WEST PHARMACEUTICAL SERVICES INC
Form 10-K
February 28, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

(Mark One)
þ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018
or
.. TRANSITION REPORT PURSUANT TO SECTION 13 OR 15 (d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from to

Commission File Number 1-8036
WEST PHARMACEUTICAL SERVICES, INC.
(Exact name of registrant as specified in its charter)

Pennsylvania	23-1210010
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
530 Herman O. West Drive, Exton, PA	19341-0645
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: 610-594-2900

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

Title of each class	Name of each exchange on which registered
Common Stock, par value $.25 per share	New York Stock Exchange

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

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

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 o No þ

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes þ No o

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	þ	Accelerated filer	o
Non-accelerated filer	o (Do not check if a smaller reporting company)	Smaller reporting company	o
		Emerging growth company	o

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

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2018 was approximately $7,301,615,623 based on the closing price as reported on the New York Stock Exchange.

As of January 31, 2019, there were 74,186,169 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Document	Parts Into Which Incorporated
Proxy Statement for the Annual Meeting of Shareholders to be held May 7, 2019	Part III

TABLE OF CONTENTS

PART I

Unless otherwise indicated, or the context otherwise requires, references in this report to “the Company”, “we”, “us”, “our” and “West” refer to West Pharmaceutical Services, Inc. and its majority-owned subsidiaries.

All trademarks and registered trademarks used in this report are our property, either directly or indirectly through our subsidiaries, unless noted otherwise. Daikyo Crystal Zenith® (“CZ”) is a registered trademark of Daikyo Seiko, Ltd. (“Daikyo”).

Throughout this report, references to “Notes” refer to the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K (“Form 10-K”), unless otherwise indicated.

Information in this Form 10-K is current as of February 27, 2019, unless otherwise specified.

ITEM 1. BUSINESS
General

We are a leading global manufacturer in the design and production of technologically advanced, high-quality, integrated containment and delivery systems for injectable drugs and healthcare products. Our products include a variety of primary packaging, containment solutions, reconstitution and transfer systems, and drug delivery systems, as well as contract manufacturing and analytical lab services. Our customers include the leading biologic, generic, pharmaceutical, diagnostic, and medical device companies in the world. Our top priority is delivering quality products that meet the exact product specifications and quality standards customers require and expect. This focus on quality includes excellence in manufacturing, scientific and technical expertise and management, and enables us to partner with our customers to deliver safe, effective drug products to patients quickly and efficiently.

The Company was incorporated under the laws of the Commonwealth of Pennsylvania on July 27, 1923.

Business Segments

Our business operations are organized into two reportable segments, Proprietary Products and Contract-Manufactured Products.

Proprietary Products Segment

Our Proprietary Products reportable segment offers proprietary packaging, containment and drug delivery products, along with analytical lab services, to biologic, generic and pharmaceutical drug customers. Our packaging products include stoppers and seals for injectable packaging systems, which are designed to help ensure drug compatibility and stability with active drug products, while also supporting operational efficiency for customers. This product portfolio also includes syringe and cartridge components, including custom solutions for the specific needs of injectable drug applications, as well as administration systems that can enhance the safe delivery of drugs through advanced reconstitution, mixing and transfer technologies. We also provide films, coatings, washing and sterilization processes and services to enhance the quality of packaging components and mitigate the risk of contamination and compatibility issues.

This segment’s product portfolio also includes drug containment solutions, including CZ, a cyclic olefin polymer, in the form of vials, syringes and cartridges. These products can provide a high-quality solution to glass incompatibility issues and can stand up to cold storage environments, while reducing the risk of breakage that exists with glass. In addition, we offer a variety of self-injection devices, designed to address the need to provide at-home delivery of

injectable therapies. These devices are patient-centric technologies that are easy-to-use and can be combined with connected health technologies that have the potential to increase adherence.

In addition to our Proprietary Products product portfolio, we provide our customers with a range of integrated services, including analytical lab services, pre-approval primary packaging support and engineering development, regulatory expertise, and after-sales technical support. Offering the combination of primary packaging components, containment solutions, and drug delivery devices, as well as a broad range of integrated services, helps to position us as the leader in the integrated containment and delivery of injectable medicines.

This reportable segment has manufacturing facilities in North and South America, Europe, and Asia Pacific, with affiliated companies in Mexico and Japan. Please refer to Item 2, Properties, for additional information on our manufacturing and other sites.

Please refer to Note 18, Segment Information, for net sales, operating profit and asset information for Proprietary Products.

Contract-Manufactured Products Segment

Our Contract-Manufactured Products reportable segment serves as a fully integrated business, focused on the design, manufacture, and automated assembly of complex devices, primarily for pharmaceutical, diagnostic, and medical device customers. These products include a variety of custom contract-manufacturing and assembly solutions, which use such technologies as multi-component molding, in-mold labeling, ultrasonic welding and clean room molding and device assembly. We manufacture customer-owned components and devices used in surgical, diagnostic, ophthalmic, injectable, and other drug delivery systems, as well as consumer products.

We have vast expertise in product design and development, including in-house mold design, an engineering center for developmental and prototype tooling, process design and validation and high-speed automated assemblies.

This reportable segment has manufacturing operations in North America and Europe. Please refer to Item 2, Properties, for additional information on our manufacturing and other sites.

Please refer to Note 18, Segment Information, for net sales, operating profit and asset information for Contract-Manufactured Products.

International

We have significant operations outside of the United States (“U.S.”), which are managed through the same business segments as our U.S. operations – Proprietary Products and Contract-Manufactured Products. Sales outside of the U.S. accounted for 55.4% of our consolidated net sales in 2018. For a geographic breakdown of sales, please refer to Note 18, Segment Information. Please refer to Item 2, Properties, for additional information on our manufacturing and other sites.

Although the general business processes are similar to the domestic business, international operations are exposed to additional risks. These risks include currency fluctuations relative to the U.S. Dollar (“USD”), multiple tax jurisdictions and, particularly in South America, Israel and the Middle East, political and social issues that could destabilize local markets and affect the demand for our products.

See further discussion of our international operations, the risks associated with our international operations, and our attempt to minimize some of these risks in Part I, Item 1A, Risk Factors; Part II, Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations under the caption Financial Condition, Liquidity and Capital Resources; Part II, Item 7A, Quantitative and Qualitative Disclosures About Market Risk; Note 1 under the captions Financial Instruments and Foreign Currency Translation; and Note 10, Derivative Financial Instruments.

4

Raw Materials

We use three basic raw materials in the manufacture of our products: elastomers, aluminum and plastic. Elastomers include both natural and synthetic materials. We currently have access to adequate supplies of these raw materials to meet our production needs through agreements with suppliers.
We employ a supply chain management strategy in our business segments, which involves purchasing from integrated suppliers that control their own sources of supply. Due to regulatory control over our production processes and the cost and time involved in qualifying suppliers, we rely on single-source suppliers for many critical raw materials. We purchase certain raw materials in the open market. This strategy increases the risk that our supply chain may be interrupted in the event of a supplier production or distribution problem. These risks are managed, where possible, by selecting suppliers with multiple manufacturing sites, rigorous quality control systems, surplus inventory levels and other methods of maintaining supply in case of an interruption in production or distribution.

Intellectual Property
Intellectual property, including patents, trade secrets and know-how, is important to our business. We own or license intellectual property rights, including issued patents and pending patent applications in the U.S. and in other countries, that relate to various aspects of our products. In 2018, more than 120 patents were issued to West across the globe. Some key value-added and proprietary products and processes are licensed from Daikyo. Our intellectual property rights have been useful in establishing our market position and in the growth of our business, and are expected to continue to be of value in the future.
Seasonality
Our business is not inherently seasonal.
Working Capital
We are required to carry significant amounts of inventory to meet customer requirements. In addition, some of our supply agreements require us to purchase inventory in bulk orders, which increases inventory levels but decreases the risk of supply interruption. For a more detailed discussion of working capital, please refer to the discussion in Part II, Item 7, Management’s Discussion and Analysis of Financial Condition and Results of Operations under the caption Financial Condition, Liquidity and Capital Resources.
Marketing
Our Proprietary Products customers include most of the major biologic, generic, and pharmaceutical drug companies in the world, which incorporate our components and other offerings into their products for distribution to the point of care and ultimate end-user - the patient.
Our Contract-Manufactured Products customers include many of the world’s largest pharmaceutical, diagnostic, and medical device companies. Contract-Manufactured Products components generally are incorporated into our customers’ manufacturing lines for further processing or assembly.
Our products and services are sold and distributed primarily through our own sales force and distribution network, with limited use of contract sales agents and regional distributors.
Our ten largest customers accounted for 37.1% of our consolidated net sales in 2018, but none of these customers individually accounted for more than 10% of consolidated net sales. Please refer to Note 3, Revenue, and Note 18, Segment Information, for additional information on our consolidated net sales.

Order Backlog

Order backlog includes firm orders placed by customers for manufacture over a period of time according to their schedule or upon confirmation by the customer. We also have contractual arrangements with a number of our

customers. Products covered by these contracts are included in our backlog only as orders are received. Order backlog may be positively or negatively impacted by several factors, including customer ordering patterns and the necessary lead-time to deliver customer orders. Order backlog is one of many measures we use to understand future demand, and should not be considered in isolation to predict future sales growth.

At December 31, 2018 and 2017, the order backlog for Proprietary Products was $407.3 million and $377.4 million, respectively. The majority of the order backlog for Proprietary Products at December 31, 2018 is expected to be filled during 2019.

The majority of Contract-Manufactured Products manufacturing activity is governed by contractual volume expectations, subject to periodic revisions based on customer requirements.

Competition

With our range of proprietary technologies, we compete with several companies across our Proprietary Products product lines. Due to the special nature of our pharmaceutical packaging components and our long-standing participation in the market, competition for these components is based primarily on product design and performance, although total cost is becoming increasingly important as pharmaceutical companies continue with aggressive cost-control programs across their operations.

In addition, there are a number of competitors supplying medical devices and medical device components, including a number of pharmaceutical manufacturers who are also potential customers of our medical devices. We compete in this market on the basis of our reputation for quality and reliability in engineering and project management, as well as our knowledge of, and experience in, compliance with regulatory requirements.

We have specialized knowledge of container closure components, which is integral to developing delivery systems. With our range of proprietary technologies, we compete with new and established companies in the area of drug delivery devices, including suppliers of prefillable syringes, auto-injectors, safety needles and other proprietary systems.

We differentiate ourselves from our competition by serving as an integrated drug containment and delivery systems global supplier that can provide pre-approval primary packaging support and engineering development, analytical services, regulatory expertise and after-sale technical support. Customers also appreciate the global scope of our manufacturing capability and our ability to produce many products at multiple sites.

Our Contract-Manufactured Products business operates in very competitive markets for its products. The competition varies from smaller regional companies to large global molders. Given the cost pressures they face, many of our customers look to reduce costs by sourcing from low-cost locations. We differentiate ourselves by leveraging our global capabilities and by employing new technologies such as high-speed automated assembly, insert-molding, multi-shot precision molding and expertise with multiple-piece closure systems.

Research and Development Activities

We maintain our own research-scale production facilities and laboratories for developing new products, and offer contract engineering design and development services to assist customers with new product development. Our quality control, regulatory and laboratory testing capabilities are used to ensure compliance with applicable manufacturing and regulatory standards for primary and secondary pharmaceutical packaging components and delivery systems. Commercial development of our new products and services for medical and pharmaceutical applications commonly requires several years. New products that we develop may require separate approval as medical devices, and products that are intended to be used in the packaging and delivery of pharmaceutical products are subject to both customer

acceptance of our products and regulatory approval of the customer's products following our development period.

We expect that research and development spending will continue to increase as we pursue innovative strategic platforms in prefillable syringes, injectable containers, advanced injection and safety and administration systems. We also continue to seek new innovative opportunities for acquisition, licensing, partnering or development of products, services and technologies that serve the injectable drug containment and delivery market.

We spent $40.3 million in 2018, $39.1 million in 2017, and $36.8 million in 2016 on research and development, all of which related to Proprietary Products.

Environmental Regulations

We are subject to various federal, state and local provisions regulating the discharge of materials into the environment or otherwise relating to the protection of the environment. Our compliance with these laws and regulations has not had a material impact on our financial position, results of operations or cash flows. There were no required material capital expenditures for environmental controls in our facilities in 2018 and there are currently no needed or planned material expenditures for 2019.

Employees

As of December 31, 2018, we employed approximately 7,700 people in our operations throughout the world, including approximately 7,600 full-time employees.

Available Information

We maintain a website at www.westpharma.com. Our Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available on our website under the Investors - SEC Filings caption as soon as reasonably practical after we electronically file the material with, or furnish it to, the U.S. Securities and Exchange Commission ("SEC"). These filings are also available to the public over the Internet at the SEC's website at www.sec.gov. You may also read and copy any document we file at the SEC's Public Reference Room at 100 F. Street, N.E., Washington, D.C. 20549. Please call the SEC at 1-800-SEC-0330 for further information on the Public Reference Room.

Throughout this Form 10-K, we incorporate by reference certain information from parts of other documents filed with the SEC and from our Proxy Statement for the 2019 Annual Meeting of Shareholders ("2019 Proxy Statement"), which will be filed with the SEC within 120 days following the end of our 2018 fiscal year. Our 2019 Proxy Statement will be available on our website on or about March 31, 2019, under the caption Investors - Annual Reports & Proxy.

Information about our corporate governance, including our Corporate Governance Principles and Code of Business Conduct, as well as information about our Directors, Board Committees, Committee Charters, and instructions on how to contact the Board, is available on our website under the Investors - Corporate Governance heading. We intend to make any required disclosures regarding any amendments of our Code of Business Conduct or waivers granted to any of our directors or executive officers under the caption Code of Business Conduct on our website. Information relating to the West Pharmaceutical Services Dividend Reinvestment Plan is also available on our website under the Investors - Transfer Agent/Dividend Reinvestment caption.

We will provide any of the foregoing information without charge upon written request to our Corporate Secretary, West Pharmaceutical Services, Inc., 530 Herman O. West Drive, Exton, PA 19341.

7

ITEM 1A. RISK FACTORS

The statements in this section describe major risks to our business and should be considered carefully. In addition, these statements constitute our cautionary statements under the Private Securities Litigation Reform Act of 1995.

Our disclosure and analysis in this Form 10-K contains some forward-looking statements that are based on management's beliefs and assumptions, current expectations, estimates and forecasts. We also provide forward-looking statements in other materials we release to the public as well as oral forward-looking statements. Such statements give our current expectations or forecasts of future events. They do not relate strictly to historical or current facts. We have attempted, wherever possible, to identify forward-looking statements by using words such as "estimate," "expect," "intend," "believe," "plan," "anticipate" and other words and terms of similar meaning. In particular, these include statements relating to future actions, business plans and prospects, new products, future performance or results of current or anticipated products, sales efforts, expenses, interest rates, foreign-exchange rates, economic effects, the outcome of contingencies, such as legal proceedings, and financial results.

Many of the factors that will determine our future results are beyond our ability to control or predict. Achievement of future results is subject to known or unknown risks or uncertainties, including, without limitation, the risks set forth below. Therefore, actual results could differ materially from past results and those expressed or implied in any forward-looking statement. You should bear this in mind as you consider forward-looking statements.

Unless required by applicable securities law, we undertake no obligation to publicly update forward-looking statements, whether as a result of new information, future events or otherwise. We also refer you to further disclosures we make on related subjects in our Quarterly Reports on Form 10-Q and Current Reports on Form 8-K to the SEC.

Our operating results may be adversely affected by unfavorable economic and market conditions.

The current uncertainty in the global economy, including the effects of recession or slow economic growth in the U.S., Europe, and emerging markets in Asia and South America, may negatively affect our operating results. Examples of the effects of these global economic challenges include: our suppliers' and our customers' inability to access the credit markets at commercially reasonable rates; reduction in sales due to customers decreasing their inventories in the near-term or long-term or due to liquidity difficulties; reduction in sales due to shortages of materials we purchase from our suppliers; reduction in research and development efforts and expenditures by our customers; our inability to hedge our currency and raw material risks sufficiently or at commercially reasonable prices; insolvency of suppliers or customers; inflationary pressures on our supplies or our products; and increased expenses due to growing global taxation of corporate profits or revenues. Our operating results in one or more geographic regions may also be affected by uncertain or changing economic conditions within that region. If economic and market conditions in the U.S. or Europe, or in emerging markets, weaken further, we may experience material adverse impacts on our business, financial condition and results of operations.

Our sales and profitability are largely dependent on the sale of drug products delivered by injection and the packaging of drug products. If the products developed by our customers in the future use another delivery system, our sales and profitability could suffer.

Our business depends to a substantial extent on customers' continued sales and development of products that are delivered by injection. If our customers fail to continue to sell, develop and deploy injectable products or we are unable to develop new products that assist in the delivery of drugs by alternative methods, our sales and profitability may suffer.

Changes in foreign currency exchange rates could have a material adverse effect on our business and/or results of operations.

Our business is subject to foreign currency exchange rate fluctuations. Sales outside of the U.S. accounted for 55.4% of our consolidated net sales in 2018 and we anticipate that sales from international operations will continue to

represent a significant portion of our total sales in the future. In addition, many of our manufacturing facilities and suppliers are located outside of the U.S. Further, we intend to continue our expansion into emerging and/or faster-growing markets outside of the U.S. in the future. Virtually all of our international sales, assets and related operating costs and expenses are earned, valued or incurred in the currency of the local country, primarily the Euro, the Singapore Dollar ("SGD"), and the Danish Krone. In addition, we are exposed to Japanese Yen ("Yen"), as we maintain a 25% ownership interest in, and we purchase finished goods and other materials from, Daikyo. We are also exposed to currencies in emerging market countries, such as the Chinese Yuan, the Indian Rupee, and various South American currencies. Our consolidated financial statements are presented in USD, and, therefore, we must translate the reported values of our foreign assets, liabilities, revenues and expenses into USD, which can result in significant fluctuations in the amount of those assets, liabilities, revenues or expenses. The exchange rates between these foreign currencies and USD in recent years have fluctuated significantly and may continue to do so in the future. Increases or decreases in the value of USD compared to these foreign currencies may negatively affect the value of these items in our consolidated financial statements, which could have a material adverse effect on our operating results.

In addition to translation risks, we incur currency transaction risk when we or one of our subsidiaries enters into a purchase or sales transaction in a currency other than that entity's local currency. In order to reduce our exposure to fluctuations in certain exchange rates, we have entered, and expect to continue to enter, into hedging arrangements, including the use of financial derivatives. There can be no certainty that we will be able to enter into or maintain hedges of these currency risks, or that our hedges will be effective, which could have a significant effect on our financial condition and operating results.

If we are unable to provide comparative value advantages, timely fulfill customer orders, or resist pricing pressure, we will have to reduce our prices, which may reduce our profit margins.

We compete with several companies across our major product lines. Because of the special nature of these products, competition is based primarily on product design and performance, although total cost is becoming increasingly important as pharmaceutical companies continue with aggressive cost-control programs across their operations. Companies often compete on the basis of price. We aim to differentiate ourselves from our competition by being a "full-service, value-added" global supplier that is able to provide pre-sale compatibility studies, engineering support, and other services and sophisticated post-sale technical support on a global basis. However, we face continued pricing pressure from our customers and competitors. If we are unable to resist or to offset the effects of continued pricing pressure through our value-added services, improved operating efficiencies and reduced expenditures, or if we have to reduce our prices, our sales and profitability may suffer.

Consolidation in the pharmaceutical and healthcare industries could adversely affect our future revenues and operating income.

The pharmaceutical and healthcare industries have experienced a significant amount of consolidation. As a result of this consolidation, competition to provide goods and services to customers has increased. In addition, group purchasing organizations and integrated health delivery networks have served to concentrate purchasing decisions for some customers, which has placed pricing pressure on suppliers. Further consolidation within the industries we serve could exert additional pressure on the prices of our products.

We are subject to regulation by governments around the world, and if these regulations are not complied with, existing and future operations may be curtailed, and we could be subject to liability.

The design, development, manufacturing, marketing and labeling of certain of our products and our customers' products that incorporate our products are subject to regulation by governmental authorities in the U.S., Europe and other countries, including the U.S. Food and Drug Administration ("FDA"), the European Medicines Agency, and the

National Medical Products Administration (China). Complying with governmental regulation can be costly and can result in required modification or withdrawal of existing products and a substantial delay in the introduction of new products. Failure to comply with applicable regulatory requirements or failure to obtain regulatory approval for

a new product could result in expenses and actions that could adversely affect our business and financial performance.

Products that incorporate our technologies and medical devices that we produce are subject to regulations and extensive approval or clearance processes, which make the timing and success of new-product commercialization difficult to predict.

The process of obtaining and maintaining FDA and other required regulatory approvals is expensive and time-consuming. Historically, most medical devices that incorporate our technologies and medical devices that we produce have been subject to the FDA's 510(k) marketing approval process, which typically lasts from six to nine months. Supplemental or full pre-market approval reviews require a significantly longer period, delaying commercialization. Changes in regulation on a global scale must be monitored and actions taken to ensure ongoing compliance. Pharmaceutical products that incorporate our technologies and medical devices that we produce are subject to the FDA's New Drug Application process, which typically takes a number of years to complete. Additionally, biotechnology products that incorporate our technologies and medical devices that we produce are subject to the FDA's Biologics License Application process, which also typically takes a number of years to complete. Outside of the U.S., sales of medical devices and pharmaceutical or biotechnology products are subject to international regulatory requirements that vary from country to country. The time required to obtain approval for sale internationally may be longer or shorter than that required for FDA approval. There is no certainty that any regulatory approval may be obtained or maintained indefinitely, and our ability to launch products on to the market and maintain market presence is not guaranteed.

Changes in the regulation of drug products and devices may increase competitive pressure and adversely affect our business.

An effect of the governmental regulation of our medical devices and our customers' drug products, devices, and manufacturing processes is that compliance with regulations makes it difficult to change components and devices produced by one supplier with those from another supplier, due to the large amount of data and information that customers must generate to demonstrate that the components and devices are equivalent and pose no additional risk to the patient. The regulation of our medical devices and our customers' products that incorporate our components and devices has increased over time. If the applicable regulations were to be modified in a way that reduced the level of data and information needed to prove equivalency for a change from one supplier's components or devices to those made by another, it is likely that the competitive pressure would increase and adversely affect our sales and profitability.

If we are not successful in protecting our intellectual property rights, our ability to compete may be affected.

Our patents, trademarks and other intellectual property are important to our business. We rely on patent, trademark, copyright, trade secret, and other intellectual property laws, as well as nondisclosure and confidentiality agreements and other methods, to protect our proprietary products, information, technologies and processes. We also have obligations with respect to the non-use and non-disclosure of third-party intellectual property. We may need to engage in litigation or similar activities to enforce our intellectual property rights, to protect our trade secrets or to determine the validity and scope of proprietary rights of others. Any such litigation could require us to expend significant resources and divert the efforts and attention of our management and other personnel from our business operations. There can be no assurance that the steps we will take to prevent misappropriation, infringement or other violation of our intellectual property or the intellectual property of others will be successful. In addition, effective patent, copyright, trademark and trade secret protection may be unavailable or limited for some of our proprietary products in some countries. Failure to protect our intellectual property or successfully invalidate or defend against intellectual property protections of third parties could harm our business and results of operations. In addition, if relevant and effective patent protection is not available or has expired, we may not be able to prevent competitors from

independently developing products and services similar or duplicative to ours.

Disruption in our manufacturing facilities could have a material adverse effect on our ability to make and sell products and have a negative impact on our reputation, performance or financial condition.

We have manufacturing sites throughout the world. In some instances, however, the manufacturing of certain product lines is concentrated in one or only a few of our plants. The functioning of our manufacturing and distribution assets and systems could be disrupted for reasons either within or beyond our control, including, without limitation: extreme weather or longer-term climatic changes; natural disasters; pandemic; war; accidental damage; disruption to the supply of material or services; product quality and safety issues; systems failure; workforce actions; or environmental contamination. There is a risk that incident management systems in place may prove inadequate and that any disruption may materially adversely affect our ability to make and sell products and, therefore, materially adversely affect our reputation, performance or financial condition.

The medical technology industry is very competitive and customer demands and/or new products in the marketplace could cause a reduction in demand.

The medical technology industry is subject to rapid technological changes, and we face significant competition across our product lines and in each market in which our products are sold. We face this competition from a wide range of companies, including large medical device companies, some of which have greater financial and marketing resources than we do. We also face competition from firms that are more specialized than we are with respect to particular markets. In some instances, competitors, including pharmaceutical companies, also offer, or are attempting to develop, alternative therapies for diseases that may be delivered via their own, or without, a medical device. The development of new or improved products, processes or technologies by other companies (such as needle-free injection technology) may reduce customer demand for our products or render some of our products or proposed products obsolete or less competitive. In addition, any failure or inability to meet increased customer quality expectations could cause a reduction in demand.

Significant developments in U.S. policies could have a material adverse effect on our business and/or results of operations.

Changes in U.S. social, political, regulatory, and economic conditions, or in laws and policies governing foreign trade, manufacturing, development, immigration, and investment, could have an adverse effect on our financial condition, results of operations and cash flows.

Our international sales and operations are subject to risks and uncertainties that vary by country and which could have a material adverse effect on our business and/or results of operations.

We conduct business in most of the major pharmaceutical markets in the world. Our international operations and our ability to implement our overall business strategy (including our plan to continue expanding into emerging and/or faster-growing markets outside of the U.S.) are subject to risks and uncertainties that can vary by country, and include: transportation delays and interruptions; political and economic instability and disruptions, including the United Kingdom’s referendum on withdrawal from the European Union; imposition of duties and tariffs; import and export controls; the risks of divergent business expectations or cultural incompatibility inherent in establishing and maintaining operations in foreign countries; difficulties in staffing and managing multi-national operations; labor strikes and/or disputes; and potentially adverse tax consequences. Limitations on our ability to enforce legal rights and remedies with third parties or our joint venture partners outside of the U.S. could also create exposure. In addition, we may not be able to operate in compliance with foreign laws and regulations, or comply with applicable customs, currency exchange control regulations, transfer pricing regulations or any other laws or regulations to which we may be subject, in the event that these laws or regulations change. Any of these events could have an adverse effect on our international operations in the future by reducing the demand for our products or decreasing the prices at which we

can sell our products, or otherwise have an adverse effect on our financial condition, results of operations and cash flows.

Disruptions in the supply of key raw materials could adversely impact our operations.

We generally purchase our raw materials and supplies required for the production of our products in the open market. For reasons of quality assurance, sole source availability or cost effectiveness, many components and raw materials are available and/or purchased only from a single supplier. Due to the stringent regulations and requirements of the FDA and other regulatory authorities regarding the manufacture of our products, we may not be able to quickly establish additional or replacement sources for these components or materials or do so without excessive cost. As a result, a reduction or interruption in supply, or an inability to secure alternative sources of raw materials or components, could have a material adverse effect on our business and/or results of operations.

Unauthorized access to our or our customers' information and systems could negatively impact our business.

Our systems and networks, as well as those of our customers, suppliers, service providers, and banks, have and may in the future become the target of cyberattacks or information security breaches which, in turn, could result in the unauthorized release and misuse of confidential or proprietary information about our company, our employees, or our customers, as well as disrupt our operations or damage our facilities or those of third parties. Additionally, our systems are subject to regulation to preserve the privacy of certain data held on those systems. We maintain an extensive network of technical security controls, policy enforcement mechanisms and monitoring systems, in order to address these threats. While these measures are designed to prevent, detect and respond to unauthorized activity in our systems, certain types of attacks could result in financial or information losses and/or reputational harm. If we cannot comply with regulations or prevent the unauthorized access, release and/or corruption of our or our customers' confidential, classified or personally identifiable information, our reputation could be damaged, and/or we could face financial losses. We may also be required to incur additional costs to modify or enhance our systems, or to try to prevent or remediate any such attacks. Modifying or enhancing our systems may result in unanticipated or prolonged disruption events, which could have a material adverse effect on our business and/or results of operations.

Raw material and energy prices have a significant impact on our profitability. If raw material and/or energy prices increase, and we cannot pass those price increases on to our customers, our profitability and financial condition may suffer.

We use three basic raw materials in the manufacture of our products: elastomers (which include synthetic and natural material), aluminum and plastic. In addition, our manufacturing facilities consume a wide variety of energy products to fuel, heat and cool our operations. Supply and demand factors, which are beyond our control, generally affect the price of our raw materials and utility costs. If we are unable to pass along increased raw material prices and energy costs to our customers, our profitability, and thus our financial condition, may be adversely affected. The prices of many of these raw materials and utilities are cyclical and volatile. For example, the prices of certain commodities, particularly petroleum-based raw materials, have in the recent past exhibited rapid changes, affecting the cost of synthetic elastomers and plastic. While we generally attempt to pass along increased costs to our customers in the form of sales price increases, historically there has been a time delay between raw material and/or energy price increases and our ability to increase the prices of our products. In some circumstances, we may not be able to increase the prices of our products due to competitive pressure and other factors.

If we are not timely or successful in new-product innovation or the development and commercialization of proprietary multi-component systems, our future revenues and operating income could be adversely affected.

Our growth partly depends on new-product innovation and the development and commercialization of proprietary multi-component systems for injectable drug administration and other healthcare applications. Product development and commercialization is inherently uncertain and is subject to a number of factors outside of our control, including any necessary regulatory approvals and commercial acceptance for the products. The ultimate timing and successful

commercialization of new products and systems requires substantial evaluations of the functional, operational, clinical and economic viability of our products. In addition, the timely and adequate availability of filling capacity is essential to both conducting definitive stability trials and the timing of commercialization of customers' products in CZ vials, syringes and cartridges. Delays, interruptions or failures in developing and commercializing new-product

innovations or proprietary multi-component systems could adversely affect future revenues and operating income. In addition, adverse conditions may also result in future charges to recognize impairment in the carrying value of our goodwill and other intangible assets, which could have a material adverse effect on our financial results.

We may not succeed in finding and completing acquisition or other strategic transactions, which could have an adverse effect on our business and results of operations.

We have historically engaged in acquisition activity and we may in the future engage in acquisitions or other strategic transactions, such as joint ventures or investments in other entities. We may be unable to identify suitable targets, opportunistic or otherwise, for acquisitions or other strategic transactions in the future. If we identify a suitable candidate, our ability to successfully implement the strategic transaction would depend on a variety of factors including our ability to obtain financing on acceptable terms, and to comply with the restrictions contained in our debt agreements. Strategic transactions involve risks, including those associated with integrating the operations or maintaining the operations as separate (as applicable), financial reporting, disparate technologies and personnel of acquired companies, joint ventures or related companies; managing geographically dispersed operations or other strategic investments; the diversion of management's attention from other business concerns; the inherent risks in entering markets or lines of business in which we have either limited or no direct experience; the potential loss of key employees, customers and strategic partners of acquired companies, joint ventures or companies in which we may make strategic investments; and potentially other unknown risks. We may not successfully integrate any businesses or technologies we may acquire or strategically develop in the future and may not achieve anticipated revenue and cost benefits relating to any such strategic transactions. Strategic transactions may be expensive, time consuming and may strain our resources. Strategic transactions may not be accretive to our earnings and may negatively impact our results of operations as a result of, among other things, the incurrence of debt, one-time write-offs of goodwill, additional carrying costs of patent or trademark portfolios, and amortization expenses of other intangible assets. In addition, strategic transactions that we may pursue could result in dilutive issuances of equity securities.

Product defects could adversely affect the results of our operations.

The design, manufacture and marketing of pharmaceutical packaging and medical devices involve certain inherent risks. Manufacturing or design defects, unanticipated use of our products, or inadequate disclosure of risks relating to the use of our products can lead to injury or other adverse events. These events could lead to recalls or safety alerts relating to our products (either voluntary or required by the FDA or similar governmental authorities in other countries), and could result, in certain cases, in the removal of a product from the market. A recall could result in significant costs, as well as negative publicity and damage to our reputation that could reduce demand for our products. Personal injuries relating to the use of our products can also result in product liability claims being brought against us. In some circumstances, such adverse events could also cause delays in new product approvals.

Our operations must comply with environmental statutes and regulations, and any failure to comply could result in extensive costs which would harm our business.

The manufacture of some of our products involves the use, transportation, storage and disposal of hazardous or toxic materials and is subject to various environmental protection and occupational health and safety laws and regulations in the countries in which we operate. This has exposed us in the past, and could expose us in the future, to risks of accidental contamination and events of non-compliance with environmental laws. Any such occurrences could result in regulatory enforcement or personal injury and property damage claims or could lead to a shutdown of some of our operations, which could have an adverse effect on our business and results of operations. We currently incur costs to comply with environmental laws and regulations and these costs may become more significant.

13

A loss of key personnel or highly skilled employees could disrupt our operations.

Our future success depends, in large part, on our ability to retain key employees, including our executive officers, individuals in technical, marketing, sales and research positions. Competition for experienced employees, particularly for persons with specialized skills, can be intense. Our ability to recruit such talent will depend on a number of factors, including compensation and benefits, work location and work environment. If we cannot effectively recruit and retain qualified executives and employees, our business could be adversely affected. Although we believe that we will be able to attract and retain talented personnel and replace key personnel should the need arise, our inability to do so on a timely basis could disrupt the operations of the unit affected or our overall operations. In addition, because of the complex nature of many of our products and programs, we are generally dependent on an educated and highly skilled engineering staff and workforce. Our operations could be disrupted by a shortage of available skilled employees.

The uncertain effects of potential climate change legislation could lead to significantly increased costs.

If legislation or regulations are enacted or promulgated in the U.S., Europe or Asia or any other jurisdictions in which we do business that limit or reduce allowable greenhouse gas emissions and other emissions, such restrictions could have a significant effect on our operating and financial decisions, including those involving capital expenditures to reduce emissions, and our results of operations. Our manufacturing operations may not be able to operate as planned if we are not able to comply with new legal and regulatory legislation around climate change, or it may become too costly to operate in a profitable manner. Additionally, suppliers' added expenses could be passed on to us in the form of higher prices and we may not be able to pass on such expenses to our customers through price increases.

Healthcare reform may adversely affect our results of operations.

Changes in the U.S. or international healthcare systems, including the Patient Protection and Affordable Care Act (the "PPACA"), could result in reduced demand for our products, as our sales depend, in part, on the extent to which pharmaceutical companies and healthcare providers and facilities are reimbursed by government authorities, private insurers and other third-party payers for the costs of our products. The coverage policies and reimbursement levels of third-party payers, which can vary among public and private sources, may affect which products customers purchase and the prices they are willing to pay for these products in a particular jurisdiction. Legislative or administrative reforms to reimbursement systems in the U.S. (including the possible termination of the PPACA and potential replacement thereafter with a different system) or abroad (for example, those under consideration in France, Germany, Italy and the United Kingdom) could significantly reduce reimbursement for our customers' products, which could in turn reduce the demand for our products.

Moreover, in the coming years, additional changes could be made to global governmental healthcare programs that could significantly impact the success of our products. We will continue to evaluate the PPACA, as amended, the implementation of regulations or guidance related to various provisions of the PPACA by federal agencies, the potential repeal and replacement of the PPACA, as well as trends and changes that may be encouraged by the legislation and other healthcare legislation globally and that may potentially impact our business over time.

No assurance can be given that we will continue to pay or declare dividends.

We have historically paid dividends. However, there can be no assurance that we will pay or declare dividends in the future. The actual declaration and payment of future dividends, the amount of any such dividends, and the establishment of record and payment dates, if any, are subject to determination by our Board of Directors each quarter after its review of our then-current strategy, applicable debt covenants and financial performance and position, among other things. Our declaration and payment of future dividends is subject to risks and uncertainties, including: deterioration of our financial performance or position; inability to declare a dividend in compliance with applicable

laws or debt covenants; an increase in our cash needs or decrease in available cash; and the business judgment of the Board of Directors that a declaration of a dividend is not in our best interest.

Our results of operations and earnings may not meet guidance or expectations.

We provide public guidance on our expected results of operations for future periods. This guidance is comprised of forward-looking statements subject to risks and uncertainties, including the risks and uncertainties described in this Form 10-K and in our other public filings and public statements, and is based necessarily on assumptions we make at the time we provide such guidance. Our guidance may not always be accurate. If, in the future, our results of operations for a particular period do not meet our guidance or the expectations of investment analysts or if we reduce our guidance for future periods, the market price of our common stock could decline significantly.

We are exposed to credit risk on accounts receivable and certain prepayments made in the normal course of business. This risk is heightened during periods when economic conditions worsen.

A substantial majority of our outstanding trade receivables are not covered by collateral or credit insurance. In addition, we have made prepayments associated with insurance premiums and other advances in the normal course of business. While we have procedures to monitor and limit exposure to credit risk on trade receivables and other current assets, there can be no assurance such procedures will effectively limit our credit risk and avoid losses, which could have a material adverse effect on our financial condition and operating results.

If we fail to comply with our obligations under our distributorship or license agreements with Daikyo, the agreements are terminated early or we are unable to renew these agreements on the same or substantially similar terms, we could lose license rights that are important to our business.

Key value-added and proprietary products and processes are licensed from our affiliate, Daikyo, including but not limited to, CZ, FluroTec® and B2-coating technologies. Our rights to these products and processes are licensed pursuant to agreements that expire in 2027. However, if the agreements are terminated early, our business could be adversely impacted.

ITEM IB. UNRESOLVED STAFF COMMENTS

As of the filing of this Form 10-K, there were no unresolved comments from the Staff of the SEC.

ITEM 2. PROPERTIES

Our corporate headquarters are located at 530 Herman O. West Drive, Exton, Pennsylvania.

The following table summarizes production facilities by segment and geographic region. All facilities shown are owned except where otherwise noted.

Proprietary Products Manufacturing:		
North American Operations	European Operations	Asia Pacific Operations
United States	Denmark	China
Clearwater, FL	Horsens	Qingpu
Jersey Shore, PA	England	India
Kearney, NE	St. Austell	Sri City
Kinston, NC	France	Singapore
Lititz, PA	Le Nouvion	Jurong
Scottsdale, AZ (2)	Le Vaudreuil	
St. Petersburg, FL (1)	Germany	
	Eschweiler (1) (2)	
South American Operations	Stolberg	
Brazil	Ireland	
Sao Paulo	Waterford	
	Serbia	
	Kovin	

Mold-and-Die Tool Shop:		Contract Analytical Laboratory:
North American Operations	European Operations	North American Operations
United States	England	United States
Upper Darby, PA	Bodmin (2)	Exton, PA

Contract-Manufactured Products Manufacturing:	
North American Operations	European Operations
United States	Ireland
Grand Rapids, MI	Dublin (2)
Phoenix, AZ (2)	
Tempe, AZ (2)	
Williamsport, PA	
Puerto Rico	
Cayey	

(1) This manufacturing facility is also used for research and development activities.
(2) This facility is leased in whole or in part.

Our Proprietary Products reportable segment leases facilities located in Germany, Israel and New Jersey for research and development, as well as other activities. Sales offices in various locations are leased under short-term arrangements.

16

ITEM 3. LEGAL PROCEEDINGS
None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

EXECUTIVE OFFICERS OF THE COMPANY

The executive officers of the Company are set forth in this table. Generally, executive officers are elected by the Board of Directors annually at the regular meeting of the Board of Directors following the Annual Meeting of Shareholders. Additionally, executive officers may be elected upon hire or due to a promotion.

Name	Age	Position
Silji Abraham	47	Senior Vice President, Chief Digital and Transformation Officer since February 2018. Prior to joining West, he most recently served as Executive Vice President and Chief Information Officer of MilliporeSigma, a subsidiary of Merck KGaA, Darmstadt, Germany. Prior to this role, he served as Chief Information Officer at Sigma-Aldrich Corporation, a leading life science and technology company, and worked in various leadership roles at Invensys Operations Management, ArvinMeritor and Chrysler Group.
Bernard J. Birkett	50	Senior Vice President, Chief Financial Officer and Treasurer since June 2018. Prior to joining West, he spent more than 20 years at Merit Medical Systems, Inc., a leading manufacturer of disposable medical devices, where he served in a number of senior global leadership roles, including Chief Financial Officer and Treasurer, Controller for Europe, Middle East and Africa (EMEA) and Vice President of International Finance.
Annette F. Favorite	54	Senior Vice President and Chief Human Resources Officer since October 2015. Prior to joining West, she spent more than 25 years at IBM Corporation, an information technology services company, in a number of strategic and global human resources roles. Most recently, she served as Vice President, Global Talent Management.
Karen A. Flynn	56	Senior Vice President and Chief Commercial Officer since January 2016. She was President, Pharmaceutical Packaging Systems from October 2014 to January 2016, President, Pharmaceutical Packaging Systems Americas Region from June 2012 to October 2014, and Vice President, Sales from May 2008 to June 2012. From 2000 to 2008, she worked in Sales Management, most recently as Vice President, Global Accounts, for Catalent (formerly a business segment of Cardinal Health). Prior thereto, she held various positions at West, including roles in Quality, Research and Development, and Sales.
Eric M. Green	49	Chief Executive Officer since April 2015 and President since December 2015. Prior to joining West, he was Executive Vice President and President of the Research Markets business unit at Sigma-Aldrich Corporation from 2013 to 2015. From 2009 to 2013, he served as Vice President and Managing Director, International, where he was responsible for Asia Pacific and Latin America, and prior thereto, held various commercial and operational roles.
Quintin J. Lai	52	Vice President, Corporate Development, Strategy and Investor Relations since January 2016. Prior to joining West, he was Vice President of Investor Relations and Corporate Strategy at Sigma-Aldrich Corporation from 2012 to 2015. From 2002 to 2012, he was at Robert W. Baird & Company, where

he held various roles, including Managing Director and Senior Equity Research Analyst of the Life Science Tools and Diagnostic sector and Associate Director of Equity Research.

Daniel Malone	57	Vice President and Corporate Controller since August 2011. He was Vice President of Finance, Pharmaceutical Packaging Systems Americas Region, from September 2008 to August 2011, and Director of Financial and Management Reporting from October 1999 to September 2008.
George L. Miller	64	Senior Vice President, General Counsel and Corporate Secretary since joining West in November 2015. Previously, he served as Senior Vice President, General Counsel and Corporate Secretary for Sigma-Aldrich Corporation from 2009 to 2015. Prior to working at Sigma-Aldrich, he held senior legal positions with Novartis AG, a global healthcare company.
David A. Montecalvo	53	Senior Vice President, Global Operations and Supply Chain since September 2016. Prior to joining West, he served in a number of senior leadership roles at Medtronic plc, including Vice President, Contract Manufacturing Operations, for the company's Restorative Therapies Group, and Vice President, Business Operations Integration, where he was responsible for directing and leading the global operations integration of Covidien plc into Medtronic. Prior thereto, he held senior operations and product development roles at Urologix, Inc. and LecTec Corporation.
Eric Resnick	55	Vice President and Chief Technology Officer since March 2016. Previously, he served as Vice President and General Manager of Integrated Packaging and Delivery within West's Innovation and Technology Team and President Proprietary Products - Pharmaceutical Delivery Systems from March 2015 until March 2016. He served as Vice President Research and Development and Self-Injection Systems from March 2014 until March 2015, and Vice President and General Manager of West's Contract Manufacturing Delivery Devices division from 2008 until March 2014. Prior thereto, he held various positions of increasing responsibility since joining The Tech Group in 2001. Prior to joining West, he held engineering and operating roles with Eastman Kodak Company and Ortho Clinical Diagnostics.

PART II

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

Our common stock is listed on the New York Stock Exchange ("NYSE") under the symbol "WST." The following table shows the high and low prices for our common stock as reported by the NYSE, for the periods indicated.

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year	
	High	Low	High	Low	High	Low	High	Low	High	Low
2018	$102.80	$84.73	$102.14	$82.74	$124.51	$96.97	$125.09	$91.75	$125.09	$82.74
2017	$88.30	$79.06	$99.91	$77.97	$96.81	$80.02	$103.36	$89.77	$103.36	$77.97

As of January 31, 2019, we had 805 shareholders of record, which excludes shareholders whose shares were held by brokerage firms, depositaries and other institutional firms in "street names" for their customers.

Dividends

Our common stock paid a quarterly dividend of $0.13 per share in each of the first three quarters of 2017; $0.14 per share in the fourth quarter of 2017 and each of the first three quarters of 2018; and $0.15 per share in the fourth quarter of 2018.

18

Issuer Purchases of Equity Securities

The following table shows information with respect to purchases of our common stock made during the three months ended December 31, 2018 by us or any of our "affiliated purchasers" as defined in Rule 10b-18(a)(3) under the Exchange Act:

Period	Total number of shares purchased [1][2]	Average price paid per share [1][2]	Total number of shares purchased as part of publicly announced plans or programs [2]	Maximum number (or approximate dollar value) of shares that may yet be purchased under the plans or programs [2][3]
October 1 – 31, 2018	—	$—	—	—
November 1 – 30, 2018	140	108.80	—	—
December 1 – 31, 2018	—	—	—	—
Total	140	$108.80	—	—

(1) Includes 140 shares purchased on behalf of employees enrolled in the Non-Qualified Deferred Compensation Plan for Designated Employees (Amended and Restated Effective December 1, 2018). Under the plan, Company match contributions are delivered to the plan's investment administrator, who then purchases shares in the open market and credits the shares to individual plan accounts.

(2) In February 2018, we announced a share repurchase program for calendar-year 2018 authorizing the repurchase of up to 800,000 shares of our common stock from time to time on the open market or in privately-negotiated transactions as permitted under the Securities Exchange Act of 1934 Rule 10b-18. The number of shares repurchased and the timing of such transactions depended on a variety of factors, including market conditions. There were no shares purchased during the three months ended December 31, 2018. During the year ended December 31, 2018, we purchased 800,000 shares of our common stock under the program at a cost of $70.8 million, or an average price of $88.51 per share.

(3) In February 2019, we announced a share repurchase program for calendar-year 2019 authorizing the repurchase of up to 800,000 shares of our common stock from time to time on the open market or in privately-negotiated transactions as permitted under the Securities Exchange Act of 1934 Rule 10b-18. The number of shares to be repurchased and the timing of such transactions will depend on a variety of factors, including market conditions. This share repurchase program is expected to be completed by December 31, 2019.

Performance Graph

The following performance graph compares the cumulative total return to holders of our common stock with the cumulative total return of the following Standard & Poor's ("S&P") indices, for the five years ended December 31, 2018: 500, MidCap 400 Index and 400 Health Care Equipment & Supplies Industry.

Cumulative total return to shareholders is measured by dividing total dividends (assuming dividend reinvestment) plus the per-share price change for the period by the share price at the beginning of the period. The Company's cumulative shareholder return is based on an investment of $100 on December 31, 2013 and is compared to the cumulative total return of the S&P indices mentioned above over the period with a like amount invested.

ITEM 6. SELECTED FINANCIAL DATA
FIVE-YEAR SUMMARY
West Pharmaceutical Services, Inc. and Subsidiaries

(in millions, except per share data)	2018	2017	2016	2015	2014
SUMMARY OF OPERATIONS					
Net sales	$ 1,717.4	$ 1,599.1	$ 1,509.1	$ 1,399.8	$ 1,421.4
Operating profit †	240.3	225.8	195.2	177.0	182.0
Net income	206.9	150.7	143.6	95.6	127.1
Net income per share:					
Basic (1)	$ 2.80	$ 2.04	$ 1.96	$ 1.33	$ 1.79
Diluted (2)	2.74	1.99	1.91	1.30	1.75
Weighted average common shares outstanding	73.9	73.9	73.3	72.0	70.9
Weighted average shares assuming dilution	75.4	75.8	75.0	73.8	72.8
Dividends declared per common share	$ 0.58	$ 0.54	$ 0.50	$ 0.46	$ 0.41
YEAR-END FINANCIAL POSITION					
Cash and cash equivalents	$ 337.4	$ 235.9	$ 203.0	$ 274.6	$ 255.3
Working capital	610.7	464.0	400.9	359.4	406.6
Total assets	1,978.9	1,862.8	1,716.7	1,695.1	1,669.7
Total invested capital:					
Total debt	196.1	197.0	228.6	298.2	335.5
Total equity	1,396.3	1,279.9	1,117.5	1,023.9	956.9
Total invested capital	$ 1,592.4	$ 1,476.9	$ 1,346.1	$ 1,322.1	$ 1,292.4
PERFORMANCE MEASUREMENTS (3)					
Gross margin (a)	31.8 %	32.1 %	33.2 %	32.6 %	31.5 %
Operating profitability (b) †	14.0 %	14.1 %	12.9 %	12.6 %	12.8 %
Effective tax rate (4)	17.2 %	36.4 %	28.7 %	22.6 %	28.0 %
Return on invested capital (c) †	13.0 %	10.2 %	10.4 %	10.5 %	10.2 %
Net debt-to-total invested capital (d)	N/A	N/A	2.2 %	2.3 %	7.7 %
Research and development expenses	$ 40.3	$ 39.1	$ 36.8	$ 34.1	$ 37.3
Operating cash flow	288.6	263.3	219.4	212.4	182.9
Stock price range	$125.09-82.74	$103.36-77.97	$86.50-53.88	$64.59-48.66	$55.29-39.11

(1) Based on weighted average common shares outstanding.

(2) Based on weighted average shares, assuming dilution.

(3) Performance measurements represent indicators commonly used in the financial community. The following performance measures are not in conformity with U.S. generally accepted accounting principles (“U.S. GAAP”) and should not be used as a substitute for the comparable U.S. GAAP financial measures. The non-U.S. GAAP financial measures are included as management uses them in evaluating our results of operations, and believes that this information provides users with a valuable insight into our overall performance and financial position.

(a) Net sales minus cost of goods and services sold, including applicable depreciation and amortization, divided by net sales.
(b) Operating profit divided by net sales.
(c) Operating profit multiplied by one minus the effective tax rate divided by average total invested capital.

(d) Net debt (total debt less cash and cash equivalents) divided by total invested capital less cash and cash equivalents.

(4) As a result of the Tax Cuts and Jobs Act (the "2017 Tax Act"), the federal statutory rate was reduced from 35.0% to 21.0% effective for tax years beginning after December 31, 2017. Please refer to Note 16, Income Taxes, for further discussion of the 2017 Tax Act.

† Reflects our adoption of the guidance issued by the Financial Accounting Standards Board ("FASB") regarding the presentation of net periodic pension and postretirement benefit cost (net benefit cost).

Factors affecting the comparability of the information reflected in the selected financial data:

Net income in 2018 included the impact of restructuring and related charges of $7.2 million (net of $1.9 million in tax), a gain on the sale of fixed assets as a result of our restructuring plans of $0.9 million (net of $0.2 million in tax), a charge of $1.1 million related to the classification of Argentina's economy as highly inflationary under U.S. GAAP as of July 1, 2018, a net tax benefit of $2.5 million for the impact of tax law changes, including the 2017 Tax Act, and a tax benefit of $14.3 million associated with our adoption in 2017 of guidance issued by the FASB regarding share-based payment transactions.

Net income in 2017 included the impact of a discrete tax charge of $48.8 million related to the 2017 Tax Act and the impact of changes in enacted international tax rates on previously-recorded deferred tax asset and liability balances, as well as a tax benefit of $33.1 million associated with our adoption of the guidance issued by the FASB regarding share-based payment transactions and a charge of $11.1 million related to the deconsolidation of our Venezuelan subsidiary.

Net income in 2016 included the impact of restructuring and related charges of $17.4 million (net of $9.0 million in tax), a charge related to the devaluation of the Venezuelan Bolivar of $2.7 million, a pension curtailment gain of $1.3 million (net of $0.8 million in tax), and a discrete tax charge of $1.0 million.

Net income in 2015 included the impact of a pension settlement charge of $32.0 million (net of $18.4 million in tax), a charge for executive retirement and related costs of $6.9 million (net of $4.0 million in tax) and a discrete tax charge of $0.8 million.

Net income in 2014 included the impact of a charge for license costs associated with acquired in-process research of $0.8 million (net of $0.4 million in tax) and discrete tax charges of $1.8 million.

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

OVERVIEW

The following discussion is intended to further the reader's understanding of the consolidated financial condition and results of operations of our Company. It should be read in conjunction with our consolidated financial statements and the accompanying footnotes included in Part II, Item 8 of this Form 10-K. These historical financial statements may not be indicative of our future performance. This Management's Discussion and Analysis of Financial Condition and Results of Operations contains a number of forward-looking statements, all of which are based on our current expectations and could be affected by the uncertainties and risks discussed in Part I, Item 1A of this Form 10-K.

Non-U.S. GAAP Financial Measures

For the purpose of aiding the comparison of our year-over-year results, we may refer to net sales and other financial results excluding the effects of changes in foreign currency exchange rates. The constant-currency amounts are calculated by translating the current year's functional currency results at the prior-year period's exchange rate. We may also refer to consolidated operating profit and consolidated operating profit margin excluding the effects of unallocated items. The re-measured results excluding effects from currency translation and excluding the effects of

unallocated items are not in conformity with U.S. GAAP and should not be used as a substitute for the comparable U.S. GAAP financial measures. The non-U.S. GAAP financial measures are incorporated into our discussion and analysis as management uses them in evaluating our results of operations, and believes that this information provides users a valuable insight into our results.

Our Operations

We are a leading global manufacturer in the design and production of technologically advanced, high-quality, integrated containment and delivery systems for injectable drugs and healthcare products. Our products include a variety of primary packaging, containment solutions, reconstitution and transfer systems, and drug delivery systems, as well as contract manufacturing and analytical lab services. Our customers include the leading biologic, generic, pharmaceutical, diagnostic, and medical device companies in the world. Our top priority is delivering quality products that meet the exact product specifications and quality standards customers require and expect. This focus on quality includes excellence in manufacturing, scientific and technical expertise and management, so we can partner with our customers to deliver safe, effective drug products to patients quickly and efficiently. The Company was incorporated under the laws of the Commonwealth of Pennsylvania on July 27, 1923.

Our business operations are organized into two reportable segments, Proprietary Products and Contract-Manufactured Products. Our Proprietary Products reportable segment offers proprietary packaging, containment and drug delivery products, along with analytical lab services, to biologic, generic and pharmaceutical drug customers. Our Contract-Manufactured Products reportable segment serves as a fully integrated business, focused on the design, manufacture, and automated assembly of complex devices, primarily for pharmaceutical, diagnostic, and medical device customers. We also maintain partnerships to share technologies and market products with affiliates in Japan and Mexico.

2018 Financial Performance Summary

Consolidated net sales increased by $118.3 million, or 7.4%, in 2018. Excluding foreign currency translation effects, consolidated net sales increased by $89.7 million, or 5.6%.

Net income in 2018 was $206.9 million, or $2.74 per diluted share, compared to $150.7 million, or $1.99 per diluted share, in 2017. Net income in 2018 included the impact of restructuring and related charges of $7.2 million (net of $1.9 million in tax), or $0.09 per diluted share, a gain on the sale of fixed assets as a result of our restructuring plans of $0.9 million (net of $0.2 million in tax), or $0.01 per diluted share, a charge of $1.1 million, or $0.02 per diluted share, related to the classification of Argentina’s economy as highly inflationary under U.S. GAAP as of July 1, 2018, a net tax benefit of $2.5 million, or $0.03 per diluted share, for the impact of tax law changes, including the 2017 Tax Act, and a tax benefit of $14.3 million, or $0.19 per diluted share, associated with our adoption in 2017 of guidance issued by the FASB regarding share-based payment transactions. Net income in 2017 included the impact of a discrete tax charge of $48.8 million, or $0.64 per diluted share, related to the 2017 Tax Act and the impact of changes in enacted international tax rates on previously-recorded deferred tax asset and liability balances, a tax benefit of $33.1 million, or $0.44 per diluted share, associated with our adoption of the guidance issued by the FASB regarding share-based payment transactions, and a charge of $11.1 million, or $0.15 per diluted share, related to the deconsolidation of our Venezuelan subsidiary.

On January 24, 2019, we issued a voluntary recall of our Vial2Bag® product line due to reports of potential unpredictable or variable dosing under certain conditions. Our 2018 results included an $11.3 million provision for product returns, recorded as a reduction of sales. Our inventory balance for these devices was $6.5 million at December 31, 2018, which included estimated in-transit inventory being returned by our customers. We are working to develop the support required to get the products back on the market, and we currently believe the returned

inventory will be saleable in 2019.

At December 31, 2018, our cash and cash equivalents balance totaled $337.4 million and our available borrowing capacity under our $300.0 million multi-currency revolving credit facility (the “Credit Facility”) was $268.9 million.

RESULTS OF OPERATIONS

We evaluate the performance of our segments based upon, among other things, segment net sales and operating profit. Segment operating profit excludes general corporate costs, which include executive and director compensation, stock-based compensation, adjustments to annual incentive plan expense for over- or under-attainment of targets, certain pension and other retirement benefit costs, and other corporate facilities and administrative expenses not allocated to the segments. Also excluded are items that we consider not representative of ongoing operations. Such items are referred to as other unallocated items and generally include restructuring and related charges, certain asset impairments and other specifically-identified income or expense items.

Percentages in the following tables and throughout this Results of Operations section may reflect rounding adjustments.

Net Sales

The following table presents net sales, consolidated and by reportable segment:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Proprietary Products	$1,308.6	$1,236.9	$1,189.9	5.8 %	3.9 %
Contract-Manufactured Products	409.1	362.5	320.2	12.9 %	13.2 %
Intersegment sales elimination	(0.3)	(0.3)	(1.0)	— %	— %
Consolidated net sales	$1,717.4	$1,599.1	$1,509.1	7.4 %	6.0 %

2018 compared to 2017
Consolidated net sales increased by $118.3 million, or 7.4%, in 2018, including a favorable foreign currency translation impact of $28.6 million. Excluding foreign currency translation effects, consolidated net sales increased by $89.7 million, or 5.6%.

Proprietary Products – Proprietary Products net sales increased by $71.7 million, or 5.8%, in 2018, including a favorable foreign currency translation impact of $23.8 million. Excluding foreign currency translation effects, net sales increased by $47.9 million, or 3.9%, as growth in our high-value product offerings, including our Westar® and FluroTec-coated components, our ready-to-use seals, stoppers, and plungers, and our NovaPure® products, as well as sales price increases, partially offset the impact of the voluntary recall of Vial2Bag products and the deconsolidation of our Venezuelan subsidiary as of April 1, 2017.

Contract-Manufactured Products – Contract-Manufactured Products net sales increased by $46.6 million, or 12.9%, in 2018, including a favorable foreign currency translation impact of $4.8 million. Excluding foreign currency translation effects, net sales increased by $41.8 million, or 11.6%, despite the impact of the loss of a consumer-product customer in early 2018. Higher sales volume, particularly in Ireland, contributed 10.4 percentage points of the increase, and sales price increases contributed 1.2 percentage points of the increase.

2017 compared to 2016
Consolidated net sales increased by $90.0 million, or 6.0%, in 2017, including a favorable foreign currency translation impact of $12.2 million. Excluding foreign currency translation effects, consolidated net sales increased by $77.8 million, or 5.2%.

Proprietary Products – Proprietary Products net sales increased by $47.0 million, or 3.9%, in 2017, including a favorable foreign currency translation impact of $8.4 million. Excluding foreign currency translation effects, net sales increased by $38.6 million, or 3.2%. Proprietary Products sales growth in 2017 was slower than in 2016,

as customers continued to work down inventory purchased in 2016 mostly to address long production lead-times for high-value products. Additional production capacity and staffing improved our lead-times, and we began to see

positive growth for customers in the Biologics and Generics market units. Higher sales volume contributed 2.2 percentage points of the increase, and sales price increases contributed 1.0 percentage points of the increase.

Contract-Manufactured Products – Contract-Manufactured Products net sales increased by $42.3 million, or 13.2%, in 2017, including a favorable foreign currency translation impact of $3.8 million. Excluding foreign currency translation effects, net sales increased by $38.5 million, or 12.0%, primarily due to the initial commercial ramp-up of projects that commenced in the latter half of 2016. Higher sales volume contributed 10.8 percentage points of the increase, and sales price increases contributed 1.2 percentage points of the increase.

Gross Profit

The following table presents gross profit and related gross margins, consolidated and by reportable segment:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Proprietary Products:					
Gross profit	$485.4	$449.3	$448.3	8.0 %	0.2 %
Gross profit margin	37.1 %	36.3 %	37.7 %		
Contract-Manufactured Products:					
Gross profit	$60.0	$63.6	$53.1	(5.7)%	19.8 %
Gross profit margin	14.7 %	17.5 %	16.5 %		
Consolidated gross profit	$545.4	$512.9	$501.4	6.3 %	2.3 %
Consolidated gross profit margin	31.8 %	32.1 %	33.2 %		

2018 compared to 2017
Consolidated gross profit increased by $32.5 million, or 6.3%, in 2018, including a favorable foreign currency translation impact of $9.3 million. Consolidated gross profit margin decreased by 0.3 margin points in 2018.

Proprietary Products – Proprietary Products gross profit increased by $36.1 million, or 8.0%, in 2018, including a favorable foreign currency translation impact of $8.5 million. Proprietary Products gross profit margin increased by 0.8 margin points in 2018, as production efficiencies, a favorable mix of products sold, and sales price increases were partially offset by the impact of under-absorbed overhead costs from our new facility in Waterford, Ireland and the deconsolidation of our Venezuelan subsidiary as of April 1, 2017, as well as increased labor and depreciation costs and higher raw material costs.

Contract-Manufactured Products – Contract-Manufactured Products gross profit decreased by $3.6 million, or 5.7%, in 2018, including a favorable foreign currency translation impact of $0.8 million. Contract-Manufactured Products gross profit margin decreased by 2.8 margin points in 2018, due to unabsorbed overhead from plant consolidation activities, start-up costs associated with the launch of new programs, an unfavorable mix of product sales, and lower profitability on development and tooling agreements, and higher raw material costs, partially offset by sales price increases and production efficiencies.

2017 compared to 2016
Consolidated gross profit increased by $11.5 million, or 2.3%, in 2017, including a favorable foreign currency translation impact of $3.3 million. Consolidated gross profit margin decreased by 1.1 margin points in 2017.

Proprietary Products – Proprietary Products gross profit increased by $1.0 million, or 0.2%, in 2017, including a favorable foreign currency translation impact of $2.6 million. Proprietary Products gross profit margin decreased by 1.4 margin points in 2017, as production efficiencies and modest price increases were more than offset by increased material labor and overhead costs.

25

Contract-Manufactured Products – Contract-Manufactured Products gross profit increased by $10.5 million, or 19.8%, in 2017, including a favorable foreign currency translation impact of $0.7 million. Contract-Manufactured Products gross profit margin increased by 1.0 margin points in 2017, as sales price increases, a favorable mix of products sold, higher sales volume, and production efficiencies were partially offset by increased labor, overhead, and depreciation costs.

Research and Development ("R&D") Costs

The following table presents R&D costs, consolidated and by reportable segment:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Proprietary Products	$40.3	$39.1	$36.8	3.1%	6.3 %
Contract-Manufactured Products	—	—	—	—	—
Consolidated R&D costs	$40.3	$39.1	$36.8	3.1%	6.3 %

2018 compared to 2017
Consolidated R&D costs increased by $1.2 million, or 3.1%, in 2018. Efforts remain focused on the continued investment in self-injection systems development, elastomeric packaging components, and formulation development.

2017 compared to 2016
Consolidated R&D costs increased by $2.3 million, or 6.3%, in 2017, due to continued investment in self-injection systems development and formulation development.

All of the R&D costs incurred during 2018 and 2017 related to Proprietary Products.

Selling, General and Administrative ("SG&A") Costs

The following table presents SG&A costs, consolidated and by reportable segment and corporate:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Proprietary Products	$185.0	$175.3	$167.4	5.5 %	4.7 %
Contract-Manufactured Products	16.5	15.4	15.2	7.1 %	1.3 %
Corporate	61.4	55.3	57.0	11.0%	(3.0)%
Consolidated SG&A costs	$262.9	$246.0	$239.6	6.9 %	2.7 %
SG&A as a % of net sales	15.3 %	15.4 %	15.9 %		

2018 compared to 2017
Consolidated SG&A costs increased by $16.9 million, or 6.9%, in 2018, including the impact of foreign currency translation, which increased SG&A costs by $2.4 million.

Proprietary Products – Proprietary Products SG&A costs increased by $9.7 million, or 5.5%, in 2018, due to higher commercial sales compensation costs and legal costs. Foreign currency translation increased Proprietary Products SG&A costs by $2.3 million.

Contract-Manufactured Products – Contract-Manufactured Products SG&A costs increased by $1.1 million, or 7.1%, in 2018, due to increases in compensation and miscellaneous costs.

26

Corporate – Corporate SG&A costs increased by $6.1 million, or 11.0%, in 2018, primarily due to the impact of higher achievement levels on incentive compensation costs and increased personnel costs.

2017 compared to 2016
Consolidated SG&A costs increased by $6.4 million, or 2.7%, in 2017, including the impact of foreign currency translation, which increased SG&A costs by $1.2 million.

Proprietary Products – Proprietary Products SG&A costs increased by $7.9 million, or 4.7%, in 2017, due to increases in compensation costs, primarily related to headcount and merit increases. Foreign currency translation increased Proprietary Products SG&A costs by $1.2 million.

Contract-Manufactured Products – Contract-Manufactured Products SG&A costs increased by $0.2 million, or 1.3%, in 2017, due to an increase in incentive compensation and travel costs.

Corporate – Corporate SG&A costs decreased by $1.7 million, or 3.0%, in 2017, due to decreases in U.S. pension costs and stock-based compensation expense, partially offset by increases in headcount and outside services.

Other Expense

The following table presents other income and expense items, consolidated and by reportable segment and unallocated items:

Expense (income)	Year Ended December 31,		
($ in millions)	2018	2017	2016
Proprietary Products	$(6.3)	$(8.9)	$1.0
Contract-Manufactured Products	(0.8)	(0.1)	(0.3)
Corporate	(0.1)	(0.1)	—
Unallocated items	9.1	11.1	29.1
Consolidated other expense	$1.9	$2.0	$29.8

Other income and expense items, consisting of foreign exchange transaction gains and losses, gains and losses on the sale of fixed assets, development and licensing income, contingent consideration, and miscellaneous income and charges, are generally recorded within segment results.

2018 compared to 2017
Consolidated other expense decreased by $0.1 million in 2018.

Proprietary Products – Proprietary Products other income decreased by $2.6 million in 2018, primarily as we recorded income of $9.1 million attributable to the reimbursement of certain costs related to a technology that we subsequently licensed to a third party in 2017, partially offset by foreign exchange transaction gains in Europe in 2018. Please refer to Note 15, Other Expense, for further discussion of the $9.1 million attributable to the reimbursement of certain costs.

Contract-Manufactured Products – Contract-Manufactured Products other income increased by $0.7 million in 2018, due to gains on the sale of fixed assets.

Corporate – Corporate other income remained constant at $0.1 million in 2018.

Unallocated items – During 2018, we recorded $9.1 million in restructuring and related charges, a $1.1 million gain on the sale of fixed assets as a result of our restructuring plans, and a charge of $1.1 million related to the classification of

Argentina’s economy as highly inflationary under U.S. GAAP as of July 1, 2018. Once fully

completed, we expect that our 2018 restructuring plan will provide annualized savings in the range of $13.5 million to $14.5 million. Please refer to Note 15, Other Expense, for further discussion of these items.

2017 compared to 2016
Consolidated other expense decreased by $27.8 million in 2017.

Proprietary Products – Proprietary Products other (income) expense changed by $9.9 million in 2017, primarily as we recorded income of $9.1 million attributable to the reimbursement of certain costs related to a technology that we subsequently licensed to a third party.

Contract-Manufactured Products – Contract-Manufactured Products other income decreased by $0.2 million in 2017, due to gains on the sale of fixed assets recorded in 2016, partially offset by foreign exchange transaction gains recorded in 2017.

Corporate – Corporate other income increased by $0.1 million in 2017.

Unallocated items – During 2017, as a result of the continued deterioration of conditions in Venezuela as well as our continued reduced access to USD settlement controlled by the Venezuelan government, we recorded a charge of $11.1 million related to the deconsolidation of our Venezuelan subsidiary, following our determination that we no longer met the U.S. GAAP criteria for control of that subsidiary. Please refer to Note 15, Other Expense, for further discussion of these items.

Operating Profit

The following table presents adjusted operating profit, consolidated and by reportable segment, corporate and unallocated items:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Proprietary Products	$266.4	$243.8	$243.1	9.3 %	0.3 %
Contract-Manufactured Products	44.3	48.3	38.2	(8.3)%	26.4 %
Corporate	(61.3)	(55.2)	(57.0)	11.1 %	(3.2)%
Adjusted consolidated operating profit	$249.4	$236.9	$224.3	5.3 %	5.6 %
Adjusted consolidated operating profit margin	14.5 %	14.8 %	14.9 %		
Unallocated items	(9.1)	(11.1)	(29.1)		
Consolidated operating profit	$240.3	$225.8	$195.2	6.4 %	15.7 %
Consolidated operating profit margin	14.0 %	14.1 %	12.9 %		

2018 compared to 2017
Consolidated operating profit increased by $14.5 million, or 6.4%, in 2018, including a favorable foreign currency translation impact of $6.6 million.

Proprietary Products – Proprietary Products operating profit increased by $22.6 million, or 9.3%, in 2018, including a favorable foreign currency translation impact of $5.9 million, due to the factors described above.

Contract-Manufactured Products – Contract-Manufactured Products operating profit decreased by $4.0 million, or 8.3%, in 2018, including a favorable foreign currency translation impact of $0.7 million, due to the factors described above.

Corporate – Corporate costs increased by $6.1 million, or 11.1%, in 2018, due to the factors described above.

28

Unallocated items – Please refer to the Other Expense section for details.

Excluding the unallocated items, our adjusted consolidated operating profit margin decreased by 0.3 margin points in 2018.

2017 compared to 2016
Consolidated operating profit increased by $30.6 million, or 15.7%, in 2017, including a favorable foreign currency translation impact of $1.6 million.

Proprietary Products – Proprietary Products operating profit increased by $0.7 million, or 0.3%, in 2017, including a favorable foreign currency translation impact of $0.9 million, due to the factors described above.

Contract-Manufactured Products – Contract-Manufactured Products operating profit increased by $10.1 million, or 26.4%, in 2017, including a favorable foreign currency translation impact of $0.7 million, due to the factors described above.

Corporate – Corporate costs decreased by $1.8 million, or 3.2%, in 2017, due to the factors described above.

Unallocated items – Please refer to the Other Expense section for details.

Excluding the unallocated items, our adjusted consolidated operating profit margin decreased by 0.1 margin points in 2017.

Interest Expense, Net

The following table presents interest expense, net, by significant component:

	Year Ended December 31,			% Change	
($ in millions)	2018	2017	2016	2018/2017	2017/2016
Interest expense	$9.3	$10.5	$11.7	(11.4)%	(10.3)%
Capitalized interest	(0.9)	(2.7)	(3.6)	(66.7)%	(25.0)%
Interest income	(2.1)	(1.3)	(1.1)	61.5 %	18.2 %
Interest expense, net	$6.3	$6.5	$7.0	(3.1)%	(7.1)%

2018 compared to 2017
Interest expense, net, decreased by $0.2 million, or 3.1%, in 2018, due to lower interest expense resulting from less average debt outstanding during 2018, as compared to 2017, and an increase in interest income, partially offset by a decrease in capitalized interest due to the completion of several major projects in 2017, including certain components of our new facility in Waterford, Ireland. The Waterford facility began commercial production during the second half of 2018.

2017 compared to 2016
Interest expense, net, decreased by $0.5 million, or 7.1%, in 2017, due to lower interest expense resulting from less average debt outstanding during 2017, as compared to 2016, partially offset by a decrease in capitalized interest.

Other Nonoperating Income

2018 compared to 2017

Other nonoperating income increased by $3.6 million in 2018, due to an increase in the expected return on pension plan assets and a decrease in recognized actuarial losses for 2018. Please refer to Note 2, New Accounting Standards, and Note 14, Benefit Plans, for information on guidance issued by the FASB on the presentation of net periodic

pension and postretirement benefit cost (net benefit cost) that we adopted as of January 1, 2018, on a retrospective basis.

2017 compared to 2016
Other nonoperating income increased by $1.5 million in 2017, primarily due to an increase in the expected return on pension plan assets for 2017.

Income Taxes

The provision for income taxes was $41.4 million, $80.9 million, and $54.4 million for the years 2018, 2017, and 2016, respectively, and the effective tax rate was 17.2%, 36.4%, and 28.7%, respectively.

During 2018, we recorded a net tax benefit of $2.5 million for the impact of tax law changes, including the 2017 Tax Act, and a tax benefit of $14.3 million associated with our adoption in 2017 of guidance issued by the FASB regarding share-based payment transactions. Please refer to Note 16, Income Taxes, for further discussion of the 2017 Tax Act.

During 2017, we recorded a discrete tax charge of $48.8 million related to the 2017 Tax Act and the impact of changes in enacted international tax rates on previously-recorded deferred tax asset and liability balances, as well as a tax benefit of $33.1 million associated with our adoption of the guidance issued by the FASB regarding share-based payment transactions.

During 2016, we recorded a tax benefit of $9.0 million in connection with restructuring and related charges of $26.4 million, a discrete tax charge of $0.8 million related to the pension curtailment gain of $2.1 million, and a discrete tax charge of $1.0 million resulting from the impact of changes in enacted tax rates on our previously-recorded deferred tax asset and liability balances.

Please refer to Note 16, Income Taxes, for further discussion of our income taxes.

Equity in Net Income of Affiliated Companies

Equity in net income of affiliated companies represents the contribution to earnings from our 25% ownership interest in Daikyo and our 49% ownership interest in four companies in Mexico. Equity in net income of affiliated companies was $7.6 million, $9.2 million, and $8.2 million for the years 2018, 2017, and 2016, respectively. Equity in net income of affiliated companies decreased by $1.6 million, or 17.4%, in 2018, primarily due to the impact of gains on the sale of investment securities by Daikyo in 2017. Equity in net income of affiliated companies increased by $1.0 million, or 12.2%, in 2017, due to the impact of gains on the sale of investment securities by Daikyo, partially offset by foreign exchange transaction losses in Mexico.

Net Income

Net income in 2018 was $206.9 million, or $2.74 per diluted share, compared to $150.7 million, or $1.99 per diluted share, in 2017. Our 2018 results included the impact of restructuring and related charges of $7.2 million (net of $1.9 million in tax), a gain on the sale of fixed assets as a result of our restructuring plans of $0.9 million (net of $0.2 million in tax), a charge of $1.1 million related to the classification of Argentina’s economy as highly inflationary under U.S. GAAP as of July 1, 2018, a net tax benefit of $2.5 million for the impact of tax law changes, including the 2017 Tax Act, and a tax benefit of $14.3 million associated with our adoption in 2017 of guidance issued by the FASB regarding share-based payment transactions.

Net income in 2017 was $150.7 million, or $1.99 per diluted share, compared to $143.6 million, or $1.91 per diluted share, in 2016. Our 2017 results included the impact of a discrete tax charge of $48.8 million related to the 2017 Tax Act and the impact of changes in enacted international tax rates on previously-recorded deferred tax asset and liability balances, as well as a tax benefit of $33.1 million associated with our adoption of the guidance issued by the

FASB regarding share-based payment transactions and a charge of $11.1 million related to the deconsolidation of our Venezuelan subsidiary.

Net income in 2016 was $143.6 million, or $1.91 per diluted share, compared to $95.6 million, or $1.30 per diluted share, in 2015. Our 2016 results included the impact of restructuring and related charges of $17.4 million (net of $9.0 million in tax), a charge related to the devaluation of the Venezuelan Bolivar of $2.7 million, a pension curtailment gain of $1.3 million (net of $0.8 million in tax), and a discrete tax charge of $1.0 million.

FINANCIAL CONDITION, LIQUIDITY AND CAPITAL RESOURCES

Cash Flows

The following table presents cash flow data for the years ended December 31:

($ in millions)	2018	2017	2016
Net cash provided by operating activities	$288.6	$263.3	$219.4
Net cash used in investing activities	$(100.8)	$(133.6)	$(175.8)
Net cash used in financing activities	$(80.7)	$(109.0)	$(113.9)

Net Cash Provided by Operating Activities

2018 compared to 2017
Net cash provided by operating activities increased by $25.3 million in 2018, primarily due to improved operating results and a decrease in pension plan contributions in 2018.

2017 compared to 2016
Net cash provided by operating activities increased by $43.9 million in 2017, due to improved operating results.

Net Cash Used in Investing Activities

2018 compared to 2017
Net cash used in investing activities decreased by $32.8 million in 2018, mostly due to a $26.1 million decrease in capital spending due to the completion of several major projects in 2017, including certain components of our new facility in Waterford, Ireland.

2017 compared to 2016
Net cash used in investing activities decreased by $42.2 million in 2017, mostly due to a $39.4 million decrease in capital spending due to the completion of several major projects, including certain components of our new facility in Waterford, Ireland.

Net Cash Used in Financing Activities

2018 compared to 2017
Net cash used in financing activities decreased by $28.3 million in 2018, primarily due to lower debt repayment activity in 2018.

2017 compared to 2016
Net cash used in financing activities decreased by $4.9 million in 2017, due to a decrease in net debt repayments, partially offset by an increase in purchases under our share repurchase programs.

We paid cash dividends totaling $42.1 million ($0.57 per share), $39.1 million ($0.53 per share), and $35.8 million ($0.49 per share) during 2018, 2017, and 2016, respectively.

Liquidity and Capital Resources

The table below presents selected liquidity and capital measures as of:

($ in millions)	December 31, 2018	December 31, 2017
Cash and cash equivalents	$ 337.4	$ 235.9
Working capital	$ 610.7	$ 464.0
Total debt	$ 196.1	$ 197.0
Total equity	$ 1,396.3	$ 1,279.9
Net debt-to-total invested capital	N/A	N/A

Cash and cash equivalents include all instruments that have maturities of ninety days or less when purchased. Working capital is defined as current assets less current liabilities. Net debt is defined as total debt less cash and cash equivalents, and total invested capital is defined as the sum of net debt and total equity. Net debt and total invested capital are non-U.S. GAAP financial measures that should not be used as a substitute for the comparable U.S. GAAP financial measures. The non-U.S. GAAP financial measures are incorporated into our discussion and analysis as management believes that this information provides users with a valuable insight into our overall performance and financial position.

Cash and cash equivalents – Our cash and cash equivalents balance at December 31, 2018 consisted of cash held in depository accounts with banks around the world and cash invested in high-quality, short-term investments. The cash and cash equivalents balance at December 31, 2018 included $174.6 million of cash held by subsidiaries within the U.S., and $162.8 million of cash held by subsidiaries outside of the U.S. In response to the 2017 Tax Act, we reevaluated our position regarding permanent reinvestment of foreign subsidiary earnings and profits through 2017 (with the exception of China and Mexico) and decided that those profits were no longer permanently reinvested. As of January 1, 2018, we reasserted indefinite reinvestment related to all post-2017 unremitted earnings in all of our foreign subsidiaries. In general, it is our practice and intention to permanently reinvest the earnings of our foreign subsidiaries and repatriate earnings only when the tax impact is de minimis, and that position has not changed subsequent to the one-time transition tax under the 2017 Tax Act, except as noted above. Accordingly, no deferred taxes have been provided for withholding taxes or other taxes that would result upon repatriation of approximately $79.7 million of undistributed earnings from foreign subsidiaries to the U.S., as those earnings continue to be permanently reinvested. Further, it is impracticable for us to estimate any future tax costs for any unrecognized deferred tax liabilities associated with our indefinite reinvestment assertion, because the actual tax liability, if any, would be dependent on complex analysis and calculations considering various tax laws, exchange rates, circumstances existing when there is a repatriation, sale, or liquidation, or other factors.

Working capital - Working capital at December 31, 2018 increased by $146.7 million, or 31.6%, as compared to December 31, 2017, including a decrease of $16.5 million due to foreign currency translation. Excluding the impact of currency exchange rates, cash and cash equivalents, accounts receivable, inventories, and total current liabilities increased by $107.1 million, $43.8 million, $7.0 million, and $11.3 million, respectively. The increase in accounts receivable was due to increased sales activity, longer customer payment terms, and our adoption of the new revenue recognition guidance. The increase in current liabilities was due to an increase in accrued salaries, wages and benefits.

Debt and credit facilities - The $0.9 million decrease in total debt at December 31, 2018, as compared to December 31, 2017, primarily resulted from foreign currency rate fluctuations.

Our sources of liquidity include our Credit Facility. At December 31, 2018, we had $28.6 million in outstanding long-term borrowings under this facility, of which $4.6 million was denominated in Yen and $24.0 million was denominated in Euro. These borrowings, together with outstanding letters of credit of $2.5 million, resulted in a

borrowing capacity available under our Credit Facility of $268.9 million at December 31, 2018. We do not expect

any significant limitations on our ability to access this source of funds. Please refer to Note 9, Debt, for further discussion of our Credit Facility.

Pursuant to the financial covenants in our debt agreements, we are required to maintain established interest coverage ratios and to not exceed established leverage ratios. In addition, the agreements contain other customary covenants, none of which we consider restrictive to our operations. At December 31, 2018, we were in compliance with all of our debt covenants, and we expect to continue to be in compliance with the terms of these agreements throughout 2019.

We believe that cash on hand and cash generated from operations, together with availability under our Credit Facility, will be adequate to address our foreseeable liquidity needs based on our current expectations of our business operations, capital expenditures and scheduled payments of debt obligations.

Commitments and Contractual Obligations

The following table summarizes our commitments and contractual obligations at December 31, 2018. These obligations are not expected to have a material impact on liquidity.

		Payments Due By Period			
($ in millions)	Total	Less than 1 year	1 - 3 years	3 - 5 years	More than 5 years
Purchase obligations [1]	$72.7	$14.0	$18.7	$18.5	$21.5
Debt (excluding unamortized debt issuance costs)	196.7	0.1	28.6	42.0	126.0
Interest on debt and interest rate swaps [2]	42.0	6.8	13.2	10.7	11.3
Operating lease obligations	81.5	13.0	18.3	12.4	37.8
Other long-term liabilities [3]	3.3	0.4	0.8	0.9	1.2
Total contractual obligations [4]	$396.2	$34.3	$79.6	$84.5	$197.8

(1) Our business creates a need to enter into various commitments with suppliers. In accordance with U.S. GAAP, these purchase obligations are not reflected in the accompanying consolidated balance sheets. These purchase commitments do not exceed our projected requirements and are in the normal course of business.

(2) For fixed-rate long-term debt, interest was based on principal amounts and fixed coupon rates at year-end. Future interest payments on variable-rate debt were calculated using principal amounts and the applicable ending interest rate at year-end. Interest on fixed-rate derivative instruments was based on notional amounts and fixed interest rates contractually obligated at year-end.

(3) Represents acquisition-related contingencies. In connection with certain business acquisitions, we agreed to make payments to the sellers if and when certain operating milestones are achieved, such as sales and operating income targets.

(4) This table does not include obligations pertaining to pension and postretirement benefits because the actual amount and timing of future contributions may vary significantly depending upon plan asset performance, benefit payments, and other factors. Contributions to our plans are expected to be $3.9 million in 2019. Please refer to Note 14, Benefit Plans, for estimated benefit payments over the next ten years.

Reserves for uncertain tax positions - The table above does not include $3.9 million of total gross unrecognized tax benefits as of December 31, 2018. Due to the high degree of uncertainty regarding the timing of potential cash flows, we cannot reasonably estimate the settlement periods for amounts which may be paid.

Letters of credit - We have letters of credit totaling $2.5 million supporting the reimbursement of workers' compensation and other claims paid on our behalf by insurance carriers. Our accrual for insurance obligations was

$3.4 million at December 31, 2018, of which $0.9 million is in excess of our deductible and, therefore, is reimbursable by the insurance company.

OFF-BALANCE SHEET ARRANGEMENTS

At December 31, 2018, we had no off-balance sheet financing arrangements other than operating leases, unconditional purchase obligations incurred in the ordinary course of business, and outstanding letters of credit related to various insurance programs.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Management's discussion and analysis addresses consolidated financial statements that are prepared in accordance with U.S. GAAP. The application of these principles requires management to make estimates and assumptions, some of which are subjective and complex, that affect the amounts reported in the consolidated financial statements. We believe the following accounting policies and estimates are critical to understanding and evaluating our results of operations and financial position:

Revenue Recognition: Our revenue results from the sale of goods or services and reflects the consideration to which we expect to be entitled in exchange for those goods or services. We record revenue based on a five-step model, in accordance with Accounting Standards Codification ("ASC") Topic 606 ("ASC 606"). Following the identification of a contract with a customer, we identify the performance obligations (goods or services) in the contract, determine the transaction price, allocate the transaction price to the performance obligations in the contract, and recognize the revenue when (or as) we satisfy the performance obligations by transferring the promised goods or services to our customers. A good or service is transferred when (or as) the customer obtains control of that good or service.

We recognize the majority of our revenue, primarily relating to Proprietary Products product sales, at a point in time, following the transfer of control of our products to our customers, which typically occurs upon shipment or delivery, depending on the terms of the related agreements.

We recognize revenue relating to our Contract-Manufactured Products product sales and certain Proprietary Products product sales over time, as our performance does not create an asset with an alternative use to us and we have an enforceable right to payment for performance completed to date.

We recognize revenue relating to our development and tooling agreements over time, as our performance creates or enhances an asset that the customer controls as the asset is created or enhanced.

For revenue recognized over time, revenue is recognized by applying a method of measuring progress toward complete satisfaction of the related performance obligation. When selecting the method for measuring progress, we select the method that best depicts the transfer of control of goods or services promised to our customers.

Revenue for our Contract-Manufactured Products product sales, certain Proprietary Products product sales, and our development and tooling agreements is recorded under an input method, which recognizes revenue on the basis of our efforts or inputs to the satisfaction of a performance obligation (for example, resources consumed, labor hours expended, costs incurred, time elapsed, or machine hours used) relative to the total expected inputs to the satisfaction of that performance obligation. The input method that we use is based on costs incurred.

The majority of the performance obligations within our contracts are satisfied within one year or less. Performance obligations satisfied beyond one year include those relating to a nonrefundable customer payment of $20.0 million received in June 2013 in return for the exclusive use of the SmartDose® technology platform within a specific

therapeutic area. As of December 31, 2018, there was $6.5 million of unearned income related to this payment, of which $0.9 million was included in other current liabilities and $5.6 million was included in other long-term liabilities. The unearned income is being recognized as income on a straight-line basis over the remaining term of the agreement. The agreement does not include a future minimum purchase commitment from the customer.

Our revenue can be generated from contracts with multiple performance obligations. When a sales agreement involves multiple performance obligations, each obligation is separately identified and the transaction price is allocated based on the amount of consideration we expect to be entitled in exchange for transferring the promised good or service to the customer.

Some customers receive pricing rebates upon attaining established sales volumes. We record rebate costs when sales occur based on our assessment of the likelihood that the required volumes will be attained. We also maintain an allowance for product returns, as we believe that we are able to reasonably estimate the amount of returns based on our substantial historical experience.

Contract assets or liabilities result from transactions with revenue recorded over time. If the measure of remaining rights exceeds the measure of the remaining performance obligations, we record a contract asset. Contract assets are recorded on the consolidated balance sheet in accounts receivable, net, and other assets (current and noncurrent portions, respectively). Contract assets included in accounts receivable, net, relate to the unbilled amounts of our product sales for which we have recognized revenue over time. Contract assets included in other assets represent the remaining perform