OKUN Andrew Okun	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 25, 2020
By:	/s/ PETER BARRETT Peter Barrett	Director	February 25, 2020
By:	/s/ SAMUEL R. CHAPIN Samuel R. Chapin	Director	February 25, 2020
By:	/s/ SYLVIE GRÉGOIRE, PharmD Sylvie Grégoire, PharmD	Director	February 25, 2020
By:	/s/ ALEXIS P. MICHAS Alexis P. Michas	Director	February 25, 2020
By:	/s/ PATRICK J. SULLIVAN Patrick J. Sullivan	Director	February 25, 2020
By:	/s/ FRANK WITNEY, PhD Frank Witney, PhD	Director	February 26, 2019
By:	/s/ PASCALE WITZ Pascale Witz	Director	February 25, 2020

CORPORATE HEADQUARTERS

PerkinElmer, Inc.
940 Winter Street
Waltham, MA 02451 USA
Phone: (781) 663-6900
Fax: (781) 663-6052
www.perkinelmer.com

Information requests from security analysts and other members of the financial community can be directed to Investor Relations.

ANNUAL MEETING

The Annual Meeting of PerkinElmer, Inc. shareholders will be held at 8:00 A.M. on Tuesday, April 28, 2020, at the PerkinElmer Headquarters, 940 Winter Street, Waltham, Massachusetts. A formal meeting notice, an Annual Report, a Proxy Statement and a form of Proxy will be furnished to each shareholder as of the record date of February 28, 2020.

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Deloitte & Touche LLP
200 Berkeley Street
Boston, MA 02116

SHAREHOLDER SERVICES

PerkinElmer shareholder records are maintained by its transfer agent, Computershare. Inquiries relating to shareholder records, stock transfer, changes of ownership, changes of address, dividend payments, dividend reinvestment, direct deposit of quarterly dividends and consolidation of accounts should be addressed to:

Regular mail	Overnight delivery
Computershare, Inc.	Computershare, Inc.
PO Box 505000	462 South 4th Street, Suite 1600
Louisville, KY 40233	Louisville, KY 40202
www.computershare.com	

Shareholders may also call 1-877-711-4098 (U.S.) or 1-201-680-6578 (non-U.S.). For the hearing impaired (TTY/TDD), call 1-800-231-5469 (U.S.) or 1-201-680-6610 (non-U.S.).

STOCK EXCHANGE INFORMATION

PerkinElmer, Inc., common stock is listed and traded on the New York Stock Exchange.
Ticker symbol: PKI

INVESTOR RELATIONS INFORMATION LINE

The Company's quarterly earnings results are available through the PerkinElmer Investor Relations Information Line. Shareholders can receive current corporate information, such as dividend data, recent earnings and press release information. The toll-free number is 1-877-PKI-NYSE.

PERKINELMER STANDARDS OF BUSINESS CONDUCT

PerkinElmer is fully committed to conducting business with our customers, shareholders, and employees in accordance with high moral and ethical principles, and in compliance with applicable law. As part of this commitment, PerkinElmer provides Business Conduct training and its Standards of Business Conduct to all employees, who are expected to follow the spirit as well as the letter of the law. At PerkinElmer, we place a high priority on managing our business in an ethical manner in order to maintain our established reputation for integrity and dependability.

FACTORS AFFECTING FUTURE PERFORMANCE

This document contains "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any statements in this document that relate to prospective events or developments are deemed to be forward-looking statements. Words such as "believes," "intends," "anticipates," "plans," "expects," "projects," "forecasts," "will" and similar expressions, and references to guidance, are intended to identify forward-looking statements about the expected future business and financial performance of PerkinElmer.

Forward-looking statements are based on management's current expectations and assumptions, which are inherently subject to uncertainties, risks and changes in circumstances that are difficult to predict. Actual outcomes and results may differ materially from these expectations and assumptions due to changes in political, economic, business, financial, competitive, market, regulatory and other factors. Refer to our enclosed Annual Report on Form 10-K, under the caption "Item 1A. Risk Factors," for more information. We undertake no obligation to publicly update or review any forward-looking information, whether as a result of new information, future developments or otherwise.

FORM 10-K

This Annual Report to Shareholders includes a copy of our Annual Report on Form 10-K for the fiscal year ended December 29, 2019, excluding exhibits, as filed with the Securities and Exchange Commission and available through our Web site at www.perkinelmer.com. We will, upon written request and payment of an appropriate processing fee, provide our shareholders with copies of the exhibits to our Annual Report on Form 10-K. Please address your request to PerkinElmer, Inc., 940 Winter Street, Waltham, Massachusetts 02451, Attention: Investor Relations.