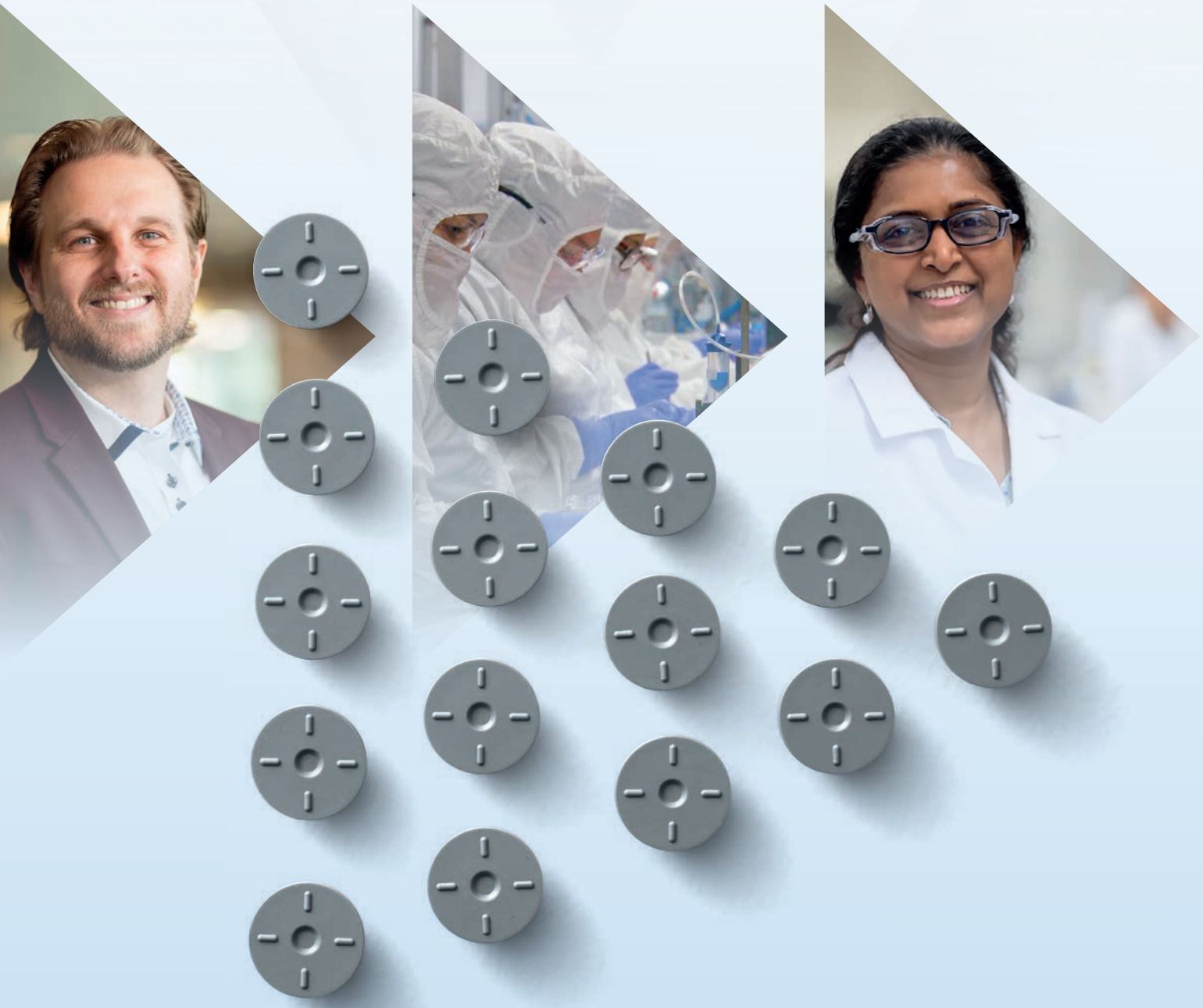
2021

Strength in Numbers



West

Annual Report

We Serve to Improve Patient Lives

As we reflect over the past year, never before has our purpose been so evident. The pandemic continued to provide extraordinary challenges for the global healthcare industry in 2021, and West continued to play a vital role in the containment and delivery of life-saving and life-changing medicines, including effective vaccines, boosters and therapeutic drugs to combat the COVID-19 virus.

Our 10,000-strong global team members have shown amazing dedication, resolve and commitment to our purpose. This strength in numbers is what enabled us to manufacture more than 45 billion components and devices in 2021, ensuring our customers have a reliable supply of the components that are critical to the containment and delivery of drugs they deliver to patients.

We continued to focus on five business imperatives that enabled us to support growth, provide for the needs of our customers, and uphold our Environmental, Sustainability and Governance (ESG) commitments:

- *Continue our market-led approach*
- *Innovate with new product offerings and expand into emerging markets*
- *Optimize global operations and supply chain networks, including automation enablement*
- *Accelerate digitization to drive performance*
- *Build and support our global team including our diversity and inclusion efforts*

Throughout this growth, we have continued to prioritize our commitment to diversity and inclusion. We understand the importance of cultivating an environment where our team members can bring their authentic selves to work each day and learn from one another to help create a path to a successful and inclusive future.

And we did not falter in our commitment to giving back to the communities where our team members live and work, with West donating $2.5 million in corporate and foundation giving. Our team members' commitment to giving was evident, as we saw a 63% increase in team member giving over the previous year, including food and monetary donations and volunteer hours.

2021

Strength in Numbers

1

Our singular purpose is to improve patient lives

10k+

Team members committed to our purpose

~45 billion

Components shipped, touching billions of patients

13 / 30 / 400+

Number of site expansions, facility modifications and new equipment installations, all while keeping pace with growing demand

50 / 25

Total global locations and manufacturing sites

$2.5 million

Total corporate and foundation giving

5

High Value Product extensions launched

50 / 55

Number of scientific presentations and peer-reviewed publications

65%

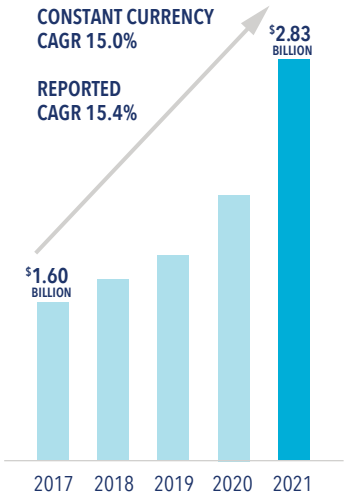
Percent of West's Executive Management Team comprised of women, people of color or international diversity

3,599

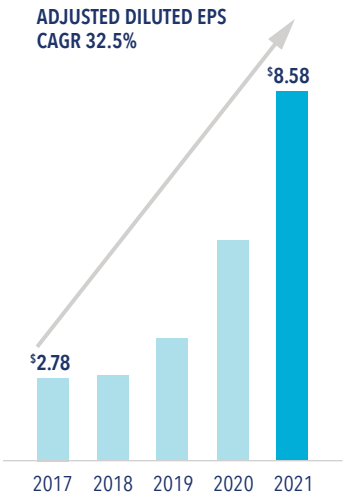
Total number of team member volunteer hours in 2021

Annual Comparison

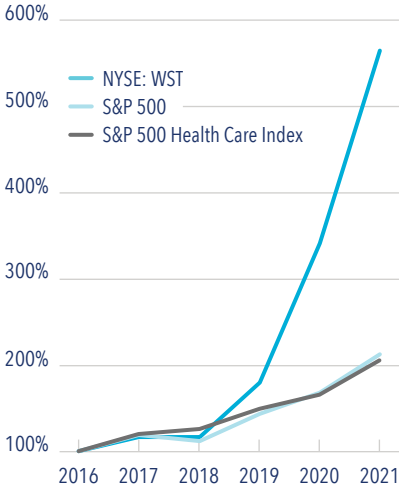
SUSTAINED, CONSISTENT GROWTH



NET SALES



ADJUSTED-DILUTED EPS[1]
(NON-U.S. GAAP)



COMPARISON OF CUMULATIVE FIVE-YEAR TOTAL RETURN[2]
(DEC. 31, 2016 – DEC. 31, 2021)

A STRONG FOUNDATION

Well-Positioned for Future Growth

- 45% Americas
- 45% Europe, Middle East, Africa
- 10% Asia Pacific

- 54% High-Value Components
- 23% Standard Packaging
- 5% High-Value Delivery Devices
- 18% Contract-Manufactured Products[3]

- 41% Biologics
- 17% Generics
- 24% Pharma
- 18% Contract-Manufactured Products[3]

[1] Please refer to our 2021 Form 10K, February 17, 2022 Earnings Release on Form 8-K and prior year earnings releases for the reconciliation of Non-U.S. GAAP financial measures.

[2] Sources: IR Insight

[3] Non-proprietary products

West Pharmaceutical Services, Inc. & Subsidiaries

FINANCIAL SUMMARY

	2021	2020
Net Sales[1]	**$2,831.6**	$2,146.9
Organic Net Sales Growth[2]	**29.4%**	16.3%
Gross Profit	**$1,175.8**	$767.8
Gross Profit Margin	**41.5%**	35.8%
Operating Profit	**$752.3**	$406.9
Operating Profit Margin	**26.6%**	19.0%
Net Income	**$661.8**	$346.2
Diluted Earnings Per Share		
As reported (U.S. GAAP)	**$8.67**	$4.57
Pension settlement	**$0.02**	$0.04
Cost investment activity	**$0.06**	$0.03
Restructuring and related charges	**$0.02**	$0.07
Amortization of acquisition-related intangibles	**$0.04**	$0.05
Asset impairment	**$0.04**	–
Royalty acceleration	**$(0.25)**	–
Tax law changes	**$(0.02)**	–
As adjusted (Non-U.S. GAAP)	**$8.58**	$4.76
Operating Cash Flow	**$584.0**	$472.5
Capital Expenditures	**$253.4**	$174.4
Financial Condition		
Cash	**$762.6**	$615.5
Debt	**$253.0**	$255.2
Equity	**$2,335.4**	$1,854.5
Working Capital	**$1,147.9**	$870.3

[1] Dollars in millions, except per share data.

[2] Organic net sales exclude the impact from acquisitions and/or divestitures and translate the current period reported sales of subsidiaries whose functional currency is other than U.S. Dollar at the applicable foreign exchange rates in effect during the comparable prior -year period.

A LETTER FROM OUR PRESIDENT & CEO

West delivered another remarkable year of success in 2021, driven by our purpose to improve patient lives and our understanding of the critical role we play in the containment and delivery of life-saving and life-changing medicines, especially those needed to battle COVID-19. Our team members rallied together with great strength and resolve to meet the accelerated demand and shifting market and customer needs throughout the year. Our strong financial results demonstrate that our long-term enterprise business plan, centered on our ability to execute on our market-led strategy, innovate with new products and services and invest in our growth, is creating value for our customers and the patients we serve together.

Business Highlights

In 2021, we reported net sales of $2.83 billion and 29.4% organic net sales growth over the prior year, driven by base demand of our components, devices and solutions and the demand for products needed to enable the delivery of COVID-19 vaccines and therapeutics to patients. Our high-value products, which make up approximately 72% of the Proprietary Products segment net sales, had strong growth across all market units throughout the year and generated double-digit organic sales growth. Our Contract-Manufactured Products segment had organic net sales growth of 1.7%.

Along with strong net sales growth, we expanded profit margins through a favorable mix of high-value products, operational excellence and fiscal discipline, while continuing to invest in our business. This resulted in 23.6% growth in operating cash flow, which funded capital expenditures and returned cash to the shareholders through a Board-authorized share repurchase program, and an increased dividend for the 29th consecutive year.

Execute

We shipped more than 45 billion components in 2021 and, in turn, touched billions of patient lives. Our ability to service this breadth of patients is thanks to the careful execution of our market-led strategy. The COVID-19 pandemic caused dynamic market conditions including supply chain uncertainty and labor shortages that required careful management. Our team balanced the needs of customers to supply products to address the myriad of healthcare diseases and conditions as well as vaccines and treatments for COVID-19. Our team met these market and customer needs with unique product and service offerings across our Biologic, Pharma and Generics market units as well as our Contract Manufactured Products business segment.

The key to our operational success over the past two years of the pandemic was our ability to expand capacity within our manufacturing network to keep pace with growing demand. In 2020, we began to invest in strategic expansions that would help us meet the anticipated customer requirements, and we further increased our expansion plans in 2021. Over the past two years, we invested more than $300 million in capital for 30 expansions that included more than 400 new pieces of equipment, across 13 global sites. We also developed a new end-to-end supply chain strategy to better address the evolving needs of our customers and shifting market supply challenges. West's global manufacturing network is unmatched in the industry and with these latest improvements, we are in a position to grow and flex with our customers' future needs.

Innovate

We established a strategic Research and Development framework in 2021 to support our innovation efforts that includes Applied Research, Advanced Engineering and Technology Scouting. We also added a Chief Medical Officer to provide clinical insight and expertise throughout the product development process. The team launched five new product extensions in 2021, including the first commercial launch of our Daikyo® Crystal Zenith® Ophthalmic 0.5mL Luer Lock syringe, which will be an important offering for intravitreal drug injections.

We have also been focused on using technology to support our customers, including an updated external website that now includes an interactive tool for customers called West Virtual™. This 360-experience allows customers to learn about our products and services in our virtual environment. In addition, we introduced the DeltaCube™ Modeling Platform, an online vial integrity modeling platform designed to help developers make more confident decisions about their container closure systems. Using a big data approach and built on more than 90 years of West's packaging and testing experience, the DeltaCube Modeling Platform provides an efficient and cost-effective tool to guide vial, stopper and seal combination development.

Grow

One of the most exciting drivers of our growth strategy is our announced collaboration with Corning Incorporated. This strategic collaboration is designed to develop a truly integrated system that combines cutting-edge elastomer and glass technologies that can address the current and future needs of injectable drug customers. These customers must navigate the complex regulatory environment and are looking to mitigate risk when bringing drugs to market. By combining West's industry leading NovaPure® components, with Daikyo Flurotec® coating technology, and Corning's Valor® Glass and Velocity® Vials, West and Corning are optimizing the materials science and manufacturing expertise of both companies to support customers with these challenges. The collaboration will also support West's strategy to serve the unique needs of the growing biotechnology market. Five years ago, Biologics was our smallest market unit. Today, Biologics is our largest market unit with customers from emerging biotech to large biopharma, who come to West and our partner Daikyo for our market-leading solutions.

One West Team

Our One West Team is at the heart of our Company. Keeping our team members healthy and safe continues to be our top priority and has been especially critical over the past two years, while we operated through the pandemic. We implemented safety protocols based on national, regional and local requirements and on our retained medical advisory experts. I am proud of how our team members responded to the challenges, as we were able to keep our manufacturing sites open through the pandemic and produce and supply billions of components to be used in critical drugs, therapies, vaccines and diagnostic applications. With the help of our Technology team, we also deployed a "work from anywhere" infrastructure platform across all locations, to enable other team members to work with flexibility as the pandemic waves surged and eased throughout the year.

We are focused on sustaining our One West Team culture that enables each person to be their authentic self at work and encourages them to give back to the communities in which we live and work. I am proud that 65% of our Executive Management Team are women, people of color or international diversity. In 2021, we increased our diversity in hiring, with 39% of all new hires being women, a 6% increase from 2020, and 54% of US hires being people of color, an 11% increase from the previous year. Nurturing a culture of philanthropy and community involvement is one of the defining characteristics of our Company. In 2021, West donated more than $2.5 million to charities whose focus areas spanned healthcare, education, children and food insecurity. Notably, it is the charitable activities of our own team members that is even more impressive. More than 3,600 volunteer hours were donated by team members across the globe to help our local communities.

Sustainability

We strive to be stewards of a sustainable future by factoring environmental considerations into every aspect of our business. In 2021, we expanded our ESG transparency reporting by aligning with the Task Force for Climate-Related Financial Disclosure recommendations. This includes reducing energy dependencies and lessening emission production through renewable and greener energy, developing more carbon-friendly products and actively engaging with stakeholders to seek out opportunities to have an impact on climate. Aligned with our focus to improving patient lives across the globe through our products, we remain strongly committed to creating a healthier environment with efforts that will have a positive impact on our communities and future generations.

Board of Directors

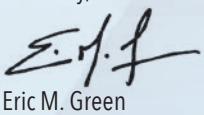
In May 2021, one of our longest-standing Board members, Dr. Paula Johnson, retired. Her passion for patients, healthcare innovation and philanthropy were guiding forces on the Board for 16 years, and her contributions will be missed. In August, we welcomed Molly Joseph as our newest Director. As the former CEO of UnitedHealthcare Global, Molly brings extensive experience in building and leading clinically integrated medical delivery systems and health insurance systems, skills well-aligned with West's mission and role in healthcare delivery. Molly joins a Board that is balanced with several new members and a number of tenured directors, all of whom bring their unique and diverse perspectives to the Company.

Earlier this year, Patrick Zenner, Board Chair, announced his retirement, effective as of the 2022 Annual Meeting. For the past 20 years, Pat has been an instrumental member of our Board of Directors and in that time has been an outstanding leader, visionary and champion for West and our communities across the globe. I have been fortunate and honored to work with Pat for the past seven years. On behalf of the One West team, I want to express our appreciation to Pat for his long-standing commitment and unrelenting dedication as Chair to our Board and to West. I also want to congratulate Board Member Paulo Pucci on being named Lead Independent Director of the Board upon Patrick's retirement.

Looking Forward

Our core values of Passion for Customers, Leadership in Quality and One West Team have driven our team to deliver industry-leading products and solutions that are making an important impact in healthcare. As we prepare for 2022 and beyond, we remain resolute in our commitment to improving patient lives through the containment and delivery of injectable therapies. We have the right strategy in place that has consistently delivered results for our customers and shareholders, we have expanded our operations to support increased customer demand and we have the best and brightest minds working on our team. We are grateful to you, our shareholders, for your continued investment in West and to our collective purpose to improve patient lives.

Sincerely,



Eric M. Green

Our Commitment

At West, we are guided by Core Values of Passion for Customers, Leadership in Quality and One West Team. Our commitment to these values helps to ensure we are able to make a meaningful difference—for our communities, team members, customers, and ultimately for the millions of patients around the world who rely on our products every day.

The continued pandemic challenges over the past year, as well as our unprecedented growth, required us, more than ever, to remain steadfast in our commitment to providing a safe environment for our team members. West's commitment to ESG is reflected in our achievements in 2021. Several key highlights are summarized below, with more details forthcoming in our 2021 Corporate Responsibility Report that will be published by June 2022.

Health & Safety

From the onset of the pandemic, our number one priority has been the health and safety of our team members and providing a work environment that reduces the risks of COVID-19 transmission. Throughout 2021, we remained steadfast in our safety protocols and guidelines, allowing us to provide a safe work environment, resulting in little to no on-site transmission of the virus.

We believe that caring for our team members' health not only involves their physical health but focuses on their mental wellbeing as well. To that end, we globalized our Employee Assistance Program, held a West Wellness Week that coincided with World Mental Health Day in October, and launched a Living Well @ West campaign, all to ensure our team members and their families have access to mental health educational resources, and a wide variety of free and confidential mental health services.

With leadership support, we continued our planned education and awareness initiatives with a focus on safety, hazard identification and leading indicators. Our ongoing *See Something. Do Something. Say Something* campaign was a highlight of our annual Safety Week activities that were held in September. This proactive focus and team member engagement resulted in an improved year-over-year Recordable Incident Rate (RIR), with the final two months of 2021 representing the lowest RIR in our history of tracking this safety metric.

Environmental Impact

Our Purpose of serving to improve patient lives also supports our commitment to a sustained investment in creating a healthier environment. Our sustainability program is designed to target areas where we feel we can make the greatest impact: reductions in CO_2 emissions, energy, waste, and water usage, along with increased efforts to recycle and reuse materials.

With an enhanced focus on our ESG strategy, we have made strong progress against our five-year sustainability goals, which are a set to be achieved by 2023.

We are also pleased to report that West is now a signatory to the Task Force on Climate-related Financial Disclosures (TCFD), and we have expanded our transparency in reporting by aligning to TCFD recommendations. In addition, we also use the Sustainability Accounting Standards Board (SASB) Index to create more transparency to our stakeholders in key sustainable dimensions. Both the TCFD and SASB indexes can be found on our website at westpharma.com/about-west/corporate-responsibility.

Philanthropy

We continued to support philanthropic activities and organizations that align with our mission in the focus areas of Science, Technology, Engineering, Math (STEM) education; children; people with disabilities; and healthcare. Our charitable giving framework is organized into three distinct pillars: West Pharmaceutical Services, Inc. corporate giving; the Herman O. West Foundation, an independently managed 501(c)(3) entity that awards scholarships and matching gifts; and West without Borders, our team member-led giving program.

Despite ongoing challenges faced as a result of the pandemic, our team members continued to embrace our One West Team value, which was evident through their continued commitment to philanthropy, making generous donations of their time and resources.

CHAIR'S ADDRESS

Dear Shareholders,

My letter to you this year holds special meaning. After 20 years serving on the Board, and 7 years as Chairman, I will be retiring in May 2022. With this in mind, I want to share with you that being a part of this great Company, especially over the past decade, and seeing its remarkable growth and the impact it has had on patient health has been a highlight of my career.

West continues to play a pivotal role in delivering healthcare across the world. The past two years, as our global community has worked to fight the COVID-19 pandemic, West's partnership with the pharmaceutical and medical device industry has been mission-critical. Thanks to an unmatched global manufacturing footprint, a portfolio of the highest value products in the industry and top-notch technical leadership, West has successfully helped to deliver millions of diagnostic tests, vaccine doses and therapies to battle this devastating virus. At the same time, the Company has maintained and grown its presence in other disease areas that have and will continue to be a focus once the pandemic is under control.

While achieving these impressive results, the Company has pursued sustainable and responsible business practices that will serve its stakeholders well into the future. The Board of Directors has been instrumental in guiding and supporting the management team as they have evolved and refined their ESG strategies. It is gratifying to see this work recognized by industry third parties, and by you, our shareholders, who have expressed a keen interest and desire to invest in a company that is committed to sustainable and responsible business practices.

I am pleased that the Company has welcomed two new members to our Board over the past two years, including Molly Joseph, former Chief Executive Officer of UnitedHealthcare Global, who joined this year. These new members, together with our tenured directors, make up a diverse and deep board. As I approach my retirement, I am entirely confident they will do a superb job guiding West in the years to come.

It has been an absolute pleasure serving as your Board Chair and being a part of West's incredible history. Thank you for your continued support and investment in West. Moving forward, I will remain a fellow shareholder and will look forward to what I know will be an exciting future for this Company and the stakeholders it serves.

Best,

Patrick J. Zenner
Chair, Board of Directors

Our West Employee Emergency Fund provided more than 100 grants to team members who were in need of immediate financial assistance following an unforeseen disaster hardship. This included grants to our team members in Germany after historic flooding ravaged their community. These Immediate Response Grants provide financial assistance to our team members in need of shelter, food, transportation and other immediate needs as a result of the disaster.

Some charitable highlights from 2021 include:

- *Food Drive donations increased by 50% in comparison to 2020*
- *A 63% increase in total team member giving over prior year*
- *The Herman O. West Foundation awarded 20 scholarships as well as $120,000 in grants through our Employee Emergency Fund*
- *More than $2.5 million in corporate and foundation charitable giving*

Recognition

We are proud to have once again been named to *Barron's* Top 100 Most Sustainable Companies 2021 based on analysis of key areas that included environmental factors, workplace safety, workplace diversity, community engagement, and more. Additionally, we were also awarded a Silver Stevie Award for Corporate Social Responsibility, and a Bronze Stevie Award for the Most Valuable Response to the Pandemic.

Additionally, we received several other regional corporate responsibility awards in 2021, including the Philadelphia Business Journal's Soaring 76 Award for sustained revenue growth, and our Cidra, Puerto Rico site was awarded the Puerto Rico Manufacturers Association 2021 Safety Achievement Award.

2022

Board of Directors

Mark A. Buthman
Retired Executive Vice President & Chief Financial Officer
Kimberly-Clark Corporation
Director since 2011
Board committees: Compensation; Finance; Nominating and Corporate Governance

William F. Feehery, Ph.D.
Chief Executive Officer
Certara
Director since 2012
Board committees: Audit; Compensation; Nominating and Corporate Governance

Robert F. Friel
Retired Chairman & Chief Executive Officer
PerkinElmer, Inc.
Director since 2020
Board committees: Audit; Finance

Eric M. Green
President & Chief Executive Officer
Director since 2015

Thomas W. Hofmann
Retired Senior Vice President & Chief Financial Officer
Sunoco, Inc.
Director since 2007
Board committees: Audit; Compensation

Molly E. Joseph
Managing Director
Cypress Pass Ventures
Former CEO
UnitedHealthcare Global
Director since 2021
Board committees: Finance; Innovation and Technology

Deborah L.V. Keller
Principal
Black Frame Advisors LLC &
Retired Chief Executive Officer
Covance Drug Development
Director since 2017
Board committees: Audit; Finance; Innovation and Technology

Myla P. Lai-Goldman, M.D.
Executive Chair
GeneCentric Therapeutics, Inc.
Director since 2014
Board committees: Finance; Innovation and Technology

Douglas A. Michels
Retired President & Chief Executive Officer
OraSure Technologies, Inc.
Director since 2011
Board committees: Audit; Compensation

Paolo Pucci
Retired Chief Executive Officer
ArQule, Inc.
Director since 2016
Board committees: Finance; Innovation and Technology

Patrick J. Zenner
Retired President & Chief Executive Officer
Hoffmann-La Roche, Inc.
Director since 2002
Chair of the Board
Board committees: Nominating and Corporate Governance

HONORARY DIRECTOR

Morihiro Sudo
President
Daikyo Seiko, Ltd.

EXECUTIVE MANAGEMENT TEAM

Silji Abraham*
Senior Vice President & Chief Technology Officer

Bernard J. Birkett*
Senior Vice President & Chief Financial Officer

Annette F. Favorite*
Senior Vice President & Chief Human Resources Officer

Eric M. Green*
President & Chief Executive Officer

Quintin J. Lai, Ph.D.*
Vice President, Strategy & Investor Relations

Kimberly Banks MacKay*
Senior Vice President, General Counsel & Corporate Secretary

David A. Montecalvo*
Senior Vice President & Chief Operations and Supply Chain Officer

Cindy Reiss-Clark*
Senior Vice President & Chief Commercial Officer

Chris Ryan
Senior Vice President, Commercial Products & Emerging Markets

Chad R. Winters*
Vice President, Chief Accounting Officer & Corporate Controller

Charles Witherspoon*
Vice President & Treasurer

BOARD COMMITTEES

Audit Committee
Thomas W. Hofmann, Chair

Compensation Committee
Douglas A. Michels, Chair

Finance Committee
Paolo Pucci, Chair

Innovation & Technology Committee
Myla P. Lai-Goldman, M.D., Chair

Nominating and Corporate Governance Committee
William F. Feehery, Ph.D., Chair

Note: Information on this page is effective as of April 1, 2022.
*Denotes an Executive Officer of the Company

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington. D.C. 20549

FORM 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2021
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	**Trading Symbol**	**Name of each exchange on which registered**
Common Stock, par value $.25 per share	WST	New York Stock Exchange

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

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

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

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or 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	☑	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

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

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2021 was approximately $26.5 billion based on the closing price as reported on the New York Stock Exchange.

As of January 26, 2022, there were 74,281,589 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Document	**Parts Into Which Incorporated**
Proxy Statement for the 2022 Annual Meeting of Shareholders to be filed not later than 120 days after the end of the fiscal year covered by this Form 10-K.	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® ("Crystal Zenith") 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 22, 2022, 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, analytical lab services and integrated solutions. 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 a commitment to excellence in manufacturing, scientific and technical expertise and management, which enables us to partner with our customers in order to deliver safe, effective drug products to patients quickly and efficiently.

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 and other integrated services and solutions, primarily 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, vision inspection 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 Crystal Zenith, 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 solutions, 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 a 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.

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, 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, 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.

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 57.7% of our consolidated net sales in 2021.

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, Eastern Europe, Israel and the Middle East, uncertain or changing regulatory regimes, or 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, *Basis of Presentation and Summary of Significant Accounting Policies* under the captions *Financial Instruments* and *Foreign Currency Translation;* and Note 11, *Derivative Financial Instruments*.

Raw Materials

We use three basic raw materials in the manufacture of our products: elastomers, aluminum and plastic. Elastomers include both synthetic and natural 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, sole source availability, and the cost and time involved in qualifying suppliers, we rely on single-source suppliers for many critical raw materials. We generally 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, when and 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, trademarks, copyrights, and trade secrets, is important to our business. We own or license intellectual property rights, including know-how and issued patents and pending patent applications in the U.S. and in other countries, that relate to various aspects of our products. In 2021, more than 200 patents were issued to West across the globe. Some key value-added and proprietary products and processes are exclusively licensed from Daikyo. Our intellectual property rights help protect our products and are critical to the growth of our business.

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 Resource*s.

Government Regulation

Our business activities are global and are subject to various federal, state, local, and foreign laws, rules, and regulations. Accordingly, 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). Regulatory authorities, including regulatory review and oversight, can impact the time and cost associated with the development and continued availability of our products, and they have the authority to take various administrative and legal actions against West, such as product recalls.

Changes in tax policy or trade regulations, or the imposition of new tariffs on imported products, could have an adverse effect on our business and results of operations. Compliance with these laws, rules and regulations did not require material capital expenditures in 2021, and is not expected to have a material effect on our capital expenditures, results of operations and competitive position in 2022 as compared to prior periods. For more information on the potential impacts of government regulations affecting our business, see "Item 1A - *Risk Factors*". There were no required material capital expenditures for adherence to our government-led regulatory standards in our facilities in 2021 outside the normal course of business and there are currently no needed or planned material expenditures for 2022.

West is also subject to various federal and state laws, and laws outside the United States, concerning fraud and abuse, global anti-corruption, and export control. With the recent increased regulations, we remain committed as a company to comply with all laws and regulations applicable to our business.

Environmental Regulations

We are subject to various national, 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 2021 and there are currently no needed or planned material expenditures for 2022.

Marketing

Our Proprietary Products customers primarily include many of the major biologic, generic, and pharmaceutical drug companies in the world, which incorporate our components and other offerings into their injectable 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 41.4% of our consolidated net sales in 2021, but none of these customers individually accounted for more than 10% of consolidated net sales. Please refer to Note 3, *Revenue*, and Note 19, *Segment Information*, for additional information on our consolidated net sales.

Competition

With our range of proprietary technologies, we compete with several companies across our Proprietary Products product lines. Competition for these components is based primarily on product design and performance, quality, regulatory, and scientific expertise, along with total cost.

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 and components. 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 seek to 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 lab services and integrated solutions, 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 assembly manufacturers. Given the cost pressures they face, many of our customers look to reduce costs by sourcing from low-cost locations. We seek to 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 continue to 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.

Human Capital Management

Our People

As of December 31, 2021, we employed approximately 10,065 people, excluding contractors and temporary workers, in our operations throughout the world. During 2021, West hired approximately 3,100 new team members and experienced an attrition rate of 23%. The following table presents the approximate percentage of our employees by region:

North America	43%
Europe	42%
Asia Pacific	12%
South America	3%
Total	100%

As of December 31, 2021, the following table presents the approximate percentage of our employees by business unit:

Global Operations	83%
Sales and Marketing	5%
Corporate	5%
Digital & Technology (D&T)	4%
Research & Development	3%
Total	100%

As of December 31, 2021, we had the following global gender demographics:

	Men	Women
West Global Employees	63%	37%

Diversity and Inclusion

We actively foster an inclusive and collaborative culture and positive employee experiences for our team members so that they know that different views and perspectives are welcomed and valued at West. We are convinced that this approach brings forth innovation, learning and growth for our team members on a global basis. The Chief Executive Officer ("CEO") and the executive team members review diversity and inclusion objectives throughout the year to ensure continuous focus and improvement. As of December 31, 2021, three out of the nine members of West's Leadership Team are women, with five out of the nine members being women and/or people of color.

Training, Compliance and Talent Development

We strongly encourage our team members to engage in continuous learning, and we provide development opportunities and build talent from within. We offer resources such as our tuition reimbursement program and our online learning catalog, with approximately 40,000 courses available. We centrally manage and organize on-the-job training, instructor-led trainings and online trainings in many different languages and topics through our one global Learning Management System, where we tracked more than 50,000 training completions during 2021 from our team members around the globe.

Our team members live the values of our ethical culture. They are responsible for adhering to our core values as they work together to support our mission to improve patient lives. West’s Code of Business Conduct, available in multiple languages on westpharma.com, provides guidance to our team members on appropriate conduct. Every team member is required to undergo Code of Business Conduct and respect in the workplace training annually.

Our focus on talent acquisition, performance management, resource planning and leadership assessment are strongly aligned with our diversity and inclusion strategies. We understand that diversity leads to greater innovation, more opportunities, better access to talent and stronger business performance.

Compensation and Benefits

West is committed to providing fair and competitive compensation and benefits programs to attract, retain and reward high-performing team members at all levels. We offer a comprehensive total rewards program to support the health, financial and home-life needs of our team members. Total Rewards at West are defined as the value of the Compensation and Benefits programs offered to employees, which aim to reflect the value of the job and the contribution of the individual, while linking employees' performance to business and personal results. Based on country of employment, West may provide health care and retirement savings programs as well as paid time off, flexible work schedules, a Global Employee Assistance Program and an Employee Stock Purchase Program.

Health, Safety and Wellness

The health and safety of our team members has always been both a top priority and a cultural value. West's commitment to the safety of our teams starts at the top and is driven throughout our business by every level of management and by every team member across the globe. West has a Health, Safety, and Environment ("HSE") Executive Council consisting of C-suite and executive operations leaders to monitor and guide our HSE process. West's global HSE team is also a critical component in leading the safety efforts at our sites. Each manufacturing location has dedicated and trained HSE professionals, responsible for general safety oversight at the site. Our Recordable Injury Rate in 2021 was 0.83 per 100 employees. Our HSE and employee well-being focus can also be seen in our continued proactive global response to the COVID-19 pandemic which has included engaging with experts and reviewing applicable guidance, training and active screening of employees for COVID-19 illness; enhanced gowning and cleaning protocols at all locations; mask requirements for in-person employees, vendors and contractors; eliminating non-critical international and domestic business travel; requiring or permitting many administrative and support personnel to work-from-home; modifying production operations to facilitate social distancing; and regular communications regarding COVID-19 protocols, precautions and information for both on and off the job use.

Environmental, Social and Governance ("ESG") Commitment

West has been committed to ESG issues for many years. During 2021, we heightened the awareness of our ESG issues by expanding our education and communication regarding our ESG program and initiatives. Additionally, we enhanced the governance structure of our ESG program by introducing a new cross-functional ESG team which has been working with senior management, our board and other stakeholders to develop an ESG framework that is aligned with our corporate mission, vision and values. We expect our strategy to focus on areas such as talent attraction, retention and engagement (including diversity and inclusion); a climate strategy that incorporates renewable energy and reduced emissions standards; developing a more sustainable, more diverse and more responsible supply chain; research and development that focuses on issues of sustainability; and, reduction of waste in operational processes. These areas of focus are in addition to our commitments on safety and quality. Additionally, our philanthropic programs are an essential element of our corporate citizenship especially as we focus on the areas of children's health; access to healthcare; and science, technology, engineering and math education. We solicit constant input from our employees on ways to improve in these and other ESG areas and see continued progress in these areas as critical to maintaining an engaged and responsible workforce.

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 (the "Exchange Act") are available on our website under the *Investors - Financial* 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, *www.sec.gov*.

In Part III of 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 2022 Annual Meeting of Shareholders ("2022 Proxy Statement"), which will be filed with the SEC within 120 days following the end of our 2021 fiscal year. Our 2022 Proxy Statement will be available on our website under the caption *Investors - Annual Reports & Proxy* when complete.

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 *Investors - Corporate Governance* on our website. Information relating to the West Pharmaceutical Services Dividend Reinvestment Plan is also available on our website under the *Investors - Transfer Agent* caption.

Information on our website does not constitute part of this document.

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.

ITEM 1A. RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider and carefully read all of the risks and uncertainties described below, as well as other information included in this Annual Report and in our other public filings. The risks described below are not the only ones facing us. The occurrence of any of the following risks or additional risks and uncertainties not presently known to us or that we currently believe to be immaterial could materially and adversely affect our business, financial condition or results of operations. In such case, the trading price of our common stock could decline, and you may lose all or part of your original investment. This Form 10-K also contains forward-looking statements and estimates that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of specific factors, including the risks and uncertainties described below.

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 phrases 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.

Global and Economic Risks

Our results of operations and financial condition may be adversely affected by the ongoing COVID-19 pandemic and other public health epidemics.

Our operations expose us to risks associated with a pandemic, or outbreak of contagious diseases in the human population, including the COVID-19 pandemic. The COVID-19 pandemic has negatively impacted the global economy, disrupted consumer spending and global supply chains, created significant volatility and disruption of financial markets and has resulted in governments around the world implementing stringent measures to help control the spread of the virus, including quarantines, "shelter in place" and "stay at home" orders, travel restrictions, business curtailments, school closures, and other measures. Notwithstanding our level of continued operations, the COVID-19 pandemic, or similar public health concerns in the future, may have negative impacts on our operations, supply chain, transportation networks and customers, which may compress our margins, including as a result of preventative and precautionary measures that we, other businesses and governments are taking. The COVID-19 pandemic is adversely affecting the economies and financial markets of many countries and could result in an economic downturn. Any resulting economic downturn could adversely affect our business, financial condition, demand for our products, services, and contribute to volatile supply and demand conditions affecting prices and volumes in the markets for our products, services and raw materials.

In addition, the ability of our employees and our suppliers' and customers' employees to work may be significantly impacted by individuals contracting or being exposed to COVID-19, or as a result of the control measures noted above, which may significantly hamper our production throughout the supply chain and constrict distribution channels. The extent to which the COVID-19 pandemic may adversely impact our business depends on future developments, which are highly uncertain and unpredictable, including the duration of the pandemic, variants of the virus and the effectiveness of actions taken to contain or mitigate its effects. We are unable to predict the potential future impact that the COVID-19 pandemic will have on our business, financial condition 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.

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 or changes in, or expirations of, a country's tax laws or regulations. 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.

We are a global company with significant revenues and earnings generated internationally, which exposes us to the impact of foreign currency fluctuations, as well as political and economic risks.

A significant portion of our revenues and earnings are generated internationally. Sales outside of the U.S. accounted for 57.7% of our consolidated net sales in 2021 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. and we intend to continue our expansion into emerging and/or faster-growing international markets.

The functional currency for most of our foreign operations is the applicable local currency. As a result, fluctuations in foreign currency exchange rates affect the results of our operations and the value of our foreign assets and liabilities, which in turn may adversely affect results of operations and cash flows and the comparability of period-to-period results of operations. Foreign governmental policies and actions regarding currency valuation could result in actions by the United States and other countries to offset the effects of such fluctuations. Given the unpredictability and volatility of foreign currency exchange rates, ongoing or unusual volatility may adversely impact our business and financial conditions.

In order to reduce our exposure to fluctuations in foreign currency 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.

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.

LIBOR reform may adversely affect our financial condition, results of operations and cash flows.

Our variable-rate debt, which includes our senior unsecured, multi-currency revolving credit facility agreement dated as of March 28, 2019 (the "Credit Agreement"), and its accompanying Incremental Facility Amendment dated as of December 30, 2019 (the "Term Loan"), currently use the London Interbank Offered Rate ("LIBOR") as a benchmark for establishing the interest rate. LIBOR is currently calculated and published for various currencies and periods by the benchmark's administrator, ICE Benchmark Administration Limited ("IBA"), which is regulated for such purposes by the United Kingdom's Financial Conduct Authority ("FCA"). On March 5, 2021, the IBA confirmed that it would cease the publication of the one-week and two-month U.S. dollar LIBOR settings immediately following the LIBOR publication on December 31, 2021, and the publication of all other U.S. dollar LIBOR settings will cease or be deemed unrepresentative after June 30, 2023.

Accordingly, in the near future LIBOR will cease being a widely used benchmark interest rate. The current and any future reforms and other pressures may cause LIBOR to be replaced with a new benchmark or to perform differently than in the past, including during the transition period. The Credit Agreement Amendment contemplates a procedure for transitioning from LIBOR upon the occurrence of specified events. Nevertheless, the consequences of these market developments cannot be entirely predicted and a transition from LIBOR, even if administered consistent with the credit facility's provisions, could increase the cost of our variable rate indebtedness.

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.

Industry Risks

Our sales and profitability are largely dependent on the sale of drug products delivered by injection and the packaging of drug products. If the drug products developed by our customers in the future use another delivery system or are reconfigured to require less frequent dosing, 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 (i) our customers fail to continue to sell, develop and deploy injectable products; (ii) our customers reconfigure their drug product or develop new drug products requiring less frequent dosing; or (iii) we are unable to develop new products that assist in the delivery of drugs by alternative methods, our sales and profitability may suffer.

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 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 continue to experience 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.

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.

Business and Operational Risks

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 matters. 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.

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 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 and the availability of such raw materials, we may not be able to quickly establish additional or replacement sources for these components or raw 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.

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 Crystal Zenith 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 acquisitions 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, manufacturing 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. Please refer to Note 3, *Revenue*, for the discussion of the voluntary recall of our Vial2Bag® product line.

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 and 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.

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 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.

If we fail to comply with our obligations under our distributorship or license agreements with Daikyo or the agreements are terminated early or not renewed, we could lose license rights and access to certain product and technology 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, Crystal Zenith, 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 or not renewed, our business could be adversely impacted. Please refer to Note 7, *Affiliated Companies,* for information relating to the increase in our ownership interest in Daikyo in 2019.

Legal and Regulatory Risks

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.

As a multinational corporation with operations and distribution channels throughout the world, we are subject to and must comply with extensive laws and regulations in the United States and other jurisdictions in which we have operations and distribution channels. For example, 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 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 subject us to fines, sanctions or other penalties that could negatively affect our reputation, business, financial condition, and results of operations.

The global nature of our business also means legal and compliance risks, such as anti-bribery, anti-corruption, fraud, trade, environmental, competition, privacy, and other regulatory matters, will continue to exist and additional legal proceedings and other contingencies will arise from time to time, which could adversely affect us. In addition, the adoption of new laws or regulations, or changes in the interpretation of existing laws or regulations, may result in significant unanticipated legal and reputational risks. Any current or future legal or regulatory proceedings could divert management's attention from our operations and result in substantial legal fees.

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 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, trademark, copyright, 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.

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

We earn a substantial portion of our income in foreign countries and, as such, we are subject to the tax laws in the United States and numerous foreign jurisdictions. Current economic and political conditions make tax laws and regulations, or their interpretation and application, in any jurisdiction subject to significant change.

Proposals to reform U.S. and foreign tax laws could significantly impact how U.S. multinational corporations are taxed on foreign earnings and could increase the U.S. corporate tax rate. Although we cannot predict whether or in what form these proposals may pass, several of the proposals considered, if enacted into law, could have an adverse impact on our effective tax rate, income tax expense and cash flows.

We utilize tax rulings and other agreements to obtain certainty in treatment of certain tax matters. These rulings and agreements expire from time to time and may be extended when certain conditions are met or terminated if certain conditions are not met. The impact of any changes in conditions would be the loss of certainty in treatment thus potentially impacting our effective income tax rate.

We are also subject to the examination of our tax returns by the United States Internal Revenue Service (“IRS”) and other tax authorities. We regularly assess the likelihood of an adverse outcome resulting from these examinations to determine the adequacy of its provision for income taxes. Although we believe our tax provisions are adequate, the final determination of tax audits and any related disputes could be materially different from our historical income tax provisions and accruals. The results of audits or related disputes could have an adverse effect on our financial statements for the period or periods for which the applicable final determinations are made. For example, we and our subsidiaries are also engaged in a number of intercompany transactions across multiple tax jurisdictions. Although we believe we have clearly reflected the economics of these transactions and the proper local transfer pricing documentation is in place, tax authorities may propose and sustain adjustments that could result in changes that may impact our mix of earnings in countries with differing statutory tax rates.

We are subject to stringent and changing obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to regulatory investigations or actions; litigation; fines and penalties; disruptions of our business operations; reputational harm and other adverse business consequences.

In addition to our own sensitive and proprietary business information, we handle transactional and personal information worldwide. As a result, we must comply with increasingly complex and rigorous, and sometimes conflicting laws, regulatory standards, industry standards, external and internal privacy and security policies, contracts and other obligations that govern the processing of business and personal data by us and on our behalf. For example, the European Union’s General Data Protection Regulation (the “EU GDPR”), the United Kingdom’s GDPR (the “UK GDPR”) and California’s Consumer Privacy Act of 2018, as amended (the "CCPA") impose obligations on companies regarding the handling of personal data and provide certain individual privacy rights to persons whose data is stored. In addition, it is anticipated that the California Privacy Rights Act of 2020 (“CPRA”), effective January 1, 2023, will expand the CCPA. Furthermore, other states in the United States have enacted data privacy laws. For example, Virginia passed the Consumer Data Protection Act, and Colorado passed the Colorado Privacy Act, both of which become effective in 2023. Additionally, laws in certain jurisdictions require data localization and impose restrictions on the transfer of personal information across border. For example, the EU GDPR generally restricts the transfer of personal information to countries outside of the European Economic Area without appropriate safeguards or other measures. If we cannot implement a valid compliance mechanism for cross-border privacy and security transfers, we may face increased exposure to regulatory actions, substantial fines and injunctions against processing or transferring personal information from Europe or elsewhere.

Compliance with existing and forthcoming laws and regulations can be costly and time consuming, and may require changes to our information technologies, systems and practices and to those of any third parties that process personal information on our behalf. If we fail, or are perceived to have failed, to address or comply with obligations related to data privacy and security, we could face significant consequences, including, but not limited to, proceedings against the Company by governmental entities (e.g. investigations, fines, penalties, audits, inspections) or other entities or individuals, additional reporting requirements and/or oversight bans, damage to our reputation and credibility, or inability to process data or operate in certain jurisdictions, any of which could have a negative impact on revenues and profits.

Failure to comply with anti-bribery, anti-corruption and anti-money laundering laws could subject us to penalties and other adverse consequences.

We are subject to the Foreign Corrupt Practices Act (the "FCPA"), the U.K. Bribery Act and other anti-bribery, anti-corruption, and anti-money laundering laws in various jurisdictions around the world. The FCPA, the U.K. Bribery Act and similar applicable laws generally prohibit companies, as well as their officers, directors, employees and third-party intermediaries, business partners and agents, from making improper payments or providing other improper things of value to government officials or other persons. We and our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state owned or affiliated entities and other third parties where we may be held liable for corrupt or other illegal activities, even if we do not explicitly authorize them. While we have policies and procedures and internal controls to address compliance with such laws, we cannot provide assurance that all of our employees and third-party intermediaries, business partners and agents will not take actions in violation of such policies and laws, for which we may be ultimately held responsible. To the extent that we learn that any of our employees or third-party intermediaries, business partners or agents do not adhere to our policies, procedures, or internal controls, we are committed to taking appropriate remedial action. In the event that we believe or have reason to believe that our directors, officers, employees or third-party intermediaries, agents or business partners have or may have violated such laws, we may be required to investigate or to have outside counsel investigate the relevant facts and circumstances. Detecting, investigating and resolving actual or alleged violations can be extensive and require a significant diversion of time, resources, and attention from senior management. Any violation of the FCPA, the U.K. Bribery Act or other applicable anti-bribery, anti-corruption and anti-money laundering laws could result in whistleblower complaints, adverse media coverage, investigations, loss of export privileges, and criminal or civil sanctions, penalties, and fines, any of which may could adversely affect our business and financial condition.

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 manufacturing of some of our products has involved, and may continue to involve, 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.

Healthcare reform may adversely affect our results of operations.

Changes in the U.S. or international healthcare systems 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. 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 healthcare reform, as well as trends and changes that may be encouraged by healthcare legislation globally and that may potentially impact our business over time.

The uncertain effects of climate change and potential climate change legislation could lead to business interruption, significantly increased costs and/or other adverse consequences to our business.

Climate change and potential climate change legislation may present risks to our operations, including business interruption, significantly increased costs and/or other adverse consequences to our business. Some of the potential impacts of climate change to our business include physical risks to our facilities, water and energy supply limitations or interruptions, disruptions to our supply chain and impairment of other resources. In addition, if legislation or regulations are enacted or promulgated in the U.S., Europe, 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.

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 19341.

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

Type of Facility/ Country	*Location*	*Segment*
Manufacturing:		
North America		
United States of America	Phoenix, AZ (2)	Contract Manufactured Products
	Scottsdale, AZ (1) (2)	Proprietary Products
	Tempe, AZ (2)	Contract Manufactured Products
	St. Petersburg, FL (1)	Proprietary Products
	Grand Rapids, MI	Contract Manufactured Products
	Kinston, NC	Proprietary Products
	Kearney, NE	Proprietary Products
	Jersey Shore, PA	Proprietary Products
	Williamsport, PA	Contract Manufactured Products
	Cayey, Puerto Rico	Proprietary Products and Contract Manufactured Products
South America		
Brazil	Sao Paulo	Proprietary Products
Europe		
Denmark	Horsens	Proprietary Products
England	St. Austell	Proprietary Products
France	Le Nouvion	Proprietary Products
	Le Vaudreuil	Proprietary Products
Germany	Eschweiler (1) (2)	Proprietary Products
	Stolberg	Proprietary Products
Ireland	Waterford	Proprietary Products
	Dublin (2)	Contract Manufactured Products
Serbia	Kovin	Proprietary Products
Asia Pacific		
China	Qingpu	Proprietary Products
India	Sri City	Proprietary Products
Singapore	Jurong (2)	Proprietary Products
Mold-and-Die Tool Shop:		
North America		
United States of America	Upper Darby, PA	Proprietary Products

Type of Facility/ Country	*Location*	*Segment*
Europe		
England	Bodmin (2)	Proprietary Products
Germany	Stolberg	Proprietary Products
Contract Analytical Laboratory:		
North America		
United States of America	Exton, PA	Proprietary Products

Technology Center:		
Asia Pacific		
India	Bangalore (2)	Proprietary Products, Contract Manufactured Products

(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 Scottsdale, AZ, Germany, and Israel for research and development, as well as other activities. Sales offices in various locations are leased under contractual arrangements.

ITEM 3. LEGAL PROCEEDINGS

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

INFORMATION ABOUT OUR EXECUTIVE OFFICERS

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	50	Senior Vice President, Chief Technology Officer since December 2020. Senior Vice President, Chief Digital and Transformation Officer from February 2018 to December 2020. 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	53	Senior Vice President and Chief Financial Officer since June 2018. In addition, Treasurer from June 2018 to December 2019 and Principal Accounting Officer from October 2019 to April 2020. 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	57	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, including Vice President, Global Talent Management, Vice President of Human Resources for Worldwide Software Sales, and Human Resources Leader for the company's Southwest European Region, based out of Spain.
Eric M. Green	52	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	55	Vice President, Strategy and Investor Relations since January 2016. In addition, Corporate Development responsibilities from January 2016 to September 2021. 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.
Kimberly Banks MacKay	56	Senior Vice President, General Counsel and Corporate Secretary since December 2020. Prior to joining West, from April 2019 to November 2020, she served as Senior Vice President, General Counsel and Corporate Secretary at the Segal Group in New York, a privately held firm specializing in employee benefits and investment consulting. Prior to Segal, she served for over 15 years in a variety of Legal leadership roles for Novartis, a global healthcare company, including Head of U.S. Legal for Novartis Business Service.
David A. Montecalvo	56	Senior Vice President and Chief Operations and Supply Chain Officer since February 2019. Senior Vice President, Global Operations and Supply Chain from September 2016 until February 2019. Prior to joining West, he served in a number of senior leadership roles at Medtronic plc, a medical device company, including Vice President, Contract Manufacturing Operations, for the company's Restorative Therapies Group, Vice President, Business Operations Integration, where he was responsible for directing and leading the global operations integration of Covidien plc into Medtronic, and Vice President, Product Development and Operations for Medtronic Cardiovascular. Prior thereto, he held senior operations and product development roles at Urologix, Inc. and LecTec Corporation.
Chad R. Winters	43	Vice President, Chief Accounting Officer and Corporate Controller since May 2020. Vice President and Corporate Controller since October 2019. Prior to joining West, he served as Senior Vice President of Finance & Accounting and Controller of Amneal Pharmaceuticals, Inc., a specialty pharmaceutical company. Prior to Amneal, he held roles of increasing responsibility at the Chemours Company, UGI Corporation, and PricewaterhouseCoopers LLP.

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."

As of January 26, 2022, we had 669 shareholders of record, which excludes beneficial owners 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 $0.16 per share in each of the first three quarters of 2020; $0.17 per share in the fourth quarter of 2020 and each of the first three quarters of 2021; and $0.18 per share in the fourth quarter of 2021.

Issuer Purchases of Equity Securities

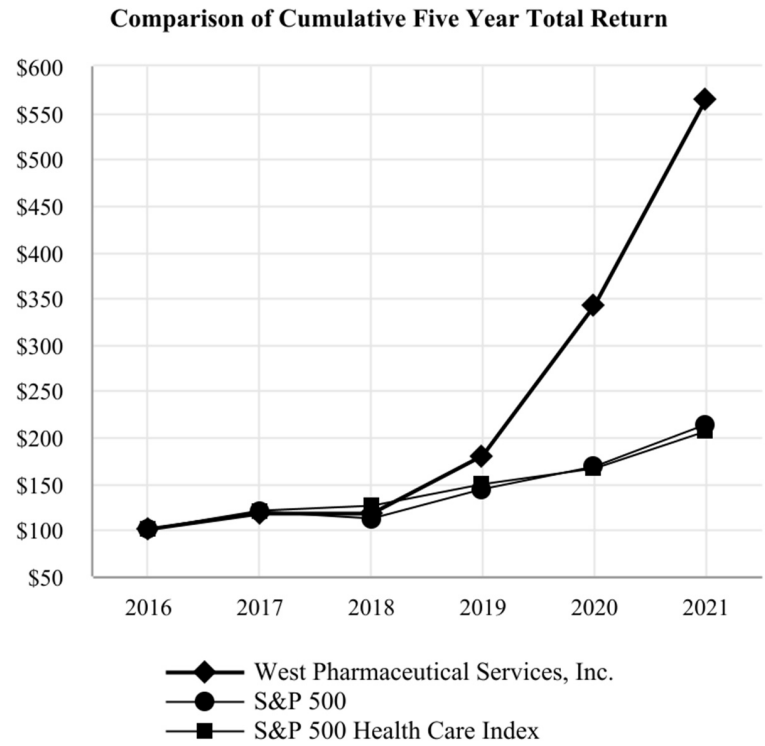
In December 2020, we announced a share repurchase program for calendar-year 2021 authorizing the repurchase of up to 631,000 shares of our common stock from time to time on the open market as permitted under Exchange Act Rule 10b-18 or in privately-negotiated transactions. During the year ended December 31, 2021, we purchased 479,000 shares of our common stock under the now completed program at a cost of $137.1 million, or an average price of $286.23 per share. During the three months ended December 31, 2021, there were no purchases of our common stock made by us or any of our "affiliated purchasers" as defined in Rule 10b-18(a)(3) under the Exchange Act.

In December 2021, our Board of Directors approved a share repurchase program for calendar-year 2022 authorizing the repurchase of up to 650,000 shares of our common stock from time to time on the open market as permitted under Exchange Act Rule 10b-18 or in privately-negotiated transactions. 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, 2022.

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, 2021: 500 and 500 Health Care Index. The performance graph does not necessarily reflect management's opinion that such indices are an appropriate measure of the relative performance of the stock involved, and is not intended to forecast or be indicative of possible future performance of the Company's common stock.

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, 2016 and is compared to the cumulative total return of the S&P indices mentioned above over the period with a like amount invested.



*Five year total return data obtained from NASDAQ IR Insight

ITEM 6. RESERVED

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. Organic net sales exclude the impact from acquisitions and/or divestitures and translate the current-period reported sales of subsidiaries whose functional currency is other than USD at the applicable foreign exchange rates in effect during the comparable prior-year period. We may also refer to adjusted consolidated operating profit and adjusted consolidated operating profit margin, which exclude the effects of unallocated items. The unallocated items are not representative of ongoing operations, and generally include restructuring and related charges, certain asset impairments, and other specifically-identified income or expense items. The re-measured results excluding effects from currency translation, the impact from acquisitions and/or divestitures, and excluding the effects of unallocated items are not in conformity with U.S. Generally Accepted Accounting Principles ("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 in our discussion and analysis 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.

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, analytical lab services and integrated solutions. Our customers include the leading biologic, generic, pharmaceutical, diagnostic, and additional 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 a commitment to excellence in manufacturing, scientific and technical expertise and management, which enables us to partner with our customers in order to deliver safe, effective drug products to patients quickly and efficiently.

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 and other integrated services and solutions, primarily 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 collaborations to share technologies and market products with affiliates in Japan and Mexico.

Impact of COVID-19

It has been nearly two years since the COVID-19 pandemic began and there remains uncertainty around the long-term impact of the pandemic on the world economy. Our primary objectives have remained the same throughout the pandemic: to support the safety of our team members and their families and continue to support patients around the world. Throughout the COVID-19 pandemic, our production facilities have continued to operate as they had prior to the pandemic, other than for enhanced safety measures intended to prevent the spread of the virus and higher levels of production at certain plant locations to meet additional customer demand. Our capital and financial resources, including overall liquidity, remain strong. The remote working arrangements and travel restrictions imposed by various governments have had limited impact on our ability to maintain operations, as our manufacturing operations have generally been exempted from stay-at-home orders. However, we cannot predict the impact of the progression of the COVID-19 pandemic on future results due to a variety of factors, including the continued good health of our employees, the ability of suppliers to continue to operate and deliver, the ability of West and its customers to maintain operations, continued access to transportation resources, the changing needs and priorities of customers, any further government and/or public actions taken in response to the pandemic and ultimately the length of the pandemic. We will continue to closely monitor the COVID-19 pandemic in order to ensure the safety of our people and our ability to serve our customers and patients worldwide.

Components of and Key Factors Influencing Our Results of Operations

In assessing the performance of our business, we consider a variety of performance and financial measures. We believe the items discussed below provide insight into the factors that affect these key measures.

Net Sales

Our net sales results from the sale of goods or services and reflects the net consideration to which we expect to be entitled to in exchange for those goods or services.

Several factors affect our reported net sales in any period, including product, payer and geographic sales mix, operational effectiveness, pricing realization, timing of orders and shipments, regulatory actions, competition, and business acquisitions that involve our customers or competitors.

Cost of goods and services sold and gross profit

Cost of goods and services sold includes personnel costs, manufacturing costs, raw materials and product costs, freight costs, depreciation, and facility costs associated with our manufacturing and warehouse facilities. Fluctuations in our cost of goods sold correspond with the fluctuations in sales units as well as inflationary and other market factors that influence our cost base.

Gross profit is calculated as net sales less cost of goods sold. Our gross profit is affected by product and geographic sales mix, realized pricing of our products, the efficiency of our manufacturing operations and the costs of materials used to make our products.

Research and development expenses

Research and development expenses relate to our investments in improvements to our manufacturing processes, product enhancements, and additional investments in our self-injection systems development, fluid transfer admixture devices, elastomeric packaging components, and formulation development.

We expense research and development costs as incurred. Our research and development expenses fluctuate from period to period primarily based on the ongoing improvements to our manufacturing processes and product enhancements.

Selling, general and administrative expenses

Selling, general and administrative expenses primarily include personnel costs, incentive compensation, insurance, professional fees, and depreciation.

Financial Performance Summary

The following tables present a reconciliation from U.S. GAAP to non-U.S. GAAP financial measures:

($ in millions)	Operating profit	Income tax expense	Net income	Diluted EPS
Year ended December 31, 2021 GAAP	$ 752.3	$ 107.2	$ 661.8	$ 8.67
Unallocated items:				
Restructuring and related charges [1]	2.2	0.4	1.8	0.02
Pension settlement [2]	—	0.5	1.5	0.02
Amortization of acquisition-related intangible assets [3]	0.8	0.1	2.8	0.04
Asset impairment [4]	2.8	—	2.8	0.04
Cost investment activity [5]	4.3	(0.1)	4.4	0.06
Royalty acceleration [6]	—	18.5	(18.5)	(0.25)
Tax law changes [7]	—	1.4	(1.4)	(0.02)
Year ended December 31, 2021 adjusted amounts (non-U.S. GAAP)	$ 762.4	$ 128.0	$ 655.2	$ 8.58

During 2021, we recorded a tax benefit of $31.5 million associated with stock-based compensation.

($ in millions)	Operating profit	Income tax expense	Net income	Diluted EPS
Year ended December 31, 2020 GAAP	$ 406.9	$ 72.5	$ 346.2	$ 4.57
Unallocated items:				
Restructuring and severance related charges [1]	7.0	1.7	5.3	0.07
Pension settlement [2]	—	0.9	2.9	0.04
Amortization of acquisition-related intangible assets [3]	0.6	0.1	3.6	0.05
Cost investment impairment [5]	2.5	—	2.5	0.03
Year ended December 31, 2020 adjusted amounts (non-U.S. GAAP)	$ 417.0	$ 75.2	$ 360.5	$ 4.76

During 2020, we recorded a tax benefit of $20.8 million associated with stock-based compensation.

($ in millions)	Operating profit	Income tax expense	Net income	Diluted EPS
Year ended December 31, 2019 GAAP	$ 296.6	$ 59.0	$ 241.7	$ 3.21
Unallocated items:				
Restructuring and related charges [1]	4.9	1.2	3.7	0.04
Gain on restructuring-related sale of assets	(1.7)	(0.4)	(1.3)	(0.02)
Pension settlement [2]	—	0.8	2.7	0.04
Argentina currency devaluation	1.0	—	1.0	0.01
Tax recovery [8]	(4.4)	(1.5)	(2.9)	(0.04)
Tax law changes [7]	—	0.3	(0.3)	—
Year ended December 31, 2019 adjusted amounts (non-U.S. GAAP)	$ 296.4	$ 59.4	$ 244.6	$ 3.24

During 2019, we recorded a tax benefit of $10.3 million associated with stock-based compensation.

(1) During 2021 and 2020, the Company recorded a restructuring and severance related charge of $2.2 million and $7.0 million, respectively, to optimize certain organizational structure within the Company. During 2019, the Company recorded $4.9 million in restructuring and related charges in connection with the 2018 plan.

(2) The Company recorded a pension settlement charge within other nonoperating (income) expense, as it determined that normal-course lump-sum payments for our U.S. qualified, and in 2020 and 2019 our non-qualified, defined benefit pension plan exceeded the threshold for settlement accounting.

(3) During 2021, the company recorded $0.8 million of amortization expense within operating profit associated with an acquisition of an intangible asset during the second quarter of 2020. Additionally, the company recorded $2.1 million of amortization expense in association with an acquisition of increased ownership interest in Daikyo. During 2020, the company recorded $0.6 million of amortization expense within operating profit associated with an acquisition of an intangible asset during the second quarter of 2020. Additionally, the company recorded $3.1 million of amortization expense in association with an acquisition of increased ownership interest in Daikyo.

(4) The Company recorded a $2.8 million impairment charge for certain long-lived and intangible assets within the Proprietary Products segment as it determined the carrying value exceeded the fair value of the assets. $1.9 million of this charge is recorded in Cost of Goods Sold and $0.9 million of the charge is recorded in Selling, General, and Administrative expense, due to the nature of the impaired assets.

(5) During 2021, the net cost investment activity was $4.3 million, inclusive of an impairment charge of $4.6 million offset by a $0.3 million gain on the sale of a cost investment. During 2020, the Company recorded a cost investment impairment charge of $2.5 million.

(6) The Company prepaid future royalties from one of its subsidiaries, which resulted in a $18.5 million tax benefit.

(7) During 2021, the Company recorded a tax benefit of $1.4 million due to the impact of a United Kingdom tax law change enacted during the period. During 2019, the Company recorded a net tax benefit of $0.3 million due to the impact of federal law changes enacted during the respective year.

(8) The Company recorded a net tax recovery related to previously-paid international excise taxes, following a favorable court ruling.

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, 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 for which further information can be found above in the reconciliation from U.S. GAAP to non-U.S. GAAP financial measures.

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)	2021	2020	2019	2021/2020	2020/2019
Proprietary Products	$ 2,317.3	$ 1,648.6	$ 1,398.6	40.6%	17.9%
Contract-Manufactured Products	514.7	498.6	441.5	3.2%	12.9%
Intersegment sales elimination	(0.4)	(0.3)	(0.2)	33.3%	50.0%
Consolidated net sales	$ 2,831.6	$ 2,146.9	$ 1,839.9	31.9%	16.7%

2021 compared to 2020

Consolidated net sales increased by $684.7 million, or 31.9%, in 2021, including a favorable foreign currency translation impact of $53.5 million. Excluding foreign currency translation effects, consolidated net sales increased by $631.2 million, or 29.4%.

Proprietary Products – Proprietary Products net sales increased by $668.7 million, or 40.6%, in 2021, including a favorable foreign currency translation impact of $46.1 million. Excluding foreign currency translation effects, net sales increased by $622.6 million, or 37.8%, primarily due to growth in our high-value product offerings, including Westar®, NovaPure®, Daikyo®, and FluroTec®-coated components. Net sales in 2021 included approximately $459 million in COVID-19 related activity for vaccines, antiviral treatments and treatment of underlying COVID-19 symptoms. Net sales in 2020 included approximately $99 million in COVID-19 related activity for vaccines, antiviral treatments and treatment of underlying COVID-19 symptoms.

Contract-Manufactured Products – Contract-Manufactured Products net sales increased by $16.1 million, or 3.2%, in 2021, including a favorable foreign currency translation impact of $7.4 million. Excluding foreign currency translation effects, net sales increased by $8.6 million, or 1.7%, due to an increase primarily in the sale of healthcare-related medical devices.

The intersegment sales elimination, which is required for the presentation of consolidated net sales, represents the elimination of components sold between our segments.

2020 compared to 2019

Consolidated net sales increased by $307.0 million, or 16.7%, in 2020, including a favorable foreign currency translation impact of $5.7 million. Excluding foreign currency translation effects, as well as incremental sales of $1.2 million from the acquisition of our distributor in South Korea in 2019, consolidated net sales increased by $300.1 million, or 16.3%.

Proprietary Products – Proprietary Products net sales increased by $250.0 million, or 17.9%, in 2020, including a favorable foreign currency translation impact of $2.2 million. Excluding foreign currency translation effects, as well as $1.2 million of incremental sales in 2020 from the acquisition of our distributor in South Korea in 2019, net sales increased by $246.6 million, or 17.6%, primarily due to growth in our high-value product offerings, including our FluroTec-coated components, Westar® components, Daikyo® and NovaPure® components, Daikyo Crystal Zenith® products, and our self-injection delivery platforms, all of which included approximately $99 million in COVID-19 related activity for vaccines, antiviral treatments and treatment of underlying COVID-19 symptoms.

Contract-Manufactured Products – Contract-Manufactured Products net sales increased by $57.1 million, or 12.9%, in 2020, including a favorable foreign currency translation impact of $3.5 million. Excluding foreign currency translation effects, net sales increased by $53.5 million, or 12.1%, due to an increase in the sale of healthcare-related injection and diagnostic devices.

The intersegment sales elimination, which is required for the presentation of consolidated net sales, represents the elimination of components sold between our segments.

Gross Profit

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

	Year Ended December 31,			% Change	
($ in millions)	2021	2020	2019	2021/2020	2020/2019
Proprietary Products:					
Gross profit	$ 1,093.9	$ 682.2	$ 540.4	60.3%	26.2%
Gross profit margin	47.2%	41.4%	38.6%		
Contract-Manufactured Products:					
Gross profit	$ 83.8	$ 85.6	$ 65.5	(2.1)%	30.7%
Gross profit margin	16.3%	17.2%	14.8%		
Unallocated items	$ (1.9)	$ —	$ (0.2)		
Consolidated gross profit	$ 1,175.8	$ 767.8	$ 605.7	53.1%	26.8%
Consolidated gross profit margin	41.5%	35.8%	32.9%		

2021 compared to 2020

Consolidated gross profit increased by $408.0 million, or 53.1%, in 2021, including a favorable foreign currency translation impact of $19.5 million. Consolidated gross profit margin increased by 5.7 margin points in 2021.

Proprietary Products – Proprietary Products gross profit increased by $411.7 million, or 60.3%, in 2021, including a favorable foreign currency translation impact of $18.2 million. Proprietary Products gross profit margin increased by 5.8 margin points in 2021, due to a favorable mix of products sold, sales price increases and production efficiencies, partially offset by increased overhead costs including compensation costs.

Contract-Manufactured Products – Contract-Manufactured Products gross profit decreased by $1.8 million, or 2.1%, in 2021, including a favorable foreign currency translation impact of $1.3 million. Contract-Manufactured Products gross profit margin decreased by 0.9 margin points in 2021, due to unfavorable mix of products sold and timing of the pass-through of raw material price increases to customers.

2020 compared to 2019

Consolidated gross profit increased by $162.1 million, or 26.8%, in 2020, including a favorable foreign currency translation impact of $1.0 million. Consolidated gross profit margin increased by 2.9 margin points in 2020.

Proprietary Products – Proprietary Products gross profit increased by $141.8 million, or 26.2%, in 2020, including a favorable foreign currency translation impact of $0.3 million. Proprietary Products gross profit margin increased by 2.8 margin points in 2020, due to a favorable mix of products sold, production efficiencies, and sales price increases, partially offset by increased overhead costs including compensation costs and COVID-19 related expenses.

Contract-Manufactured Products – Contract-Manufactured Products gross profit increased by $20.1 million, or 30.7%, in 2020, including a favorable foreign currency translation impact of $0.7 million. Contract-Manufactured Products gross profit margin increased by 2.4 margin points in 2020, due to a favorable mix of products sold and production efficiencies, partially offset by increased overhead costs including compensation costs.

Research and Development ("R&D") Costs

The following table presents consolidated R&D costs:

	Year Ended December 31,			% Change	
($ in millions)	2021	2020	2019	2021/2020	2020/2019
Consolidated R&D costs	$ 52.8	$ 46.9	$ 38.9	12.6%	20.6%

2021 compared to 2020

Consolidated R&D costs increased by $5.9 million, or 12.6%, in 2021, as compared to 2020. Efforts remain focused on the continued investment in self-injection systems development, fluid transfer admixture devices, elastomeric packaging components, and formulation development.

2020 compared to 2019

Consolidated R&D costs increased by $8.0 million, or 20.6%, in 2020, as compared to 2019. Efforts remain focused on the continued investment in self-injection systems development, fluid transfer admixture devices, elastomeric packaging components, and formulation development.

All of the R&D costs incurred during 2021, 2020 and 2019 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 and unallocated items:

	Year Ended December 31,			% Change	
($ in millions)	2021	2020	2019	2021/2020	2020/2019
Proprietary Products	$ 244.8	$ 197.5	$ 189.9	23.9%	4.0%
Contract-Manufactured Products	15.9	15.5	16.2	2.6%	(4.3)%
Corporate and unallocated items	102.1	89.0	66.6	14.7%	33.6%
Consolidated SG&A costs	$ 362.8	$ 302.0	$ 272.7	20.1%	10.7%
SG&A as a % of net sales	*12.8%*	*14.1%*	*14.8%*		

2021 compared to 2020

Consolidated SG&A costs increased by $60.8 million, or 20.1%, in 2021, including an unfavorable foreign currency translation impact of $2.6 million.

Proprietary Products – Proprietary Products SG&A costs increased by $47.3 million, or 23.9%, in 2021, primarily due to an increase in compensation costs and increased headcount costs, increase in professional services and legal services, partially offset by a reduction in travel expenses.

Contract-Manufactured Products – Contract-Manufactured Products SG&A costs increased by $0.4 million, or 2.6%, in 2021, due to an increase in compensation costs.

Corporate and unallocated items – Corporate SG&A costs increased by $13.1 million, or 14.7%, in 2021, primarily due to increases in compensation costs and stock-based compensation costs.

2020 compared to 2019

Consolidated SG&A costs increased by $29.3 million, or 10.7%, in 2020 with no foreign currency translation impact.

Proprietary Products – Proprietary Products SG&A costs increased by $7.6 million, or 4.0%, in 2020, primarily due to an increase in compensation costs, partially offset by a reduction in travel expenses and incremental costs incurred in 2019 associated with our voluntary recall.

Contract-Manufactured Products – Contract-Manufactured Products SG&A costs decreased by $0.7 million, or 4.3%, in 2020, due to a reduction in travel expenses.

Corporate and unallocated items – Corporate SG&A costs increased by $22.4 million, or 33.6%, in 2020, primarily due to increases in stock-based compensation costs, incentive compensation costs and an increase in consulting service costs.

Other Expense (Income)

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

	Year Ended December 31,		
($ in millions)	2021	2020	2019
Proprietary Products	$ 0.2	$ 3.3	$ (2.0)
Contract-Manufactured Products	0.7	1.5	0.2
Corporate and unallocated items	7.0	7.2	(0.7)
Consolidated other expense (income)	$ 7.9	$ 12.0	$ (2.5)

Other expense and income 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.

2021 compared to 2020

Consolidated other expense (income) decreased by $4.1 million in 2021.

Proprietary Products – Proprietary Products other expense (income) decreased by $3.1 million in 2021 as compared to 2020, primarily due to a decrease in the fixed asset impairments recorded.

Contract-Manufactured Products – Contract-Manufactured Products other expense (income) decreased by $0.8 million in 2021 as compared to 2020, primarily due to a reduction in the foreign currency exchange transaction loss.

Corporate and unallocated items – Corporate and unallocated items decreased by $0.2 million in 2021 as compared to 2020. During 2021, we recorded $2.2 million in restructuring and related charges and $4.6 million in impairment charges related to our cost investments. During 2020, we recorded $4.6 million in restructuring and related charges and a $2.5 million impairment charge related to a cost investment.

2020 compared to 2019

Consolidated other expense (income) changed by $14.5 million in 2020.

Proprietary Products – Proprietary Products other expense (income) changed by $5.3 million in 2020, primarily due to an increase in the fixed asset impairments recorded, partially offset by a decrease in the SmartDose contingent consideration charge. Please refer to Note 12, Fair Value Measurements, for further discussion of this item.

Contract-Manufactured Products – Contract-Manufactured Products other expense (income) changed by $1.3 million in 2020 as compared to 2019, primarily due to an increase in foreign exchange transaction losses.

Corporate and unallocated items – Corporate and unallocated items changed by $7.9 million in 2020. During 2020, we recorded $4.6 million in restructuring and related charges and a $2.5 million impairment charge related to a cost investment. In 2019, offsetting the $4.9 million restructuring and related charge and $1.0 million charge as a result of the continued devaluation of Argentina's currency, the Company recorded a $1.9 million gain on the sale of fixed assets as a result of our 2018 restructuring plan and recognized a tax recovery of $4.7 million related to previously-paid international excise taxes, following a favorable court ruling.

Operating Profit

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

	Year Ended December 31,			% Change	
($ in millions)	2021	2020	2019	2021/2020	2020/2019
Proprietary Products	$ 796.1	$ 434.5	$ 313.6	83.2%	38.6%
Contract-Manufactured Products	67.2	68.6	49.1	(2.0)%	39.7%
Corporate	(100.9)	(86.1)	(66.3)	17.2%	29.9%
Adjusted consolidated operating profit	$ 762.4	$ 417.0	$ 296.4	82.8%	40.7%
Adjusted consolidated operating profit margin	26.9%	19.4%	16.1%		
Unallocated items	(10.1)	(10.1)	0.2		
Consolidated operating profit	$ 752.3	$ 406.9	$ 296.6	84.9%	37.2%
Consolidated operating profit margin	26.6%	19.0%	16.1%		

2021 compared to 2020

Consolidated operating profit increased by $345.4 million, or 84.9%, in 2021, including a favorable foreign currency translation impact of $16.4 million.

Proprietary Products – Proprietary Products operating profit increased by $361.6 million, or 83.2%, in 2021, including a favorable foreign currency translation impact of $15.3 million, due to the factors described above, most notably the sales increase in our high-value product offerings, inclusive of COVID-19 related activity.

Contract-Manufactured Products – Contract-Manufactured Products operating profit decreased by $1.4 million, or 2.0%, in 2021, including a favorable foreign currency translation impact of $1.1 million, due to the factors described above, most notably due an unfavorable mix of products sold and timing of the pass-through of raw material price increases to customers.

Corporate – Corporate costs increased by $14.8 million, or 17.2%, in 2021, which decreased operating profit, due to the factors described above most notably an increase in stock-based compensation costs and incentive compensation costs.

Unallocated items – Please refer to the Financial Performance Summary section above for details.

Excluding the unallocated items, our adjusted consolidated operating profit margin increased by 7.5 margin points in 2021.

2020 compared to 2019

Consolidated operating profit increased by $110.3 million, or 37.2%, in 2020, including a favorable foreign currency translation impact of $0.8 million.

Proprietary Products – Proprietary Products operating profit increased by $120.9 million, or 38.6%, in 2020, including a favorable foreign currency translation impact of $0.2 million, due to the factors described above, most notably the sales increase in our high-value product offerings, inclusive of COVID-19 related activity.

Contract-Manufactured Products – Contract-Manufactured Products operating profit increased by $19.5 million, or 39.7%, in 2020, including a favorable foreign currency translation impact of $0.6 million, due to the factors described above, most notably the sales increase in our products with a more favorable gross profit margin.

Corporate – Corporate costs increased by $19.8 million, or 29.9%, in 2020, which decreased operating profit, due to the factors described above most notably an increase in stock-based compensation costs and incentive compensation costs.

Unallocated items – Please refer to the Financial Performance Summary section above for details.

Excluding the unallocated items, our adjusted consolidated operating profit margin increased by 3.3 margin points in 2020.

Interest Expense, Net

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

	Year Ended December 31,			% Change	
($ in millions)	2021	2020	2019	2021/2020	2020/2019
Interest expense	$ 10.2	$ 9.6	$ 9.4	6.3%	2.1%
Capitalized interest	(2.0)	(1.4)	(0.9)	42.9%	55.6%
Interest income	(1.0)	(1.4)	(3.8)	(28.6)%	(63.2)%
Interest expense, net	$ 7.2	$ 6.8	$ 4.7	5.9%	44.7%

2021 compared to 2020

Interest expense, net, increased by $0.4 million, or 5.9%, in 2021, due to an increase in other bank fees and a decrease in interest income in 2021 resulting from lower interest rates compared to the prior year, partially offset by an increase in capitalized interest due to an increase in capital expenditures in 2021.

2020 compared to 2019

Interest expense, net, increased by $2.1 million, or 44.7%, in 2020, due to a decrease in interest income in 2020 resulting from lower interest rates compared to the prior year, partially offset by an increase in capitalized interest due to an increase in capital expenditures in 2020.

Other Nonoperating (Income) Expense

2021 compared to 2020

Other nonoperating (income) expense changed by $2.6 million in 2021, primarily due to a reduction in the pension settlement charge and by a decrease in U.S. pension interest cost. In both 2021 and 2020, we determined that normal-course lump-sum payments for our U.S. qualified, and non-qualified in 2020, defined benefit pension plan exceeded the threshold for settlement accounting under U.S. GAAP for the year.

2020 compared to 2019

Other nonoperating (income) expense changed by $1.3 million in 2020, primarily due to a decrease in the interest cost component of our net periodic benefit expense, partially offset by an increase in pension settlement charges. A pension settlement charge of $3.7 million was recorded in 2020, as we determined that normal-course lump-sum payments for each of our U.S. qualified and non-qualified defined benefit pension plans exceeded the threshold for settlement accounting under U.S. GAAP for the year.

Income Taxes

The provision for income taxes was $107.2 million, $72.5 million, and $59.0 million for the years 2021, 2020, and 2019, respectively, and the effective tax rate was 14.3%, 18.1%, and 20.2%, respectively.

During 2021, we recorded a tax benefit of $31.5 million associated with stock-based compensation, an increase from the tax benefit of $20.8 million associated with stock-based compensation in 2020, and a tax benefit of $18.5 million for prepayment of future royalties from one of our subsidiaries, which both contributed to the effective tax rate decline from 18.1% in 2020 to 14.3% in 2021.

During 2020, we recorded a tax benefit of $20.8 million associated with stock-based compensation and incurred less tax on international operations versus the prior year.

During 2019, we recorded a net tax benefit of $0.3 million due to the impact of federal law changes enacted during the year, as well as a tax benefit of $10.3 million associated with stock-based compensation.

Please refer to Note 17, *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 49% ownership interest in Daikyo, which increased from 25% during the fourth quarter of 2019, and our 49% ownership interest in four companies majority-owned by a long-time partner located in Mexico. Please refer to Note 7, *Affiliated Companies*, for further discussion. Equity in net income of affiliated companies was $20.1 million, $17.4 million, and $8.9 million for the years 2021, 2020, and 2019, respectively. Equity in net income of affiliated companies increased by $2.7 million, or 15.5%, in 2021, primarily due to favorable operating results at Daikyo. Equity in net income of affiliated companies increased by $8.5 million, or 95.5%, in 2020, primarily due to favorable operating results at Daikyo and the increased ownership of Daikyo starting in the fourth quarter of 2019.

FINANCIAL CONDITION, LIQUIDITY AND CAPITAL RESOURCES

Cash Flows

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

($ in millions)	2021	2020	2019
Net cash provided by operating activities	$ 584.0	$ 472.5	$ 367.2
Net cash used in investing activities	$ (253.1)	$ (179.5)	$ (228.0)
Net cash used in financing activities	$ (168.1)	$ (137.1)	$ (36.8)

Net Cash Provided by Operating Activities

2021 compared to 2020

Net cash provided by operating activities increased by $111.5 million in 2021, primarily due to improved operating results, offset by increases in working capital and timing of tax payments in 2021.

2020 compared to 2019

Net cash provided by operating activities increased by $105.3 million in 2020, primarily due to improved operating results and changes in assets and liabilities.

Net Cash Used in Investing Activities

2021 compared to 2020

Net cash used in investing activities increased by $73.6 million in 2021, primarily due to increases in capital expenditures in 2021 to meet customer demand.

2020 compared to 2019

Net cash used in investing activities decreased by $48.5 million in 2020, primarily due to 2019 investing activities that did not recur in 2020, such as our increase in Daikyo ownership and the acquisition of our South Korea distributor in 2019. These reductions in investing activities were offset in 2020 by an increase in capital expenditures to support our increased customer demands.

Net Cash Used in Financing Activities

2021 compared to 2020

Net cash used in financing activities increased by $31.0 million in 2021, primarily due to an increase in purchases under our share repurchases program.

2020 compared to 2019

Net cash used in financing activities increased by $100.3 million in 2020, primarily due to an increase in purchases under our share repurchases program and given 2019 included new long-term borrowings while no such new borrowings occurred in 2020.

Liquidity and Capital Resources

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

($ in millions)	December 31, 2021	December 31, 2020
Cash and cash equivalents	$ 762.6	$ 615.5
Accounts receivable, net	$ 489.0	$ 385.3
Inventories	$ 378.4	$ 321.3
Accounts payable	$ 232.2	$ 213.1
Debt	$ 253.0	$ 255.2
Equity	$ 2,335.4	$ 1,854.5
Working capital	$ 1,147.9	$ 870.3

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.

Cash and cash equivalents – Our cash and cash equivalents balance at December 31, 2021 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, 2021 included $422.0 million of cash held by subsidiaries within the U.S. and $340.6 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 $635.3 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, 2021 increased by $277.6 million, or 31.9%, as compared to December 31, 2020, which includes an unfavorable foreign currency translation impact of $13.3 million. Excluding the impact of currency exchange rates, cash and cash equivalents, accounts receivable, inventories, and total current liabilities increased by $162.6 million, $121.0 million, $69.3 million, and $108.0 million, respectively. The increase in accounts receivable was due to increased sales activity. The increase in inventories that occurred in the period was to ensure we have sufficient inventory on hand to support the needs of our customers. The increase in total current liabilities was primarily due to increases in current debt, accounts payable, accrued salaries, wages and benefits, accrued expenses, and accrued rebates.

Debt and credit facilities - The $2.2 million decrease in total debt at December 31, 2021, as compared to December 31, 2020, resulted from debt repayments under our Term Loan.

Our sources of liquidity include our Credit Facility. At December 31, 2021, we had no outstanding borrowings under the Credit Facility. At December 31, 2021, the borrowing capacity available under the Credit Facility, including outstanding letters of credit of $2.4 million, was $297.6 million. We do not expect any significant limitations on our ability to access this source of funds. Please refer to Note 10, *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, 2021, 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 2022.

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 to continue to meet customer demand.

Commitments and Contractual Obligations

Contractual obligations associated with ongoing business activities are expected to result in cash payments in future periods, and include the following material items:

- Our business creates a need to enter into various commitments with suppliers, including for the purchase of raw materials and finished goods. In accordance with U.S. GAAP, these purchase obligations are not reflected in the accompanying consolidated balance sheets. At December 31, 2021, our outstanding unconditional contractual commitments, including for the purchase of raw materials and finished goods, amounted to $93.6 million, of which $48.3 million is due to be paid in 2022. These purchase commitments do not exceed our projected requirements and are in the normal course of business. The Company previously entered into a material supply agreement for butyl polymers used as a principal raw material in a broad range of the Company's polymer-based pharmaceutical packaging products.

- Our long-term debt obligations, net of unamortized debt issuance costs including fixed and variable-rate debt further discussed in Note 10, *Debt*.

- Our operating leases obligations primarily related to land, buildings, and machinery and equipment, with lease terms through 2047 further discussed in Note 6, *Leases*.

CRITICAL ACCOUNTING 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:

Impairment of Long-Lived Assets: Long-lived assets, including property, plant and equipment and operating lease right-of-use assets, are tested for impairment whenever circumstances, such as a deterioration in general macroeconomic conditions or a change in company strategy, increased competition, declining product demand, plans to dispose of an asset or asset group, or recent financial or legal factors that could impact the expected cash flows, indicate that the carrying value of these assets may not be recoverable. An asset is considered impaired if the carrying value of the asset exceeds the sum of the future expected undiscounted cash flows to be derived from the asset. Impairment reviews are based on an estimated future cash flow approach that requires significant judgment with respect to future revenue and expense growth rates, selection of appropriate discount rate, asset groupings, and other assumptions and estimates. The Company uses estimates that are consistent with its business plans and a market participant view of the assets being evaluated. Once an asset is considered impaired, an impairment loss is recorded within other expense (income) for the difference between the asset's carrying value and its fair value. For assets held and used in the business, management determines fair value using estimated future cash flows to be derived from the asset, discounted to a net present value using an appropriate discount rate. For assets held for sale or for investment purposes, management determines fair value by estimating the proceeds to be received upon sale of the asset, less disposition costs.

Impairment of Goodwill and Other Intangible Assets: Goodwill is tested for impairment at least annually, following the completion of our annual budget and long-range planning process, or whenever circumstances indicate that the carrying value of these assets may not be recoverable. Goodwill is tested for impairment at the reporting unit level, which is the same as, or one level below, our operating segments. A goodwill impairment charge represents the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the total amount of goodwill allocated to that reporting unit. Considerable management judgment is necessary to estimate fair value. Amounts and assumptions used in our goodwill impairment test, such as future sales, future cash flows and long-term growth rates, are consistent with internal projections and operating plans. Amounts and assumptions used in our goodwill impairment test are also largely dependent on the continued sale of drug products delivered by injection and the packaging of drug products, as well as our timeliness and success in new-product innovation or the development and commercialization of proprietary multi-component systems. Changes in the estimate of fair value, including the estimate of future cash flows, could have a material impact on our future results of operations and financial position. Accounting guidance also allows entities to first assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, and overall financial performance, to determine whether it is necessary to perform the quantitative goodwill impairment test. We elected to follow this guidance for our annual impairment test. Based upon our assessment, we determined that it was not more likely than not that the fair value of each of our reporting units was less than its carrying amount and determined that it was not necessary to perform the quantitative goodwill impairment test.

Intangible assets with finite lives are amortized using the straight-line method over their estimated useful lives, and reviewed for impairment whenever circumstances indicate that the carrying value of these assets may not be recoverable.

Employee Benefits: We maintain funded and unfunded defined benefit pension plans in the U.S. and a number of other countries that cover employees who meet eligibility requirements. In addition, we sponsor postretirement benefit plans which provide healthcare benefits for eligible employees who retire or become disabled. Postretirement benefit plans are limited to only those active employees who met the eligibility requirements as of January 1, 2017. The measurement of annual cost and obligations under these defined benefit pension and postretirement plans are subject to a number of assumptions, which are specific for each of our U.S. and foreign plans. The assumptions, which are reviewed at least annually, are relevant to both the plan assets (where applicable) and the obligation for benefits that will ultimately be provided to our employees. Two of the most critical assumptions in determining pension expense are the discount rate and expected long-term rate of return on plan assets. Other assumptions reflect demographic factors such as retirement age, rates of compensation increases, mortality and turnover, and are evaluated periodically and updated to reflect our actual experience. For our funded plans, we consider the current and expected asset allocations of our plan assets, as well as historical and expected rates of return, in estimating the long-term rate of return on plan assets. One of the most critical assumptions in determining retiree mental plan expense is the discount rate. Under U.S. GAAP, differences between actual and expected results are generally accumulated in other comprehensive income (loss) as actuarial gains or losses and subsequently amortized into earnings over future periods.

Changes in key assumptions could have a material impact on our future results of operations and financial position. We estimate that every 25-basis point reduction in our long-term rate of return assumption would increase pension expense by $0.7 million, and every 25-basis point reduction in our discount rate would decrease pension expense by $0.0 million. A decrease in the discount rate increases the present value of benefit obligations. Our net pension underfunded balance at December 31, 2021 was $20.6 million, compared to $40.8 million at December 31, 2020. Our underfunded balance for other postretirement benefits was $5.6 million at December 31, 2021, compared to $6.1 million at December 31, 2020.

Income Taxes: We estimate income taxes payable based upon current domestic and international tax legislation. In addition, deferred income taxes are recognized by applying enacted statutory tax rates to tax loss carryforwards and temporary differences between the tax basis and financial statement carrying values of our assets and liabilities. The enacted statutory tax rate applied is based on the rate expected to be applicable at the time of the forecasted utilization of the loss carryforward or reversal of the temporary difference. Valuation allowances on deferred tax assets are established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. The realizability of deferred tax assets is subject to our estimates of future taxable income, generally at the respective subsidiary company and country level. Changes in tax legislation, business plans and other factors may affect the ultimate recoverability of tax assets or final tax payments, which could result in adjustments to tax expense in the period such change is determined.

When accounting for uncertainty in income taxes recognized in our financial statements, we apply a more-likely-than-not threshold for financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return.

Please refer to Note 1, *Basis of Presentation and Summary of Significant Accounting Policies* and Note 2, *New Accounting Standards*, to our consolidated financial statements for additional information on our significant accounting policies and accounting standards issued but not yet adopted.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Our ongoing business operations expose us to various risks, such as fluctuating interest rates, foreign currency exchange rates and increasing commodity prices. These risk factors can impact our results of operations, cash flows and financial position. To manage these market risks, we periodically enter into derivative financial instruments, such as interest rate swaps, options and foreign exchange contracts for periods consistent with, and for notional amounts equal to or less than, the related underlying exposures. We do not purchase or hold any derivative financial instruments for investment or trading purposes. All derivatives are recorded in our consolidated balance sheet at fair value.

Foreign Currency Exchange Risk

Sales outside of the U.S. accounted for 57.7% of our consolidated net sales in 2021. Virtually all of these sales and related operating costs are denominated in the currency of the local country and translated into USD for consolidated reporting purposes. Although the majority of the assets and liabilities of these subsidiaries are denominated in the functional currency of the subsidiary, they may also hold assets or liabilities denominated in other currencies. These items may give rise to foreign currency transaction gains and losses. As a result, our results of operations and financial position are exposed to changing currency exchange rates. We periodically use forward exchange contracts to hedge certain transactions or to manage month-end balance sheet exposures on cross-currency intercompany loans.

We have entered into forward exchange contracts, designated as fair value hedges, to manage our exposure to fluctuating foreign exchange rates on cross-currency intercompany loans. As of December 31, 2021 and December 31, 2020, the total amount of these forward exchange contracts were $13.4 million and SGD 601.5 million.

In addition, we have entered into several foreign currency contracts, designated as cash flow hedges, for periods of up to eighteen months, intended to hedge the currency risk associated with a portion of our forecasted transactions denominated in foreign currencies. As of December 31, 2021, we had outstanding foreign currency contracts to purchase and sell certain pairs of currencies, as follows:

(in millions)		Sell	
Currency	**Purchase**	**USD**	**EUR**
USD	18.1	—	15.1
JPY	7,510.0	28.4	33.8
SGD	17.9	11.3	1.7

In November and December 2019, in conjunction with the repayment of the outstanding long-term borrowings under our Credit Facility denominated in Euro and Japanese Yen, we de-designated these borrowings as hedges of our net investments in certain European subsidiaries and Daikyo. The amounts recorded as a cumulative translation adjustment in accumulated other comprehensive loss related to these borrowings (prior to de-designation) will remain in accumulated other comprehensive loss indefinitely, unless certain future events occur, such as the disposition of the operations for which the net investment hedges relate.

In December 2019, we entered into a five-year floating-to-floating forward-starting cross-currency swap (the “cross-currency swap”) for $90 million, which we designated as a hedge of our net investment in Daikyo. The notional amount of the cross-currency swap is ¥9.4 billion ($85.5 million) as of December 31, 2021. Under the cross-currency swap, we receive floating interest rate payments based on three-month USD LIBOR plus a margin, in return for paying floating interest rate payments based on three-month Japanese Yen LIBOR or successor rate plus a margin.

Interest Rate Risk

As a result of our normal borrowing activities, we have long-term debt with both fixed and variable interest rates. Long-term debt consists of our Term Loan and Series A, B and C notes.

The following table summarizes our interest rate risk-sensitive instruments:

($ in millions)	2022	2023	2024	2025	2026	Thereafter	Carrying Value	Fair Value
Current Debt:								
U.S. dollar denominated	$42.0						$42.0	$42.5
Average interest rate - fixed	3.67%							
U.S. dollar denominated	$2.2						$2.2	$2.2
Average interest rate - variable	1.10%							
Long-Term Debt:								
U.S. dollar denominated			$53.0			$73.0	$126.0	$134.5
Average interest rate - fixed			3.82%			4.02%		
U.S. dollar denominated		$2.3	$81.0				$83.3	$83.3
Average interest rate - variable		1.10%	1.10%					

Commodity Price Risk

Many of our proprietary products are made from synthetic elastomers, which are derived from the petroleum refining process. We purchase the majority of our elastomers via long-term supply contracts, some of which contain clauses that provide for surcharges related to fluctuations in crude oil prices. In recent years, raw material costs have fluctuated due to crude oil price fluctuations. We expect this volatility to continue and will continue to pursue pricing and hedging strategies, and ongoing cost control initiatives, to offset the effects on gross profit.

From November 2017 through December 2021, we purchased several series of call options for a total of 640,267 barrels of crude oil to mitigate our exposure to such oil-based surcharges and protect operating cash flows with regards to a portion of our forecasted elastomer purchases.

During 2021, the gain recorded in cost of goods and services sold related to these options was $1.7 million. During 2020, the loss recorded in cost of goods and services sold related to these options was $0.2 million.

As of December 31, 2021, we had outstanding contracts to purchase 188,242 barrels of crude oil from January 2022 to June 2023, at a weighted-average strike price of $74.16 per barrel.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

CONSOLIDATED STATEMENTS OF INCOME

West Pharmaceutical Services, Inc. and Subsidiaries for the years ended December 31, 2021, 2020 and 2019
(in millions, except per share data)

	2021	2020	2019
Net sales	$ 2,831.6	$ 2,146.9	$ 1,839.9
Cost of goods and services sold	1,655.8	1,379.1	1,234.2
Gross profit	1,175.8	767.8	605.7
Research and development	52.8	46.9	38.9
Selling, general and administrative expenses	362.8	302.0	272.7
Other expense (income) (Note 16)	7.9	12.0	(2.5)
Operating profit	752.3	406.9	296.6
Interest expense	8.2	8.2	8.5
Interest income	(1.0)	(1.4)	(3.8)
Other nonoperating (income) expense	(3.8)	(1.2)	0.1
Income before income taxes	748.9	401.3	291.8
Income tax expense	107.2	72.5	59.0
Equity in net income of affiliated companies	(20.1)	(17.4)	(8.9)
Net income	$ 661.8	$ 346.2	$ 241.7
Net income per share:			
Basic	$ 8.89	$ 4.68	$ 3.27
Diluted	$ 8.67	$ 4.57	$ 3.21
Weighted average shares outstanding:			
Basic	74.4	73.9	74.0
Diluted	76.3	75.8	75.4

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

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

West Pharmaceutical Services, Inc. and Subsidiaries for the years ended December 31, 2021, 2020 and 2019

(in millions)

	2021	2020	2019
Net income	$ 661.8	$ 346.2	$ 241.7
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustments	(59.3)	40.1	4.9
Defined benefit pension and other postretirement plans:			
Prior service cost arising during period, net of tax of $0.5	1.5	—	—
Net actuarial gain (loss) arising during period, net of tax of $2.1, $(0.7), and $(0.3)	5.9	(2.5)	(1.9)
Settlement effects arising during period, net of tax of $0.4, $0.9, and $0.8	1.4	2.9	2.7
Less: amortization of actuarial loss (gain), net of tax of $0.1, $0.0, and $0.0	0.1	(0.1)	(0.2)
Less: amortization of prior service credit, net of tax of $(0.1), $(0.1) and $(0.1).	(0.2)	(0.5)	(0.5)
Net gain (loss) on equity affiliate accumulated other comprehensive income, net of tax of $0.0, $0.0, and $0.0	0.9	0.2	—
Net gain (loss) on derivatives, net of tax of $0.5, $(0.6), and $(0.2)	0.7	(1.1)	(0.4)
Other comprehensive (loss) income, net of tax	(49.0)	39.0	4.6
Comprehensive income	$ 612.8	$ 385.2	$ 246.3

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

CONSOLIDATED BALANCE SHEETS
West Pharmaceutical Services, Inc. and Subsidiaries at December 31, 2021 and 2020

(in millions, except per share data)	2021	2020
ASSETS		
Current assets:		
Cash and cash equivalents	$ 762.6	$ 615.5
Accounts receivable, net	489.0	385.3
Inventories	378.4	321.3
Other current assets	112.0	51.6
Total current assets	1,742.0	1,373.7
Property, plant and equipment	2,215.0	2,035.5
Less: accumulated depreciation and amortization	1,157.5	1,092.3
Property, plant and equipment, net	1,057.5	943.2
Operating lease right-of-use assets	69.3	68.3
Investments in affiliated companies	207.7	214.7
Goodwill	109.9	111.1
Intangible assets, net	23.0	30.5
Deferred income taxes	48.5	16.0
Pension and other postretirement benefits	16.7	12.9
Other noncurrent assets	39.2	23.4
Total Assets	$ 3,313.8	$ 2,793.8
LIABILITIES AND EQUITY		
Current liabilities:		
Notes payable and other current debt	$ 44.2	$ 2.3
Accounts payable	232.2	213.1
Pension and other postretirement benefits	2.4	2.3
Accrued salaries, wages and benefits	116.3	106.0
Income taxes payable	26.3	26.0
Operating lease liabilities	9.3	10.1
Other current liabilities	163.4	143.6
Total current liabilities	594.1	503.4
Long-term debt	208.8	252.9
Deferred income taxes	4.9	10.4
Pension and other postretirement benefits	40.5	57.5
Operating lease liabilities	63.0	60.4
Deferred compensation benefits	28.9	22.9
Other long-term liabilities	38.2	31.8
Total Liabilities	978.4	939.3
Commitments and contingencies (Note 18)		
Equity:		
Preferred stock, 3.0 million shares authorized; 0.0 shares issued and outstanding in 2021 and 2020	—	—
Common stock, par value $0.25 per share; 200 million shares authorized; shares issued: 75.3 million in 2021 and 2020; shares outstanding: 74.2 million and 74.0 million in 2021 and 2020	18.8	18.8
Capital in excess of par value	249.0	267.3
Retained earnings	2,456.7	1,846.7
Accumulated other comprehensive loss	(159.6)	(110.6)
Treasury stock, at cost (1.1 million and 1.3 million shares in 2021 and 2020)	(229.5)	(167.7)
Total Equity	2,335.4	1,854.5
Total Liabilities and Equity	$ 3,313.8	$ 2,793.8

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

CONSOLIDATED STATEMENT OF EQUITY

West Pharmaceutical Services, Inc. and Subsidiaries for the years ended December 31, 2021, 2020 and 2019
(in millions)

	Common shares issued	Common stock	Capital in excess of par value	Number of treasury shares	Treasury stock	Retained earnings	Accumulated other comprehensive loss	Total
Balance, December 31, 2018	75.3	$ 18.8	$ 282.0	1.2	$ (103.7)	$ 1,353.4	$ (154.2)	$ 1,396.3
Net income	—	—	—	—	—	241.7	—	241.7
Activity related to stock-based compensation	—	—	(11.1)	(0.8)	65.6	—	—	54.5
Shares purchased under share repurchase program	—	—	—	0.8	(83.1)	—	—	(83.1)
Purchase of investment in affiliated companies	—	—	1.8	—	3.1	—	—	4.9
Dividends declared ($0.62 per share)	—	—	—	—	—	(45.7)	—	(45.7)
Other comprehensive income, net of tax	—	—	—	—	—	—	4.6	4.6
Balance, December 31, 2019	75.3	18.8	272.7	1.2	(118.1)	1,549.4	(149.6)	1,573.2
Effect of modified retrospective application of a new accounting standard	—	—	—	—	—	(0.1)	—	(0.1)
Net income	—	—	—	—	—	346.2	—	346.2
Activity related to stock-based compensation	—	—	(5.4)	(0.7)	65.9	—	—	60.5
Shares purchased under share repurchase program	—	—	—	0.8	(115.5)	—	—	(115.5)
Dividends declared ($0.66 per share)	—	—	—	—	—	(48.8)	—	(48.8)
Other comprehensive income, net of tax	—	—	—	—	—	—	39.0	39.0
Balance, December 31, 2020	75.3	18.8	267.3	1.3	(167.7)	1,846.7	(110.6)	1,854.5
Net income	—	—	—	—	—	661.8	—	661.8
Activity related to stock-based compensation	—	—	(18.3)	(0.7)	75.3	—	—	57.0
Shares purchased under share repurchase program	—	—	—	0.5	(137.1)	—	—	(137.1)
Dividends declared ($0.70 per share)	—	—	—	—	—	(51.8)	—	(51.8)
Other comprehensive loss, net of tax	—	—	—	—	—	—	(49.0)	(49.0)
Balance, December 31, 2021	75.3	$ 18.8	$ 249.0	1.1	$ (229.5)	$ 2,456.7	$ (159.6)	$ 2,335.4

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

West Pharmaceutical Services, Inc. and Subsidiaries for the years ended December 31, 2021, 2020 and 2019
(in millions)

	2021	2020	2019
Cash flows from operating activities:			
Net income	$ 661.8	$ 346.2	$ 241.7
Adjustments to reconcile net income to net cash provided by operating activities:			
Depreciation	116.9	104.7	100.0
Amortization	5.4	4.4	3.4
Stock-based compensation	37.5	34.0	24.4
Non-cash restructuring charges	—	—	2.3
Pension settlement charge	1.8	3.7	3.5
Contingent consideration payments in excess of acquisition-date liability	(1.4)	(0.9)	(0.5)
Fixed asset impairments and sale of equipment, net	1.3	7.7	0.8
Deferred income taxes	(42.9)	(5.8)	15.3
Pension and other retirement plans, net	14.8	4.6	(2.6)
Equity in undistributed earnings of affiliates, net of dividends	(17.4)	(15.8)	(6.7)
Changes in assets and liabilities:			
Increase in accounts receivable	(123.5)	(46.6)	(33.3)
Increase in inventories	(86.5)	(73.7)	(18.6)
(Increase) decrease in other current assets	(7.3)	5.5	2.6
Increase in accounts payable	16.8	36.6	25.3
Changes in other assets and liabilities	6.7	67.9	9.6
Net cash provided by operating activities	584.0	472.5	367.2
Cash flows from investing activities:			
Capital expenditures	(253.4)	(174.4)	(126.4)
Purchase of investment in affiliated companies	—	—	(85.1)
Acquisition of business	(2.2)	—	(18.9)
Other, net	2.5	(5.1)	2.4
Net cash used in investing activities	(253.1)	(179.5)	(228.0)
Cash flows from financing activities:			
Borrowings under revolving credit agreements	—	—	108.5
Repayments under revolving credit agreements	—	—	(136.3)
Issuance of long-term debt	—	—	90.0
Debt issuance cost	—	—	(1.2)
Repayments of long-term debt	(2.2)	(2.3)	(0.1)
Dividend payments	(51.1)	(48.1)	(45.1)
Proceeds from stock-based compensation awards	29.4	28.3	27.3
Employee stock purchase plan contributions	7.7	6.4	5.4
Shares purchased under share repurchase programs	(137.1)	(115.5)	(83.1)
Shares repurchased for employee tax withholdings	(14.8)	(5.9)	(2.2)
Net cash used in financing activities	(168.1)	(137.1)	(36.8)
Effect of exchange rates on cash	(15.7)	20.5	(0.7)
Net increase in cash and cash equivalents	147.1	176.4	101.7
Cash, including cash equivalents at beginning of period	615.5	439.1	337.4
Cash, including cash equivalents at end of period	$ 762.6	$ 615.5	$ 439.1
Supplemental cash flow information:			
Interest paid, net of amounts capitalized	$ 8.0	$ 8.1	$ 8.6
Income taxes paid, net	$ 171.8	$ 48.4	$ 47.5
Accrued capital expenditures	$ 41.1	$ 31.3	$ 17.0
Dividends declared, not paid	$ 13.4	$ 12.6	$ 11.8
Purchase of investment in affiliated companies, treasury stock	$ —	$ —	$ 4.9

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

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1: Basis of Presentation and Summary of Significant Accounting Policies

Principles of Consolidation: The consolidated financial statements include the accounts of West after the elimination of intercompany transactions. We have no participation or other rights in variable interest entities.

In April 2019, we acquired the business of our distributor in South Korea for $18.9 million. As a result of the acquisition, we recorded inventories, property, plant and equipment, goodwill and a customer relationships intangible asset of $4.5 million, $0.6 million, $2.6 million and $11.2 million, respectively. The goodwill was recorded within our Proprietary Products reportable segment. The results of this acquisition have been included in our consolidated financial statements since the acquisition date.

West has been actively monitoring the coronavirus ("COVID-19") situation and its impact globally. Our production facilities continued to operate during the year as they had prior to the COVID-19 pandemic, other than for enhanced safety measures intended to prevent the spread of the virus and higher levels of production at certain plant locations to meet additional customer demand. The remote working arrangements and travel restrictions imposed by various governments had limited impact on our ability to maintain operations during the year, as our manufacturing operations have generally been exempted from stay-at-home orders.

Use of Estimates: The financial statements are prepared in conformity with U.S. GAAP. These principles require management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses and the disclosure of contingencies in the financial statements. Actual amounts realized may differ from these estimates.

Cash and Cash Equivalents: Cash equivalents include time deposits, certificates of deposit and all highly liquid short-term instruments with maturities of three months or less at the time of purchase.

Accounts Receivable: Our accounts receivable balance was net of an allowance for doubtful accounts of $0.4 million and $1.1 million at December 31, 2021 and 2020, respectively. Under the current expected credit loss model, we have adopted a provision matrix approach, utilizing historical loss rates based on the number of days past due, adjusted to reflect current economic conditions and forecasts of future economic conditions.

Inventories: Inventories are valued at the lower of cost (on a first-in, first-out basis) and net realizable value. The following is a summary of inventories at December 31:

($ in millions)	2021	2020
Raw materials	$ 153.8	$ 133.5
Work in process	63.5	54.9
Finished goods	161.1	132.9
	$ 378.4	$ 321.3

Property, Plant and Equipment: Property, plant and equipment assets are carried at cost. Maintenance and minor repairs and renewals are charged to expense as incurred. Costs incurred for computer software developed or obtained for internal use are capitalized for application development activities and immediately expensed for preliminary project activities or post-implementation activities. Upon sale or retirement of depreciable assets, costs and related accumulated depreciation are eliminated, and gains or losses are recognized in other expense (income). Depreciation and amortization are computed principally using the straight-line method over the estimated useful lives of the assets, or the remaining term of the lease, if shorter.

Leases: Operating lease right-of-use assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred less any lease incentives received. Operating lease right-of-use assets are subsequently measured throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. Lease expense for lease payments is recognized on a straight-line basis over the lease term. Operating lease liabilities are initially measured at the present value of the unpaid lease payments at the lease commencement date. We had no finance leases as of December 31, 2021. Please refer to Note 6, *Leases*, for additional information.

Impairment of Long-Lived Assets: Long-lived assets, including property, plant and equipment and operating lease right-of-use assets, are tested for impairment whenever circumstances indicate that the carrying value of these assets may not be recoverable. An asset is considered impaired if the carrying value of the asset exceeds the sum of the future expected undiscounted cash flows to be derived from the asset. Once an asset is considered impaired, an impairment loss is recorded within other expense (income) for the difference between the asset's carrying value and its fair value. For assets held and used in the business, management determines fair value using estimated future cash flows to be derived from the asset, discounted to a net present value using an appropriate discount rate.

For assets held for sale or for investment purposes, management determines fair value by estimating the proceeds to be received upon sale of the asset, less disposition costs.

Impairment of Goodwill and Other Intangible Assets: Goodwill is tested for impairment at least annually, following the completion of our annual budget and long-range planning process, or whenever circumstances indicate that the carrying value of these assets may not be recoverable. Goodwill is tested for impairment at the reporting unit level, which is the same as, or one level below, our operating segments. A goodwill impairment charge represents the amount by which a reporting unit's carrying amount exceeds its fair value, not to exceed the total amount of goodwill allocated to that reporting unit. Accounting guidance also allows entities to first assess qualitative factors, including macroeconomic conditions, industry and market considerations, cost factors, and overall financial performance, to determine whether it is necessary to perform the quantitative goodwill impairment test. We elected to follow this guidance for our annual impairment test. Based upon our assessment, we determined that it was not more likely than not that the fair value of each of our reporting units was less than its carrying amount and determined that it was not necessary to perform the quantitative goodwill impairment test.

Intangible assets with finite lives are amortized using the straight-line method over their estimated useful lives of 3 to 25 years, and reviewed for impairment whenever circumstances indicate that the carrying value of these assets may not be recoverable.

Employee Benefits: The measurement of the obligations under our defined benefit pension and postretirement medical plans are subject to a number of assumptions. These include the rate of return on plan assets (for funded plans) and the rate at which the future obligations are discounted to present value. For our funded plans, we consider the current and expected asset allocations of our plan assets, as well as historical and expected rates of return, in estimating the long-term rate of return on plan assets. U.S. GAAP requires the recognition of an asset or liability for the funded status of a defined benefit postretirement plan, as measured by the difference between the fair value of plan assets, if any, and the benefit obligation. For a pension plan, the benefit obligation is the projected benefit obligation; for any other postretirement plan, such as a retiree health plan, the benefit obligation is the accumulated postretirement benefit obligation. Please refer to Note 15, *Benefit Plans*, for a more detailed discussion of our pension and other retirement plans.

Financial Instruments: All derivatives are recognized as either assets or liabilities in the balance sheet and recorded at their fair value. For a derivative designated as hedging the exposure to variable cash flows of a forecasted transaction (referred to as a cash flow hedge), the effective portion of the derivative's gain or loss is initially reported as a component of other comprehensive income ("OCI"), net of tax, and subsequently reclassified into earnings when the forecasted transaction affects earnings. For a derivative designated as hedging the exposure to changes in the fair value of a recognized asset or liability or a firm commitment (referred to as a fair value hedge), the derivative's gain or loss is recognized in earnings in the period of change together with the offsetting loss or gain on the hedged item. For a derivative designated as hedging the foreign currency exposure of a net investment in a foreign operation, the gain or loss is reported in OCI, net of tax, as part of the cumulative translation adjustment. The ineffective portion of any derivative used in a hedging transaction is recognized immediately into earnings. Derivative financial instruments that are not designated as hedges are also recorded at fair value, with the change in fair value recognized immediately into earnings. We do not purchase or hold any derivative financial instrument for investment or trading purposes.

Foreign Currency Translation: Foreign currency transaction gains and losses are recognized in the determination of net income. Foreign currency translation adjustments of subsidiaries and affiliates operating outside of the U.S. are accumulated in other comprehensive loss, a separate component of equity.

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") 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 have elected to disregard the effects of a significant financing component, as we expect, at the inception of our contracts, that the period between when we transfer a promised good or service to the customer and when the customer pays for that good or service will be one year or less. In addition, we have elected to omit the disclosure of the majority of our remaining performance obligations, which are satisfied within one year or less. Please refer to Note 3, *Revenue*, for additional information.

Shipping and Handling Costs: Shipping and handling costs are included in cost of goods and services sold. Shipping and handling costs billed to customers in connection with the sale are included in net sales.

Research and Development: Research and development expenditures are for the creation, engineering and application of new or improved products and processes. Expenditures include primarily salaries and outside services for those directly involved in research and development activities and are primarily expensed as incurred.

Environmental Remediation and Compliance Costs: Environmental remediation costs are accrued when such costs are probable and reasonable estimates are determinable. Cost estimates include investigation, cleanup and monitoring activities; such estimates are adjusted, if necessary, based on additional findings. Environmental compliance costs are expensed as incurred as part of normal operations.

Litigation: From time to time, we are involved in legal proceedings, investigations and claims generally incidental to our normal business activities. In accordance with U.S. GAAP, we accrue for loss contingencies when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. These estimates are based on an analysis made by internal and external legal counsel considering information known at the time. Legal costs in connection with loss contingencies are expensed as incurred.

Income Taxes: Deferred income taxes are recognized by applying enacted statutory tax rates to tax loss carryforwards and temporary differences between the tax basis and financial statement carrying values of our assets and liabilities. The enacted statutory tax rate applied is based on the rate expected to be applicable at the time of the forecasted utilization of the loss carryforward or reversal of the temporary difference. Valuation allowances on deferred tax assets are established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. The realizability of deferred tax assets is subject to our estimates of future taxable income, generally at the respective subsidiary company and the country level. Please refer to Note 17, *Income Taxes*, for additional information. We recognize interest costs related to income taxes in interest expense and penalties within other expense (income). The tax law ordering approach is used for purposes of determining whether an excess tax benefit has been realized during the year.

Stock-Based Compensation: Under the fair value provisions of U.S. GAAP, stock-based compensation cost is measured at the grant date based on the value of the award and is recognized as expense over the vesting period. In order to determine the fair value of stock options on the grant date, we use the Black-Scholes valuation model. Please refer to Note 14, *Stock-Based Compensation*, for a more detailed discussion of our stock-based compensation plans.

Net Income Per Share: Basic net income per share is computed by dividing net income attributable to common shareholders by the weighted average number of shares of common stock outstanding during each period. Net income per share assuming dilution considers the dilutive effect of outstanding stock options and other stock awards based on the treasury stock method. The treasury stock method assumes the use of exercise proceeds to repurchase common stock at the average fair market value in the period.

Note 2: New Accounting Standards

Standards Issued Not Yet Adopted

In March 2020, the Financial Accounting Standards Board ("FASB") issued guidance which provides optional expedients and exceptions to address the impact of reference rate reform where contracts, hedging relationships and other transactions that reference the London Interbank Offered Rate ("LIBOR") or another reference rate need to be discontinued. This guidance was effective upon issuance and generally can be applied through December 31, 2022. We have identified the contracts impacted by reference rate reform, and have executed certain amendments to replace the use of LIBOR. We are currently working with counterparties to identify alternative reference rates to be used in any remaining contracts that have not yet been amended. The Company does not expect such adoption to cause a material impact to the consolidated financial statements.

In November 2021, the FASB issued guidance that seeks to improve the transparency of financial disclosures for government assistance received by business entities. The amendment requires disclosures for transactions with a government accounted for by applying a grant or contribution accounting model by analogy, including (1) the types of transactions, (2) the accounting for those transactions, and (3) the effect of those transactions on an entity’s financial statements. This guidance is effective for fiscal years beginning after December 15, 2021. We are currently evaluating the impact of this guidance on our financial statements and disclosures. The Company does not expect such adoption to cause a material impact to the consolidated financial statements.

Note 3: Revenue

Revenue Recognition

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, 2021, there was $3.9 million of unearned income related to this payment, of which $0.9 million was included in other current liabilities and $3.0 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 and specific identification of customer claims.

The following table presents the approximate percentage of our net sales by market group:

	2021	2020	2019
Biologics	41%	31%	25%
Generics	17%	20%	20%
Pharma	24%	26%	31%
Contract-Manufactured Products	18%	23%	24%
	100%	100%	100%

The following table presents the approximate percentage of our net sales by product category:

	2021	2020	2019
High-Value Product Components	54%	46%	42%
High-Value Product Delivery Devices	5%	5%	5%
Standard Packaging	23%	26%	29%
Contract-Manufactured Products	18%	23%	24%
	100%	100%	100%

The following table presents the approximate percentage of our net sales by geographic location:

	2021	2020	2019
Americas	45%	48%	48%
Europe, Middle East, Africa	45%	43%	44%
Asia Pacific	10%	9%	8%
	100%	100%	100%

Contract Assets and Liabilities

Contract assets and liabilities result from transactions with revenue primarily 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 performance obligations of our development and tooling agreements. Conversely, if the measure of the remaining performance obligations exceeds the measure of the remaining rights, we record a contract liability. Contract liabilities are recorded on the consolidated balance sheet within other liabilities (current and noncurrent portions, respectively) and represent cash payments received in advance of our performance.

The following table summarizes our contract assets and liabilities, excluding amounts included in accounts receivable, net:

	($ in millions)
Contract assets, December 31, 2020	$ 10.9
Contract assets, December 31, 2021	14.6
Change in contract assets - increase (decrease)	$ 3.7
Deferred income, December 31, 2020	$ (57.1)
Deferred income, December 31, 2021	(61.3)
Change in deferred income - (increase) decrease	$ (4.2)

The increase in deferred income during 2021 was primarily due to additional cash payments of $112.3 million received in advance of satisfying future performance obligations, partially offset by the recognition of current year revenue of $72.0 million, and $31.8 million of revenue that was included in deferred income at the beginning of the year.

Voluntary Recall

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 fourth quarter 2018 results included an $11.3 million provision for product returns, recorded as a reduction of sales, partially offset by a reduction in cost of goods sold reflecting our inventory balance for these devices at December 31, 2018. During 2019, we recorded a net provision of $5.4 million for inventory returns from our customers and related in-house inventory, partially offset by a reduction in our provision for product returns. On October 21, 2020 we received market clearance from the FDA for our Vial2BagAdvanced™ 20mm Admixture Device.

Note 4: Net Income Per Share

The following table reconciles the shares used in the calculation of basic net income per share to those used for diluted net income per share:

(in millions)	2021	2020	2019
Net income	$ 661.8	$ 346.2	$ 241.7
Weighted average common shares outstanding	74.4	73.9	74.0
Dilutive effect of equity awards, based on the treasury stock method	1.9	1.9	1.4
Weighted average shares assuming dilution	76.3	75.8	75.4

During 2021, 2020 and 2019, there were 0.0 million, 0.0 million, and 0.1 million shares, respectively, from stock-based compensation plans not included in the computation of diluted net income per share because their impact was antidilutive.

In December 2020, we announced a share repurchase program for calendar-year 2021 authorizing the repurchase of up to 631,000 shares of our common stock from time to time on the open market as permitted under Exchange Act Rule 10b-18 or in privately-negotiated transactions. There were no shares purchased during the three months ended December 31, 2021.

During the year ended December 31, 2021, we purchased 479,000 shares of our common stock under the now completed program at a cost of $137.1 million, or an average price of $286.23 per share.

In December 2021, our Board of Directors approved a share repurchase program for calendar-year 2022 authorizing the repurchase of up to 650,000 shares of our common stock from time to time on the open market as permitted under Exchange Act Rule 10b-18 or in privately-negotiated transactions. 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, 2022.

Note 5: Property, Plant and Equipment

A summary of gross property, plant and equipment at December 31 is presented in the following table:

($ in millions)	Expected useful lives (years)	2021	2020
Land		$ 29.3	$ 24.8
Buildings and improvements	15-35	644.8	618.1
Machinery and equipment	5-12	976.1	911.8
Molds and dies	4-7	139.5	131.2
Computer hardware and software	3-10	182.6	157.5
Construction in progress		242.7	192.1
		$ 2,215.0	$ 2,035.5

Depreciation expense for the years ended December 31, 2021, 2020 and 2019 was $116.9 million, $104.7 million and $100.0 million, respectively.

We capitalize interest on borrowings during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and is amortized over the useful lives of the assets. Capitalized interest for the years ended December 31, 2021, 2020 and 2019 was $2.0 million, $1.4 million and $0.9 million, respectively.

Note 6: Leases

Adoption of ASC 842

On January 1, 2019, we adopted ASC 842, using the modified retrospective approach that allows companies to apply ASC 842 as of the effective date and on a prospective basis. As a result, we were not required to adjust our comparative period financial information for effects of ASC 842 or present the new required lease disclosures for periods prior to the date of adoption. As of December 31, 2021, we had operating leases primarily related to land, buildings, and machinery and equipment, with lease terms through 2047. Certain of our operating leases provide us with an option, exercisable at our sole discretion, to terminate the lease or extend the lease term for one year or more. At this time, the Company is not able to assert whether any of these options will be exercised. We had no finance leases as of December 31, 2021 and 2020.

The operating lease right-of-use assets are initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred less any lease incentives received. The operating lease right-of-use assets are subsequently measured throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus (minus) any prepaid (accrued) lease payments, less the unamortized balance of lease incentives received. Lease expense for lease payments is recognized on a straight-line basis over the lease term. The operating lease liabilities are initially measured at the present value of the unpaid lease payments at the lease commencement date.

Judgments used in applying ASC 842 include determining: i) whether a contract is, or contains, a lease; ii) the discount rate to be used to discount the unpaid lease payments to present value; iii) the lease term; and iv) the lease payments. We determine if a contract is, or contains, a lease at contract inception. A lease exists when a contract conveys to the customer the right to control the use of identified property, plant, or equipment for a period of time in exchange for consideration. The definition of a lease embodies two conditions: 1) there is an identified asset in the contract that is land or a depreciable asset (i.e., property, plant, and equipment); and 2) the customer has the right to control the use of the identified asset. ASC 842 requires a lessee to discount its unpaid lease payments using the interest rate implicit in the lease or, if that rate cannot be readily determined, its incremental borrowing rate. As all of our operating leases do not provide an implicit rate, we use our incremental borrowing rate based on the information available at commencement date in determining the present value of lease payments. Our incremental borrowing rate for a lease is the rate of interest we would have to pay on a collateralized basis to borrow an amount equal to the lease payments under similar terms. The lease term for all of our operating leases includes the noncancellable period of the lease plus any additional periods covered by either a lessee option to extend (or not to terminate) the lease that the lessee is reasonably certain to exercise, or an option to extend (or not to terminate) the lease controlled by the lessor.

Lease payments included in the measurement of the operating lease right-of-use assets and lease liabilities are comprised of fixed payments (including in-substance fixed payments), variable payments that depend on an index or rate, and the exercise price of a lessee option to purchase the underlying asset if the lessee is reasonably certain to exercise.

The components of lease expense were as follows:

($ in millions)	2021	2020	2019
Operating lease cost	$ 12.7	$ 12.8	$ 12.9
Short-term lease cost	1.3	0.8	0.8
Variable lease cost	4.8	3.8	3.3
Total lease cost	$ 18.8	$ 17.4	$ 17.0

Supplemental information related to leases was as follows:

($ in millions)	2021	2020	2019
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	$ 12.1	$ 12.6	$ 12.5
Right-of-use assets obtained in exchange for new operating lease liabilities	13.3	6.1	9.1

As of December 31, 2021 and December 31, 2020, the weighted average remaining lease term for operating leases was 10.7 years and 11.1 years and the weighted average discount rate was 3.58% and 3.68%, respectively.

Maturities of lease liabilities as of December 31, 2021 were as follows:

($ in millions) Year	Operating Leases
2022	$ 11.5
2023	10.7
2024	10.0
2025	8.2
2026	7.3
Thereafter	38.7
	86.4
Less: imputed lease interest	(14.1)
Total lease liabilities	$ 72.3

Practical Expedients and Exemptions

We have elected to adopt practical expedients around the combination of lease and non-lease components and the portfolio approach relating to discount rates. These practical expedients were applied consistently to all leases.

We have elected not to recognize operating lease right-of-use assets and operating lease liabilities for all short-term leases (leases with an initial lease term of 12 months or less). We recognize the lease payments associated with our short-term leases as an expense over the lease term.

Note 7: Affiliated Companies

At December 31, 2021, the following affiliated companies were accounted for under the equity method:

	Location	Ownership interest
The West Company Mexico, S.A. de C.V.	Mexico	49%
Aluplast S.A. de C.V.	Mexico	49%
Pharma Tap S.A. de C.V.	Mexico	49%
Pharma Rubber S.A. de C.V.	Mexico	49%
Daikyo	Japan	49%

On November 1, 2019, in connection with the amendment of certain commercial agreements with Daikyo, we increased our ownership interest from 25% to 49% in Daikyo in exchange for $85.1 million in cash and $4.9 million in shares of our treasury stock to certain stockholders of Daikyo.

Unremitted income of affiliated companies included in consolidated retained earnings amounted to $115.6 million, $98.2 million and $82.4 million at December 31, 2021, 2020 and 2019, respectively. Dividends received from affiliated companies were $2.7 million in 2021, $1.6 million in 2020 and $2.2 million in 2019.

Our equity in net unrealized gains of Daikyo's investment securities and derivative instruments, as well as pension adjustments, included in accumulated other comprehensive loss was $1.5 million, $0.6 million and $0.4 million at December 31, 2021, 2020 and 2019, respectively.

Our purchases from, and royalty payments made to, affiliates totaled $155.0 million, $143.3 million and $115.1 million, respectively, in 2021, 2020 and 2019, of which $25.5 million and $33.6 million was due and payable as of December 31, 2021 and 2020, respectively. The majority of these transactions related to a distributorship agreement with Daikyo that allows us to purchase and re-sell Daikyo products. Sales to affiliates were $12.0 million, $9.7 million and $9.2 million, respectively, in 2021, 2020 and 2019, of which $2.3 million and $1.4 million was receivable as of December 31, 2021 and 2020, respectively.

At December 31, 2021 and 2020, the aggregate carrying amount of our investment in affiliated companies that are accounted for under the equity method was $201.2 million and $201.9 million, respectively, and the aggregate carrying amount of our investment in affiliated companies that are not accounted for under the equity method was $6.5 million and $12.8 million, respectively. We have elected to record these investments, for which fair value was not readily determinable, at cost, less impairment, adjusted for subsequent observable price changes. We test these investments for impairment whenever circumstances indicate that the carrying value of the investments may not be recoverable.

Note 8: Goodwill and Intangible Assets

The changes in the carrying amount of goodwill by reportable segment were as follows:

($ in millions)	Proprietary Products	Contract-Manufactured Products	Total
Balance, December 31, 2019	$ 78.1	$ 29.7	$ 107.8
Foreign currency translation	2.8	0.5	3.3
Balance, December 31, 2020	80.9	30.2	111.1
Goodwill recorded due to acquisition	1.7	—	1.7
Goodwill impairment charge	(0.1)	—	(0.1)
Foreign currency translation	(2.4)	(0.4)	(2.8)
Balance, December 31, 2021	$ 80.1	$ 29.8	$ 109.9

As of December 31, 2021, we had $0.1 million in accumulated goodwill impairment losses.

Intangible assets and accumulated amortization as of December 31 were as follows:

	2021			2020		
($ in millions)	Cost	Accumulated amortization	Net	Cost	Accumulated amortization	Net
Patents and licensing	$ 25.1	$ (19.4)	$ 5.7	$ 25.9	$ (17.9)	$ 8.0
Technology	3.3	(2.0)	1.3	3.3	(1.7)	1.6
Trademarks	2.0	(1.9)	0.1	2.0	(1.8)	0.2
Customer relationships	40.1	(25.4)	14.7	40.9	(23.4)	17.5
Customer contracts	10.6	(9.4)	1.2	11.1	(7.9)	3.2
	$ 81.1	$ (58.1)	$ 23.0	$ 83.2	$ (52.7)	$ 30.5

The cost basis of intangible assets includes a foreign currency translation loss of $1.3 million and a foreign currency translation gain of $1.3 million for the years ended December 31, 2021 and 2020, respectively. Amortization expense for the years ended December 31, 2021, 2020 and 2019 was $5.4 million, $4.4 million and $3.4 million, respectively. Estimated annual amortization expense for the next five years is as follows: 2022 - $4.0 million, 2023 - $4.0 million, 2024 - $4.0 million, 2025 - $3.0 million and 2026 - $2.8 million.

Note 9: Other Current Liabilities

Other current liabilities as of December 31 included the following:

($ in millions)	2021	2020
Deferred income	$ 48.7	$ 51.0
Dividends payable	13.4	12.6
Accrued commissions, rebates and royalties	38.7	10.0
Accrued retirement plans (excluding pension)	8.8	8.4
Accrued taxes other than income	13.0	15.4
Accrued professional services	3.7	3.7
Accrued interest	3.2	3.3
Restructuring and severance related charges	4.6	7.8
Short term derivative instruments	3.3	9.5
Other	26.0	21.9
Total other current liabilities	$ 163.4	$ 143.6

Note 10: Debt

The following table summarizes our long-term debt obligations, net of unamortized debt issuance costs and current maturities, at December 31. The interest rates shown in parentheses are as of December 31, 2021.

($ in millions)	2021	2020
Term Loan, due December 31, 2024 (1.10%)	$ 85.5	$ 87.7
Series A notes, due July 5, 2022 (3.67%)	42.0	42.0
Series B notes, due July 5, 2024 (3.82%)	53.0	53.0
Series C notes, due July 5, 2027 (4.02%)	73.0	73.0
	253.5	255.7
Less: unamortized debt issuance costs	0.5	0.5
Total debt	253.0	255.2
Less: current portion of long-term debt	44.2	2.3
Long-term debt, net	$ 208.8	$ 252.9

Credit Agreement - Credit Facility

In March 2019, we entered into the Credit Agreement which expires in March 2024, and contains the Credit Facility of $300.0 million, with sublimits of up to $30.0 million for swing line loans for domestic borrowers in USD and a $20.0 million swing line loan for our German Holding Company and up to $30.0 million for the issuance of standby letters of credit. The Credit Facility may be increased from time-to-time by the greater of $350.0 million and earnings before interest, taxes, depreciation and amortization ("EBITDA") for the preceding twelve month period in the aggregate through an increase in the Credit Facility, subject to the satisfaction of certain conditions. Borrowings under the Credit Facility bear interest at either the base rate (the per annum interest rate of the highest of the Prime Rate, the Federal Funds Rate plus 50 basis points or the daily LIBOR, plus 1.00%) or at the applicable LIBOR rate, plus a tiered margin based on the ratio of our net consolidated debt to our modified EBITDA, ranging from 0 to 37.5 basis points for base rate loans and 87.5 to 137.5 basis points for LIBOR rate loans. The Credit Agreement contains financial covenants providing that we shall not permit the ratio of our net consolidated debt to our modified EBITDA to be greater than 3.5 to 1; provided that, no more than three times during the term of the Credit Agreement, upon the occurrence of a qualified acquisition for each of our four fiscal quarters immediately following such qualified acquisition, the ratio shall be increased to 4.0 to 1. The Credit Agreement also contains customary limitations on liens securing our indebtedness, fundamental changes (mergers, consolidations, liquidations and dissolutions), asset sales, distributions and acquisitions. As of December 31, 2021 and 2020, total unamortized debt issuance costs of $0.1 million and $0.4 million, respectively, were recorded in other noncurrent assets and are being amortized as additional interest expense over the term of the Credit Facility.

At December 31, 2021, we had no outstanding borrowings under the Credit Facility. At December 31, 2021, the borrowing capacity available under the Credit Facility, including outstanding letters of credit of $2.4 million, was $297.6 million.

Credit Agreement Amendment - Term Loan

In December 2019, we entered into a First Amendment and Incremental Facility Amendment (the "First Amendment") to the Credit Agreement. Pursuant to the First Amendment and the Credit Agreement, we established the Term Loan in the amount of $90.0 million, which is due on December 31, 2024. Borrowings under the Term Loan bear interest at the three-month LIBOR plus 87.5 basis points. As of December 31, 2021 and 2020, there were unamortized debt issuance costs remaining of $0.1 million and $0.1 million, respectively, which are being amortized as additional interest expense over the term of the Term Loan.

At December 31, 2021, we had $85.5 million in borrowings under the Term Loan, of which $2.2 million was classified as current and $83.3 million was classified as long-term. Please refer to Note 11, *Derivative Financial Instruments*, for a discussion of the foreign currency hedge associated with the Term Loan.

Private Placement

In 2012, we concluded a private placement issuance of $168.0 million in senior unsecured notes. The total amount of the private placement issuance was divided into three tranches - $42.0 million 3.67% Series A Notes due July 5, 2022, $53.0 million 3.82% Series B Notes due July 5, 2024, and $73.0 million 4.02% Series C Notes due July 5, 2027 (the "Notes"). The Notes rank pari passu with our other senior unsecured debt. The weighted average of the coupon interest rates on the Notes is 3.87%. As of December 31, 2021 and 2020, there were unamortized debt issuance costs remaining of $0.3 million and $0.4 million, respectively, which are being amortized as additional interest expense over the term of the Notes.

Covenants

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, 2021, we were in compliance with all of our debt covenants.

Interest costs incurred during 2021, 2020 and 2019 were $10.2 million, $9.6 million and $9.4 million, respectively. The aggregate annual maturities of long-term debt, excluding unamortized debt issuance costs, are as follows: $44.2 million in 2022, 2023 - $2.3 million, 2024 - $134.0 million, 2025 - $0.0 million, 2026 - $0.0 million, and thereafter - $73.0 million.

Note 11: Derivative Financial Instruments

Our ongoing business operations expose us to various risks, such as fluctuating interest rates, foreign currency exchange rates and increasing commodity prices. To manage these market risks, we periodically enter into derivative financial instruments, such as interest rate swaps, options and foreign exchange contracts for periods consistent with, and for notional amounts equal to or less than, the related underlying exposures. We do not purchase or hold any derivative financial instruments for investment or trading purposes. All derivatives are recorded in our consolidated balance sheet at fair value.

Foreign Currency Exchange Rate Risk

We have entered into forward exchange contracts, designated as fair value hedges, to manage our exposure to fluctuating foreign exchange rates on cross-currency intercompany loans. As of December 31, 2021 and December 31, 2020, the total amount of these forward exchange contracts was SGD 601.5 million and $13.4 million.

In addition, we have entered into several foreign currency contracts, designated as cash flow hedges, for periods of up to eighteen months, intended to hedge the currency risk associated with a portion of our forecasted transactions denominated in foreign currencies. As of December 31, 2021, we had outstanding foreign currency contracts to purchase and sell certain pairs of currencies, as follows:

(in millions)		Sell	
Currency	**Purchase**	**USD**	**EUR**
USD	18.1		15.1
JPY	7,510.0	28.4	33.8
SGD	17.9	11.3	1.7

In November and December 2019, in conjunction with the repayment of the outstanding long-term borrowings under our Credit Facility denominated in Euro and Japanese Yen, we de-designated these borrowings as hedges of our net investments in certain European subsidiaries and Daikyo. The amounts recorded as cumulative translation adjustments within accumulated other comprehensive loss related to these borrowings (prior to de-designation) will remain in accumulated other comprehensive loss indefinitely, unless certain future events occur, such as the disposition of the operations for which the net investment hedges relate.

In December 2019, we entered into a five-year floating-to-floating forward-starting cross-currency swap (the "cross-currency swap") for $90 million, which we designated as a hedge of our net investment in Daikyo. The notional amount of the cross-currency swap is ¥9.4 billion ($85.5 million) as of December 31, 2021. Under the cross-currency swap, we receive floating interest rate payments based on three-month USD LIBOR plus a margin, in return for paying floating interest rate payments based on three-month Japanese Yen LIBOR or successor rate plus a margin.

Commodity Price Risk

Many of our proprietary products are made from synthetic elastomers, which are derived from the petroleum refining process. We purchase the majority of our elastomers via long-term supply contracts, some of which contain clauses that provide for surcharges related to fluctuations in crude oil prices. The following economic hedges did not qualify for hedge accounting treatment since they did not meet the highly effective requirement at inception.

From November 2017 through December 2021, we purchased several series of call options for a total of 640,267 barrels of crude oil to mitigate our exposure to such oil-based surcharges and protect operating cash flows with regards to a portion of our forecasted elastomer purchases.

As of December 31, 2021, we had outstanding contracts to purchase 188,242 barrels of crude oil from January 2022 to June 2023, at a weighted-average strike price of $74.16 per barrel.

Effects of Derivative Instruments on Financial Position and Results of Operations

Please refer to Note 12, *Fair Value Measurements*, for the balance sheet location and fair values of our derivative instruments as of December 31, 2021 and 2020.

The following table summarizes the effects of derivative instruments designated as fair value hedges in our consolidated statements of income for the years ended December 31:

	Amount of Gain (Loss) Recognized in Income						Location on Statement of Income
($ in millions)	2021		2020		2019		
Fair Value Hedges:							
Hedged item (intercompany loan)	$	(22.1)	$	28.5	$	(15.3)	Other expense (income)
Derivative designated as hedging instrument		22.1		(28.5)		15.3	Other expense (income)
Amount excluded from effectiveness testing		3.0		6.1		6.9	Other expense (income)
Total	$	3.0	$	6.1	$	6.9	

We recognize in earnings the initial value of forward point components on a straight-line basis over the life of the fair value hedge. The amounts recognized in earnings, pre-tax, for forward point components for the years ended December 31, 2021, 2020 and 2019 were $2.6 million, $6.3 million and $8.7 million, respectively. We expect to recognize $2.6 million in earnings, pre-tax, for forward point components in 2022.

The following tables summarize the effects of derivative instruments designated as fair value, cash flow, and net investment hedges on OCI and earnings, net of tax, for the years ended December 31:

	Amount of Gain (Loss) Recognized in OCI		
($ in millions)	2021	2020	2019
Fair Value Hedges:			
Foreign currency hedge contracts	$ 0.6	$ 4.0	$ 4.8
Total	$ 0.6	$ 4.0	$ 4.8
Cash Flow Hedges:			
Foreign currency hedge contracts	$ (0.2)	$ (0.6)	$ 0.8
Foreign currency hedge contracts	(1.8)	(0.6)	(0.2)
Forward treasury locks	—	—	—
Total	$ (2.0)	$ (1.2)	$ 0.6
Net Investment Hedges:			
Foreign currency-denominated debt	—	—	0.6
Cross-currency swap	7.7	(3.2)	(1.1)
Total	$ 7.7	$ (3.2)	$ (0.5)

	Amount of (Gain) Loss Reclassified from Accumulated OCI into Income			Location of (Gain) Loss Reclassified from Accumulated OCI into Income
($ in millions)	2021	2020	2019	
Fair Value Hedges:				
Foreign currency hedge contracts	$ (0.8)	$ (4.3)	$ (4.6)	Other expense (income)
Total	$ (0.8)	$ (4.3)	$ (4.6)	
Cash Flow Hedges:				
Foreign currency hedge contracts	$ 0.9	$ 0.2	$ (0.9)	Net sales
Foreign currency hedge contracts	1.7	(0.1)	(0.6)	Cost of goods and services sold
Forward treasury locks	0.3	0.3	0.3	Interest expense
Total	$ 2.9	$ 0.4	$ (1.2)	
Net Investment Hedges:				
Foreign currency-denominated debt	$ —	$ —	$ —	Other expense (income)
Cross-currency swap	—	—	—	Other expense (income)
Total	$ —	$ —	$ —	

The following table summarizes the effects of derivative instruments designated as fair value, cash flow, and net investment hedges by line item in our consolidated statements of income for the years ended December 31:

($ in millions)	2021	2020	2019
Net sales	$ 0.9	$ 0.2	$ (0.9)
Cost of goods and services sold	1.7	(0.1)	(0.6)
Other expense (income)	(0.8)	(4.3)	(4.6)
Interest expense	0.3	0.3	0.3

The following table summarizes the effects of derivative instruments not designated as hedges in our consolidated statements of income for the years ended December 31:

	Amount of Gain (Loss) Recognized in Income			Location on Statement of Income
($ in millions)	2021	2020	2019	
Commodity call options	$ 1.7	$ (0.2)	$ (0.4)	Other expense (income)
Total	$ 1.7	$ (0.2)	$ (0.4)	

During 2021 and 2020, there was no material ineffectiveness related to our hedges.

Note 12: Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The following fair value hierarchy classifies the inputs to valuation techniques used to measure fair value into one of three levels:

- Level 1: Unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2: Inputs other than quoted prices that are observable for the asset or liability, either directly or indirectly. These include quoted prices for similar assets or liabilities in active markets and quoted prices for identical or similar assets or liabilities in markets that are not active.
- Level 3: Unobservable inputs that reflect the reporting entity's own assumptions.

The following tables present the assets and liabilities recorded at fair value on a recurring basis:

($ in millions)	Balance at December 31, 2021	Basis of Fair Value Measurements		
		Level 1	Level 2	Level 3
Assets:				
Deferred compensation assets	$ 15.5	$ 15.5	$ —	$ —
Foreign currency contracts	14.8	—	14.8	—
Cross-currency swap	4.4	—	4.4	—
Commodity call options	1.7	—	1.7	—
	$ 36.4	$ 15.5	$ 20.9	$ —
Liabilities:				
Contingent consideration	$ 3.7	$ —	$ —	$ 3.7
Deferred compensation liabilities	16.1	16.1	—	—
Foreign currency contracts	3.4	—	3.4	—
	$ 23.2	$ 16.1	$ 3.4	$ 3.7

($ in millions)	Balance at December 31, 2020	Basis of Fair Value Measurements		
		Level 1	Level 2	Level 3
Assets:				
Deferred compensation assets	$ 12.8	$ 12.8	$ —	$ —
Foreign currency contracts	3.0	—	3.0	—
Commodity call options	0.3	—	0.3	—
	$ 16.1	$ 12.8	$ 3.3	$ —
Liabilities:				
Contingent consideration	$ 3.6	$ —	$ —	$ 3.6
Deferred compensation liabilities	14.5	14.5	—	—
Cross-currency swap	5.6	—	5.6	—
Foreign currency contracts	9.7	—	9.7	—
	$ 33.4	$ 14.5	$ 15.3	$ 3.6

Deferred compensation assets are included within other noncurrent assets and are valued using a market approach based on quoted market prices in an active market. The fair value of our foreign currency contracts, included within other current and other noncurrent assets, as well as other current and other long-term liabilities, is valued using an income approach based on quoted forward foreign exchange rates and spot rates at the reporting date. The fair value of our commodity call options, included within other current and other noncurrent assets, is valued using a market approach. The fair value of our contingent consideration, included within other current and other long-term liabilities, is discussed further in the section related to Level 3 fair value measurements. The fair value of deferred compensation liabilities is based on quoted prices of the underlying employees' investment selections and is included within other long-term liabilities.

The fair value of the cross-currency swap, included within other long-term assets and other long-term liabilities as of December 31, 2021 and December 31, 2020, respectively, is valued using a market approach. Please refer to Note 11, *Derivative Financial Instruments*, for further discussion of our derivatives.

Level 3 Fair Value Measurements

The fair value of the contingent consideration liability related to the SmartDose technology platform (the "SmartDose contingent consideration") was initially determined using a probability-weighted income approach, and is revalued at each reporting date or more frequently if circumstances dictate. Changes in the fair value of this obligation are recorded as income or expense within other expense (income) in our consolidated statements of income. The significant unobservable inputs used in the fair value measurement of the SmartDose contingent consideration are the sales projections, the probability of success factors, and the discount rate. Significant increases or decreases in any of those inputs in isolation would result in a significantly lower or higher fair value measurement. Sales projections were derived using upside, base and downside forecasted cases for each partnership and applying probability-weighted scenarios of 10%, 50% and 40% to the three cases, respectively, to reflect the likelihood of West meeting the estimated sales projection targets. The probability of success factors included the probabilities of successful FDA approval for each partnership drug, which was estimated in a range of 19% to 100% based on the development phase of each respective drug, and the probability of the successful execution of supply agreements with each partnership, which was estimated in the range of 25% to 100% based on historical, current, and future supply agreements with the respective partnerships. The fair value of this liability utilized a risk-adjusted discount rate of 19% to present value the cash flows. The discount rate is calculated by determining the after-tax required returns on debt and equity and weighting each return by the respective percent of debt and equity to total capital. Key inputs for the discount rate include the risk-free rate on the 20-Year United States Treasury maturity, equity risk premium, company-specific risk premium, pre-tax cost of debt, and U.S. tax rate, among others. As development and commercialization of the SmartDose technology platform progresses, we may need to update the sales projections, the probability of success factors, and the discount rate used. This could result in a material increase or decrease to the SmartDose contingent consideration.

The following table provides a summary of changes in our Level 3 fair value measurements:

	($ in millions)
Balance, December 31, 2019	$ 3.3
Increase in fair value recorded in earnings	1.2
Payments	(0.9)
Balance, December 31, 2020	3.6
Increase in fair value recorded in earnings	1.5
Payments	(1.4)
Balance, December 31, 2021	$ 3.7

Other Financial Instruments

We believe that the carrying amounts of our cash and cash equivalents and accounts receivable approximate their fair values due to their near-term maturities.

The estimated fair value of long-term debt is based on quoted market prices for debt issuances with similar terms and maturities, and is classified as Level 2 within the fair value hierarchy. At December 31, 2021, the estimated fair value of long-term debt was $217.9 million compared to a carrying amount of $208.8 million. At December 31, 2020, the estimated fair value of long-term debt was $265.7 million and the carrying amount was $252.9 million.

Note 13: Accumulated Other Comprehensive Loss

The following table presents the changes in the components of accumulated other comprehensive loss, net of tax:

($ in millions)	(Losses) gains on derivatives	Change in equity affiliate investment AOCI	Defined benefit pension and other postretirement plans	Foreign currency translation	Total
Balance, December 31, 2018	$ (0.4)	$ 0.4	$ (40.4)	$ (113.8)	(154.2)
Other comprehensive income (loss) before reclassifications	5.4	—	(1.9)	4.9	8.4
Amounts reclassified out	(5.8)	—	2.0	—	(3.8)
Other comprehensive (loss) income, net of tax	(0.4)	—	0.1	4.9	4.6
Balance, December 31, 2019	(0.8)	0.4	(40.3)	(108.9)	(149.6)
Other comprehensive income (loss) before reclassifications	2.8	0.2	(2.5)	40.1	40.6
Amounts reclassified out	(3.9)	—	2.3	—	(1.6)
Other comprehensive (loss) income, net of tax	(1.1)	0.2	(0.2)	40.1	39.0
Balance, December 31, 2020	(1.9)	0.6	(40.5)	(68.8)	(110.6)
Other comprehensive income (loss) before reclassifications	(1.4)	0.9	7.4	(59.3)	(52.4)
Amounts reclassified out	2.1	—	1.3	—	3.4
Other comprehensive income (loss), net of tax	0.7	0.9	8.7	(59.3)	(49.0)
Balance, December 31, 2021	$ (1.2)	$ 1.5	$ (31.8)	$ (128.1)	$ (159.6)

A summary of the reclassifications out of accumulated other comprehensive loss is presented in the following table ($ in millions):

Detail of components	2021	2020	2019	Location on Statement of Income
Gains (losses) on derivatives:				
Foreign currency contracts	$ (1.1)	$ (0.2)	$ 1.0	Net sales
Foreign currency contracts	(2.4)	0.1	1.0	Cost of goods and services sold
Foreign currency contracts	1.2	5.9	6.9	Other expense (income)
Forward treasury locks	(0.4)	(0.4)	(0.5)	Interest expense
Total before tax	(2.7)	5.4	8.4	
Tax benefit (expense)	0.6	(1.5)	(2.6)	
Net of tax	$ (2.1)	$ 3.9	$ 5.8	
Amortization of defined benefit pension and other postretirement plans:				
Prior service credit	$ 0.3	$ 0.6	$ 0.6	(a)
Actuarial (losses) gains	(0.2)	(0.1)	0.2	(a)
Settlements	(1.8)	(3.7)	(3.5)	(a)
Total before tax	(1.7)	(3.2)	(2.7)	
Tax benefit (expense)	0.4	0.9	0.7	
Net of tax	$ (1.3)	$ (2.3)	$ (2.0)	
Total reclassifications for the period, net of tax	$ (3.4)	$ 1.6	$ 3.8	

(a) These components are included in the computation of net periodic benefit cost. Please refer to Note 15, *Benefit Plans*, for additional details.

Note 14: Stock-Based Compensation

The West Pharmaceutical Services, Inc. 2016 Omnibus Incentive Compensation Plan (the "2016 Plan") provides for the granting of stock options, stock appreciation rights, restricted stock awards and performance awards to employees and non-employee directors. A committee of the Board of Directors determines the terms and conditions of awards to be granted. Vesting requirements vary by award. At December 31, 2021, there were 2,052,885 shares remaining in the 2016 Plan for future grants.

Stock options and stock appreciation rights reduce the number of shares available by one share for each award granted. All other awards under the 2016 Plan will reduce the total number of shares available for grant by an amount equal to 2.5 times the number of shares awarded. If awards made under previous plans would entitle a plan participant to an amount of West stock in excess of the target amount, the additional shares (up to a maximum threshold amount) will be distributed under the 2016 Plan.

The following table summarizes our stock-based compensation expense recorded within selling, general and administrative expenses for the years ended December 31:

($ in millions)	2021	2020	2019
Stock option and appreciation rights	$ 12.5	$ 10.2	$ 9.1
Performance share units, stock-settled	17.6	16.6	9.5
Performance share units, cash-settled	1.0	0.4	0.1
Performance share units, dividend equivalents	0.2	0.6	0.2
Employee stock purchase plan	1.4	1.1	0.9
Deferred compensation plans and restricted share awards	4.8	5.1	4.6
Total stock-based compensation expense	$ 37.5	$ 34.0	$ 24.4

The Company estimates expected forfeitures. The amount of unrecognized compensation expense for all non-vested awards as of December 31, 2021 was approximately $37.3 million, which is expected to be recognized over a weighted average period of 1.5 years.

Stock Options

Stock options granted to employees vest in equal increments. All awards expire 10 years from the date of grant. Upon the exercise of stock options, shares are issued in exchange for the exercise price of the options.

The following table summarizes changes in outstanding options:

(in millions, except per share data)	2021	2020	2019
Options outstanding, January 1	2.4	2.7	3.0
Granted	0.1	0.2	0.3
Exercised	(0.5)	(0.5)	(0.6)
Forfeited	—	—	—
Options outstanding, December 31	2.0	2.4	2.7
Options exercisable, December 31	1.5	1.6	1.6

Weighted Average Exercise Price	2021	2020	2019
Options outstanding, January 1	$ 81.37	$ 67.02	$ 58.93
Granted	280.22	178.11	103.40
Exercised	60.63	49.99	46.42
Forfeited	134.89	103.51	92.71
Options outstanding, December 31	$ 101.73	$ 81.37	$ 67.02
Options exercisable, December 31	$ 73.46	$ 62.42	$ 53.12

As of December 31, 2021, the weighted average remaining contractual life of options outstanding and of options exercisable was 5.5 years and 4.5 years, respectively.

As of December 31, 2021, the aggregate intrinsic value of total options outstanding was $751.0 million, of which $573.7 million represented vested options.

The fair value of the options was estimated on the date of grant using a Black-Scholes option valuation model that used the following weighted average assumptions in 2021, 2020 and 2019: a risk-free interest rate of 0.8%, 1.3%, and 2.3%, respectively; stock volatility of 23.9%, 22.4%, and 22.5%, respectively; and dividend yields of 0.3%, 0.4%, and 0.7%, respectively. Stock volatility is estimated based on historical data and the impact from expected future trends. Expected lives, which are based on prior experience, averaged 5.6 years for 2021 and 5.7 years for 2020 and 2019. The weighted average grant date fair value of options granted in 2021, 2020 and 2019 was $64.51, $40.28 and $24.72, respectively. Stock option expense is recognized over the vesting period, net of forfeitures.

For the years ended December 31, 2021, 2020 and 2019, the intrinsic value of options exercised was $147.3 million, $88.8 million and $46.9 million, respectively. The grant date fair value of options vested during those same periods was $8.3 million, $8.4 million and $7.5 million, respectively.

Stock Appreciation Rights

Stock appreciation rights ("SARs") granted to eligible international employees vest in equal annual increments over 4 years of continuous service. All awards expire 10 years from the date of grant. The fair value of each cash-settled SAR is adjusted at the end of each reporting period, with the resulting change reflected in expense. As of December 31, 2021, SARs outstanding were 21,054, all of which were cash-settled. Upon exercise of a cash-settled SAR, the employee receives cash for the difference between the grant date price and the fair market value of the Company's stock on the date of exercise. As a result of the cash settlement feature, cash-settled SARs are recorded within other long-term liabilities. Upon exercise of a stock-settled SAR, shares are issued in exchange for the exercise price of the stock-settled SAR. As a result of the stock settlement feature, stock-settled SARs are recorded within equity.

The following table summarizes changes in outstanding SARs:

	2021	2020	2019
SARs outstanding, January 1	27,679	35,993	39,819
Granted	704	3,272	3,364
Exercised	(6,029)	(11,261)	(6,790)
Forfeited	(1,300)	(325)	(400)
SARs outstanding, December 31	21,054	27,679	35,993
SARs exercisable, December 31	16,644	27,182	27,781

Weighted Average Exercise Price	2021	2020	2019
SARs outstanding, January 1	$ 75.43	$ 52.36	$ 46.48
Granted	319.94	190.97	102.51
Exercised	48.62	35.37	42.08
Forfeited	125.36	71.43	63.43
SARs outstanding, December 31	$ 88.18	$ 75.43	$ 52.36
SARs exercisable, December 31	$ 64.61	$ 40.23	$ 40.73

Performance Awards

In addition to stock options and SAR awards, we grant performance share unit ("PSU") awards to eligible employees. These awards are earned based on the Company's performance against pre-established targets, including annual growth rate of revenue and return on invested capital, over a specified performance period. Depending on the achievement of the targets, recipients of stock-settled PSU awards are entitled to receive a certain number of shares of common stock, whereas recipients of cash-settled PSU awards are entitled to receive a payment in cash per unit based on the fair market value of a share of our common stock at the end of the performance period.

The following table summarizes changes in our outstanding stock-settled PSU awards:

	2021	2020	2019
Non-vested stock-settled PSU awards, January 1	222,799	264,622	296,037
Granted at target level	37,701	53,659	84,309
Adjustments above/(below) target	50,965	(14,004)	(50,556)
Vested and converted	(143,465)	(70,074)	(48,964)
Forfeited	(3,526)	(11,404)	(16,204)
Non-vested stock-settled PSU awards, December 31	164,474	222,799	264,622

Weighted Average Fair Value	2021	2020	2019
Non-vested stock-settled PSU awards, January 1	$ 116.37	$ 92.80	$ 76.84
Granted at target level	333.58	177.31	103.40
Adjustments above/(below) target	93.38	77.02	83.89
Vested and converted	272.65	173.22	102.51
Forfeited	152.30	104.43	69.09
Non-vested stock-settled PSU awards, December 31	$ 179.88	$ 116.37	$ 92.80

Shares earned under PSU awards may vary from 0% to 200% of an employee's targeted award. The fair value of stock-settled PSU awards is based on the market price of our stock at the grant date and is recognized as expense over the performance period, adjusted for estimated target outcomes and net of forfeitures. The weighted average grant date fair value of stock-settled PSU awards granted during the years 2021, 2020 and 2019 was $333.58, $177.31 and $103.40, respectively. Including forfeiture and target achievement expectations, we expect that the stock-settled PSU awards will convert to 144,488 shares to be issued over an average remaining term of one year.

The fair value of cash-settled PSU awards is also based on the market price of our stock at the grant date. These awards are revalued at the end of each quarter based on changes in our stock price. As a result of the cash settlement feature, cash-settled PSU awards are recorded within other long-term liabilities.

The following table summarizes changes in our outstanding cash-settled PSU awards:

	2021	2020	2019
Non-vested cash-settled PSU awards, January 1	2,112	1,981	1,592
Granted at target level	163	732	806
Adjustments above/(below) target	311	(99)	(206)
Vested and converted	(877)	(502)	(211)
Forfeited	(391)	—	—
Non-vested cash-settled PSU awards, December 31	1,318	2,112	1,981

Weighted Average Fair Value	2021	2020	2019
Non-vested cash-settled PSU awards, January 1	$ 130.13	$ 93.28	$ 79.48
Granted at target level	320.12	190.71	102.51
Adjustments above/(below) target	91.40	74.43	56.95
Vested and converted	274.29	173.22	102.51
Forfeited	135.64	—	—
Non-vested cash-settled PSU awards, December 31	$ 169.53	$ 130.13	$ 93.28

Employee Stock Purchase Plan

We also offer an Employee Stock Purchase Plan ("ESPP"), which provides for the sale of our common stock to eligible employees at 85% of the current market price on the last trading day of each quarterly offering period. Payroll deductions are limited to 25% of the employee's base salary, not to exceed $25,000 in any one calendar year. In addition, employees may not buy more than 2,000 shares during any offering period (8,000 shares per year). Purchases under the ESPP were 27,016 shares, 36,494 shares and 51,391 shares for the years 2021, 2020 and 2019, respectively. At December 31, 2021, there were approximately 3,766,202 shares available for issuance under the ESPP.

Deferred Compensation Plans and Restricted Share Awards

Our deferred compensation plans include a Non-Qualified Deferred Compensation Plan for Non-Employee Directors, under which non-employee directors may defer all or part of their annual cash retainers. The deferred fees may be credited to a stock-equivalent account. Amounts credited to this account are converted into deferred stock units based on the fair market value of one share of our common stock on the last day of the quarter. For deferred stock units ultimately paid in cash, a liability is calculated at an amount determined by multiplying the number of units by the fair market value of our common stock at the end of each reporting period. In addition, deferred stock awards are granted on the date of our annual meeting, and are distributed in shares of common stock. In 2021, we granted 6,034 deferred stock awards, with a weighted grant date fair value of $338.38. In 2020, we granted 10,302 deferred stock awards, with a grant date fair value of $194.29. Similarly, a non-qualified deferred compensation plan for eligible employees provides for the conversion of compensation into deferred stock units. As of December 31, 2021, the two deferred compensation plans held a total of 406,361 deferred stock units, including 8,390 units to be paid in cash.

In addition, during 2021, we granted 6,002 restricted share awards at a weighted grant-date fair value of $312.41 per share to employees under the 2016 Plan. During 2020, we granted 8,721 restricted share awards at a weighted grant-date fair value of $200.35 per share to employees under the 2016 Plan. During 2019, we granted 13,308 restricted share awards at a weighted grant-date fair value of $116.39 per share to employees under the 2016 Plan. The fair value of these awards is based on the market price of our stock at the grant date and is recognized as expense over the vesting period.

Note 15: Benefit Plans

Certain of our U.S. and international subsidiaries sponsor defined benefit pension plans. In addition, we provide minimal death benefits for certain U.S. retirees and pay a portion of healthcare costs for retired U.S. salaried employees and their dependents. Benefits for participants are coordinated with Medicare when possible. We also sponsor a defined contribution plan for certain salaried and hourly U.S. employees. Our 401(k) plan contributions were $19.5 million for 2021, $16.8 million for 2020 and $15.6 million for 2019.

Pension and Other Retirement Benefits

The components of net periodic benefit cost and other amounts recognized in OCI were as follows:

	Pension benefits			Other retirement benefits		
($ in millions)	2021	2020	2019	2021	2020	2019
Net periodic benefit cost:						
Service cost	$ 1.6	$ 1.5	$ 1.4	$ —	$ —	$ —
Interest cost	6.2	7.1	9.2	0.2	0.2	0.2
Expected return on plan assets	(11.9)	(11.7)	(12.0)	—	—	—
Amortization of prior service credit	0.1	0.1	0.1	(0.4)	(0.7)	(0.7)
Amortization of actuarial loss (gain)	1.8	2.0	2.1	(1.6)	(1.9)	(2.3)
Settlement loss	1.8	3.7	3.5	—	—	—
Net periodic benefit cost	$ (0.4)	$ 2.7	$ 4.3	$ (1.8)	$ (2.4)	$ (2.8)
Other changes in plan assets and benefit obligations recognized in OCI, pre-tax:						
Net (gain) loss arising during period	$ (6.3)	$ 1.8	$ 1.5	$ (0.9)	$ (0.4)	$ 0.1
Prior service credit arising during period	(2.0)	—	—	—	—	—
Amortization of prior service credit	(0.1)	(0.1)	(0.1)	0.4	0.7	0.7
Amortization of actuarial (loss) gain	(1.8)	(2.0)	(2.1)	1.6	1.9	2.3
Settlement loss	(1.8)	(3.7)	(3.5)	—	—	—
Foreign currency translation	(0.9)	1.8	0.6	—	—	—
Total recognized in OCI	$ (12.9)	$ (2.2)	$ (3.6)	$ 1.1	$ 2.2	$ 3.1
Total recognized in net periodic benefit cost and OCI	$ (13.3)	$ 0.5	$ 0.7	$ (0.7)	$ (0.2)	$ 0.3

Net periodic benefit cost by geographic location is as follows:

	Pension benefits			Other retirement benefits		
($ in millions)	2021	2020	2019	2021	2020	2019
U.S. plans	$ (2.3)	$ 1.2	$ 2.4	$ (1.8)	$ (2.4)	$ (2.8)
International plans	1.9	1.5	1.9	—	—	—
Net periodic benefit cost	$ (0.4)	$ 2.7	$ 4.3	$ (1.8)	$ (2.4)	$ (2.8)

The service cost component included within net periodic benefit cost is considered employee compensation and is therefore presented within the selling, general, and administrative and costs of goods and services sold financial statement line items of our consolidated statements of income. The remaining components of net periodic benefit cost are reported separately and are therefore presented within the other nonoperating (income) expense financial statement line item of our consolidated statements of income.

During 2021, 2020, and 2019 we recorded $1.8 million, $3.7 million, and $3.5 million in pension settlement charges within other nonoperating (income) expense, respectively, as we determined that normal-course lump-sum payments for our U.S. qualified, and in 2020 and 2019 our non-qualified, defined benefit pension plans exceeded the threshold for settlement accounting under U.S. GAAP for the year. Effective January 1, 2019, except for interest crediting, benefit accruals under these defined benefit pension plans ceased.

During 2021 and 2020, we did not contribute to our U.S. qualified defined benefit pension plan.

The following table presents the changes in the benefit obligation and the fair value of plan assets, as well as the funded status of the plans:

	Pension benefits		Other retirement benefits	
($ in millions)	2021	2020	2021	2020
Change in benefit obligation:				
Benefit obligation, January 1	$ (298.9)	$ (287.9)	$ (6.1)	$ (6.6)
Service cost	(1.6)	(1.5)	—	—
Interest cost	(6.2)	(7.1)	(0.2)	(0.2)
Participants' contributions	(0.6)	(0.3)	(0.5)	(0.1)
Actuarial (loss) gain	12.1	(22.1)	0.9	0.5
Amendments/transfers in	2.0	—	—	—
Benefits paid	7.1	6.2	0.3	0.3
Curtailment gain	—	0.1	—	—
Settlement loss	13.1	18.6	—	—
Foreign currency translation	3.2	(4.9)	—	—
Benefit obligation, December 31	$ (269.8)	$ (298.9)	$ (5.6)	$ (6.1)
Change in plan assets:				
Fair value of assets, January 1	$ 258.1	$ 244.1	$ —	$ —
Actual return on plan assets	6.1	31.8	—	—
Employer contribution	3.6	4.8	(0.2)	0.2
Participants' contributions	0.6	0.3	0.5	0.1
Benefits paid	(5.2)	(6.0)	(0.3)	(0.3)
Settlement loss	(13.1)	(18.6)	—	—
Foreign currency translation	(0.9)	1.7	—	—
Fair value of assets, December 31	$ 249.2	$ 258.1	$ —	$ —
Funded status at end of year	$ (20.6)	$ (40.8)	$ (5.6)	$ (6.1)

International pension plan assets, at fair value, included in the preceding table were $49.3 million and $43.9 million at December 31, 2021 and 2020, respectively.

Amounts recognized in the balance sheet were as follows:

	Pension benefits		Other retirement benefits	
($ in millions)	2021	2020	2021	2020
Noncurrent assets	$ 16.7	$ 12.9	$ —	$ —
Current liabilities	(1.7)	(1.6)	(0.7)	(0.7)
Noncurrent liabilities	(35.6)	(52.1)	(4.9)	(5.4)
	$ (20.6)	$ (40.8)	$ (5.6)	$ (6.1)

The amounts in accumulated other comprehensive loss, pre-tax, consisted of:

	Pension benefits		Other retirement benefits	
($ in millions)	2021	2020	2021	2020
Net actuarial loss (gain)	$ 56.5	$ 67.3	$ (4.7)	$ (5.4)
Prior service cost (credit)	(1.3)	0.8	—	(0.4)
Total	$ 55.2	$ 68.1	$ (4.7)	$ (5.8)

The accumulated benefit obligation for all defined benefit pension plans was $265.2 million and $293.9 million at December 31, 2021 and 2020, respectively, including $73.0 million and $83.1 million, respectively, for international pension plans.

As of December 31, 2021, our U.S. and United Kingdom qualified defined benefit pension plan had plan assets in excess of its obligations. As of December 31, 2020, only the U.S. qualified defined benefit pension plan had assets in excess of its obligations. As of December 31, 2021 and December 31, 2020, our other defined benefit pension plans had projected benefit obligations and accumulated benefit obligations in excess of plan assets.

Benefit payments expected to be paid under our defined benefit pension and other retirement benefit plans in the next ten years are as follows. The U.S. qualified defined benefit pension plan is in the process of being terminated. The expected benefit payments listed correspond to regular ongoing benefit payments expected to be made by the plan during future years, and does not reflect additional disbursements that are expected to be made during 2022 as a result of lump sum offering and annuity purchase related to the plan termination process.

($ in millions)	Domestic	International	Total
2022	$ 13.7	$ 2.4	$ 16.1
2023	14.0	2.4	16.4
2024	13.4	2.7	16.1
2025	12.7	3.1	15.8
2026	11.9	3.6	15.5
2027 to 2031	55.2	19.6	74.8
	$ 120.9	$ 33.8	$ 154.7

In 2022, we expect to contribute $0.8 million to pension plans, all of which is in the U.S. In addition, we expect to contribute $0.7 million for other retirement benefits in 2022. We periodically consider additional, voluntary contributions depending on the investment returns generated by pension plan assets, changes in benefit obligation projections and other factors. For the U.S. qualified defined benefit pension plan, a contribution might be needed in order to settle the plan's obligations during the plan termination process.

Weighted average assumptions used to determine net periodic benefit cost were as follows:

	Pension benefits			Other retirement benefits		
	2021	2020	2019	2021	2020	2019
Discount rate	2.29%	2.61%	2.70%	2.30%	3.20%	4.20%
Rate of compensation increase	2.41%	2.33%	2.41%	—	—	—
Expected long-term rate of return on assets	4.93%	5.10%	5.54%	—	—	—

Weighted average assumptions used to determine the benefit obligations were as follows:

	Pension benefits		Other retirement benefits	
	2021	2020	2021	2020
Discount rate	2.48%	2.10%	2.75%	2.30%
Rate of compensation increase	2.79%	2.58%	—	—

The discount rate used to determine the benefit obligations for U.S. pension plans was 2.95% and 2.60% as of December 31, 2021 and 2020, respectively. The weighted average discount rate used to determine the benefit obligations for all international plans was 1.32% and 0.89% as of December 31, 2021 and 2020, respectively. The weighted average rate of compensation increase for all international plans was 2.79% for 2021 and 2.58% for 2020, while there was no rate increase for the U.S. plans since they are frozen. Other retirement benefits were only available to U.S. employees. The expected long-term rate of return for U.S. plans, which accounts for 80.2% of global plan assets, was 5.10% for 2021, 5.10% for 2020 and 5.60% for 2019.

The assumed healthcare cost trend rate used to determine benefit obligations was 6.25% for all participants in 2021, decreasing to 5.0% by 2027. The assumed healthcare cost trend rate used to determine net periodic benefit cost was 6.5% for all participants in 2021, decreasing to 5.0% by 2027.

The defined pension plan benefit and other retirement plan benefit obligations decreased for the year ended December 31, 2021 primarily due to an increase in the discount rate used to calculate the obligation. The net actuarial losses will be impacted in future periods by actual asset returns, discount rate changes, currency exchange rate fluctuations, actual demographic experience, and certain other factors. The other retirement plan benefit obligation decreased slightly due to the activity mentioned above.

The Company has cash balance plans and other plans with promised interest crediting rates. For these plans, the interest crediting rates are set in line with plan rules or country legislation and do not change with market conditions.

The weighted average interest crediting rating used to determine net periodic benefit cost by geographic location for our pension plans, at December 31, were as follows:

	2021	2020	2019
U.S. plans	3.31%	3.30%	3.30%
International plans	0.67%	0.52%	0.85%

The weighted average asset allocations by asset category for our pension plans, at December 31, were as follows:

	2021	2020
Equity securities	12%	34%
Debt securities	86%	64%
Other	2%	2%
	100%	100%

Our U.S. pension plan is managed as a balanced portfolio comprised of two components: equity and fixed income debt securities. Equity investments are used to maximize the long-term real growth of fund assets, while fixed income investments are used to generate current income, provide for a more stable periodic return and provide some protection against a prolonged decline in the market value of equity investments. Temporary funds may be held as cash. We maintain a long-term strategic asset allocation policy which provides guidelines for ensuring that the fund's investments are managed with the short-term and long-term financial goals of the fund, while allowing the flexibility to react to unexpected changes in capital markets.

Diversification across and within asset classes is the primary means by which we mitigate risk. We maintain guidelines for all asset and sub-asset categories in order to avoid excessive investment concentrations. Fund assets are monitored on a regular basis. If at any time the fund asset allocation is not within the acceptable allocation range, funds will be reallocated. We also review the fund on a regular basis to ensure that the investment returns received are consistent with the short-term and long-term goals of the fund and with comparable market returns. We are prohibited from pledging fund securities and from investing pension fund assets in our own stock, securities on margin or derivative securities.

The following are the U.S. target asset allocations and acceptable allocation ranges:

	Target allocation	Allocation range
Equity securities	5%	2% - 8%
Debt securities	95%	92% - 98%
Other	—%	0% - 3%

The following tables present the fair value of our pension plan assets, utilizing the fair value hierarchy discussed in Note 12, *Fair Value Measurements*. In accordance with U.S. GAAP, certain pension plan assets measured at net asset value ("NAV") have not been classified in the fair value hierarchy.

	Balance at December 31,	**Basis of Fair Value Measurements**		
($ in millions)	2021	Level 1	Level 2	Level 3
Cash	$ 1.6	$ 1.6	$ —	$ —
Equity securities:				
International mutual funds	21.2	—	21.2	—
Fixed income securities:				
Mutual funds	22.1	—	22.1	—
Other mutual funds	4.6	—	4.6	—
Pension plan assets in the fair value hierarchy	$ 49.5	$ 1.6	$ 47.9	$ —
Pension plan assets measured at NAV	199.7			
Pension plan assets at fair value	$ 249.2			

($ in millions)	Balance at December 31, 2020	Basis of Fair Value Measurements Level 1	Level 2	Level 3
Cash	$ 1.5	$ 1.5	$ —	$ —
Equity securities:				
International mutual funds	20.6	—	20.6	—
Fixed income securities:				
Mutual funds	18.7	—	18.7	—
Other mutual funds	2.9	—	2.9	—
Pension plan assets in the fair value hierarchy	$ 43.7	$ 1.5	$ 42.2	$ —
Pension plan assets measured at NAV	214.4			
Pension plan assets at fair value	$ 258.1			

Note 16: Other Expense (Income)

Other expense (income) consisted of:

($ in millions)	2021	2020	2019
Restructuring and related charges:			
Severance and post-employment benefits	$ 0.6	$ 4.6	$ 2.6
Asset-related charges	—	—	0.3
Other charges	1.6	—	2.0
Total restructuring and related charges	$ 2.2	$ 4.6	$ 4.9
Fixed asset impairments and sale of equipment, net	1.3	7.7	0.8
Argentina currency devaluation	—	—	1.0
Brazil tax recovery	—	—	(4.7)
Development and licensing income	(0.9)	(0.9)	(0.9)
Contingent consideration	1.5	1.2	2.1
Foreign exchange transaction gains	(1.4)	(1.5)	(4.6)
Cost investment activity	4.3	2.5	—
Other items	0.9	(1.6)	(1.1)
Total other expense (income)	$ 7.9	$ 12.0	$ (2.5)

Restructuring and Related Charges

In July 2020, our Board of Directors approved a restructuring plan designed to optimize certain organizational structures within the Company to better support our continued growth and business priorities. These changes are expected to be implemented over a period of up to twenty-four months from the date of the approval. The plan was originally expected to require restructuring and related charges of approximately $15 million to $17 million, with annualized savings being in the range of $3.5 million to $4.5 million. Due to the recent increase in customer demand, the Company will no longer proceed with certain portions of the plan, thus reducing the total expected charges to be approximately $7 million to $8 million. Similarly, annualized savings are now expected to be in the range of $0.9 million to $1.6 million. Since its approval, we recorded a net pre-tax amount equal to $6.8 million in restructuring related charges associated with this plan.

The following table presents activity related to our restructuring obligations related to our 2020 restructuring plan:

($ in millions)	Severance and benefits	Other charges	Total
Balance, December 31, 2020	$ 4.6	$ —	$ 4.6
Charges	0.6	1.6	2.2
Cash payments	(2.4)	(1.1)	(3.5)
Balance, December 31, 2021	$ 2.8	$ 0.5	$ 3.3

In February 2018, our Board of Directors approved a restructuring plan designed to realign our manufacturing capacity with demand. These changes were expected to be implemented over a period of up to twenty-four months from the date of the approval. The plan was expected to require restructuring and related charges of approximately $16.0 million. Since its approval, we recorded $13.7 million in restructuring and related charges associated with this plan. The plan is now considered complete.

During 2019, we recorded $4.9 million in restructuring and related charges associated with this plan, consisting of $2.6 million for severance charges, $0.3 million for non-cash asset write-downs associated with the discontinued use of certain equipment, and $2.0 million for other non-cash charges.

The following table presents activity related to our restructuring obligations related to our 2018 restructuring plan:

($ in millions)	Severance and benefits	Total
Balance, December 31, 2019	$ 1.4	$ 1.4
Cash payments	(1.3)	(1.3)
Balance, December 31, 2020	$ 0.1	$ 0.1
Cash payments	(0.1)	(0.1)
Balance, December 31, 2021	$ —	$ —

On February 15, 2016, our Board of Directors approved a restructuring plan designed to repurpose several of our production facilities in support of growing high-value proprietary products and to realign operational and commercial activities to meet the needs of our new market-focused commercial organization. During 2019, we recorded $0.3 million in additional charges related to this restructuring plan. Our remaining restructuring obligations related to our 2016 restructuring plan are complete.

Other

During 2021, specific to our cost method investments, we recorded a total impairment charge of $4.6 million which was offset by a net gain of $0.3 million on the sale of a cost investment. During 2020, specific to our cost method investments, we recorded a total impairment charge of $2.5 million.

During 2019, we recorded a charge of $1.0 million as a result of the continued devaluation of Argentina's currency.

During 2019, we recognized a tax recovery of $4.7 million related to previously-paid international excise taxes, following a favorable court ruling.

During 2021, 2020 and 2019, we recorded development income of $0.9 million in each year, related 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. Please refer to Note 3, *Revenue*, for additional information.

Contingent consideration represents changes in the fair value of the SmartDose contingent consideration. Please refer to Note 12, *Fair Value Measurements*, for additional details.

Note 17: Income Taxes

As a global organization, we and our subsidiaries file income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. As of December 31, 2021, the statute of limitations for the U.S. federal tax years 2017 through 2021 remain open to examination. For U.S. state and local jurisdictions, tax years 2013 through 2021 are open to examination. We are also subject to examination in various foreign jurisdictions for tax years 2014 through 2021.

A reconciliation of the beginning and ending amount of the liability for unrecognized tax benefits is as follows:

($ in millions)	2021	2020
Balance at January 1	$ 10.4	$ 5.0
Increase due to current year position	16.3	4.9
(Decrease) increase due to prior year position	(1.0)	0.6
Reduction for expiration of statute of limitations/audits	(0.8)	(0.1)
Balance at December 31	$ 24.9	$ 10.4

In addition, we had balances in accrued liabilities for interest and penalties of $0.5 million and $0.3 million at December 31, 2021 and 2020, respectively. As of December 31, 2021, we had $24.9 million of total gross unrecognized tax benefits, which, if recognized, $16.7 million would favorably impact the effective income tax rate. It is reasonably possible that, due to the expiration of statutes and the closing of tax audits, the amount of gross unrecognized tax benefits may be reduced by approximately $0.4 million during the next twelve months, which would favorably impact our effective tax rate.

The components of income before income taxes are:

($ in millions)	2021	2020	2019
U.S. operations	$ 420.0	$ 227.0	$ 161.2
International operations	328.9	174.3	130.6
Total income before income taxes	$ 748.9	$ 401.3	$ 291.8

The related provision for income taxes consists of:

($ in millions)	2021	2020	2019
Current:			
Federal	$ 64.8	$ 28.9	$ 10.8
State	10.9	3.4	2.4
International	74.4	46.0	30.5
Current income tax provision	150.1	78.3	43.7
Deferred:			
Federal and state	7.3	0.2	10.3
International	(50.2)	(6.0)	5.0
Deferred income tax provision	(42.9)	(5.8)	15.3
Income tax expense	$ 107.2	$ 72.5	$ 59.0

Deferred income taxes result from temporary differences between the amount of assets and liabilities recognized for financial reporting and tax purposes.

The significant components of our deferred tax assets and liabilities at December 31 are:

($ in millions)	2021	2020
Deferred tax assets		
Net operating loss carryforwards	$ 14.0	$ 21.4
Tax credit carryforwards	1.5	2.0
Pension and deferred compensation	31.6	35.3
Royalty acceleration	45.1	—
Other	12.2	11.0
Valuation allowance	(12.2)	(15.1)
Total deferred tax assets	92.2	54.6
Deferred tax liabilities:		
Property, plant, and equipment	47.2	42.1
Tax on undistributed earnings of subsidiaries	1.8	6.5
Other	(0.4)	0.4
Total deferred tax liabilities	48.6	49.0
Net deferred tax asset (liability)	$ 43.6	$ 5.6

A reconciliation of the U.S. federal corporate tax rate to our effective consolidated tax rate on income before income taxes is as follows:

	2021	2020	2019
U.S. federal corporate tax rate	21.0%	21.0%	21.0%
Tax on international operations other than U.S. tax rate	1.9	1.2	2.7
Adjustments to reserves for unrecognized tax benefits	0.1	1.4	0.4
U.S. tax on international earnings, net of foreign tax credits	0.3	0.4	0.4
Foreign-Derived Intangible Income Deductions (FDII)	(1.5)	(1.1)	(0.6)
State income taxes, net of federal tax effect	(0.1)	1.2	1.4
U.S. research and development credits	(0.4)	(0.7)	(1.0)
Excess tax benefits on share-based payments	(4.2)	(5.2)	(3.5)
Royalty acceleration	(2.5)	—	—
Tax on undistributed earnings of subsidiaries	(0.6)	0.1	(0.2)
Other	0.3	(0.2)	(0.4)
Effective tax rate	14.3%	18.1%	20.2%

During 2021, we recorded a tax benefit of $1.4 million due to the impact of tax law changes enacted during the year, a tax benefit of $18.5 million due to the Company's prepayment of future royalties from one of its subsidiaries, and a tax benefit of $31.5 million associated with stock-based compensation.

During 2020, we recorded a tax benefit of $0.5 million due to the impact of tax law changes enacted during the year and a tax benefit of $20.8 million associated with stock-based compensation.

During 2019, we recorded a net tax benefit of $0.3 million for the estimated impact of the 2017 Tax Act and a tax benefit of $10.3 million associated with stock-based compensation.

State operating loss carryforwards of $138.6 million created a deferred tax asset of $10.6 million, while foreign operating loss carryforwards of $20.0 million created a deferred tax asset of $3.4 million. Management estimates that certain state and foreign operating loss carryforwards are unlikely to be utilized and the associated deferred tax assets have been fully reserved. In 2021, it was determined that $4.4 million of previously reserved state loss carryforwards were more likely than not to be utilized prior to expiration. State loss carryforwards expire as follows: $7.8 million in 2022 and $130.8 million thereafter. Foreign loss carryforwards will begin to expire in 2030, while $18.0 million of the total $20.0 million will not expire.

During 2019, we utilized all of our remaining U.S. federal research and development credit carryforwards. State research and development credit carryforwards of $1.0 million created a deferred tax asset of $0.8 million. As of December 31, 2021, $0.4 million of state research and development credits expire in 2025.

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 $635.3 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.

Note 18: Commitments and Contingencies

At December 31, 2021, we were obligated under various operating lease agreements. Please refer to Note 6, *Leases*, for additional details.

At December 31, 2021, we were obligated under various defined benefit pension plans in the U.S. and other countries that cover employees who meet eligibility requirements. Please refer to Note 15, *Benefit Plans*, for additional details.

At December 31, 2021, our outstanding unconditional contractual commitments, including for the purchase of raw materials and finished goods, amounted to $93.6 million, the majority of which is to be paid in the next two years, with $48.3 million due to be paid in 2022.

We have letters of credit totaling $2.4 million supporting the reimbursement of workers' compensation and other claims paid on our behalf by insurance carriers. Our accrual for insurance obligations was $3.1 million at December 31, 2021, of which $0.9 million is in excess of our deductible and, therefore, is reimbursable by the insurance company.

Note 19: Segment Information

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 and other integrated services and solutions, primarily 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.

The Chief Operating Decision Maker ("CODM") evaluates 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, certain pension and other retirement benefit costs, and other corporate facilities and administrative expenses not allocated to the segments. Also excluded are items that the CODM considers 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. The segment operating profit metric is what the CODM uses in evaluating our results of operations and the financial measure that provides a valuable insight into our overall performance and financial position.

The following table presents net sales information about our reportable segments, reconciled to consolidated totals:

($ in millions)	2021	2020	2019
Net sales:			
Proprietary Products	$ 2,317.3	$ 1,648.6	$ 1,398.6
Contract-Manufactured Products	514.7	498.6	441.5
Intersegment sales elimination	(0.4)	(0.3)	(0.2)
Consolidated net sales	$ 2,831.6	$ 2,146.9	$ 1,839.9

The intersegment sales elimination, which is required for the presentation of consolidated net sales, represents the elimination of components sold between our segments.

We do not have any customers accounting for greater than 10% of consolidated net sales.

The following table presents net sales and long-lived assets, by the country in which the legal subsidiary is domiciled and assets are located:

	Net Sales			Long-Lived Assets	
($ in millions)	2021	2020	2019	2021	2020
United States	$ 1,198.0	$ 975.6	$ 814.7	$ 504.1	$ 407.8
Germany	474.3	282.1	236.3	124.1	112.0
Ireland	247.6	226.0	173.8	187.3	197.6
France	213.0	172.7	150.6	86.1	76.0
Other European countries	341.3	236.8	251.1	65.1	66.8
Other	357.4	253.7	213.4	160.1	151.3
	$ 2,831.6	$ 2,146.9	$ 1,839.9	$ 1,126.8	$ 1,011.5

The following tables provide summarized financial information for our segments:

($ in millions)	2021	2020	2019
Proprietary Products	$ 796.1	$ 434.5	$ 313.6
Contract-Manufactured Products	67.2	68.6	49.1
Total business segment operating profit	$ 863.3	$ 503.1	$ 362.7
Corporate and Unallocated			
Stock-based compensation expense	$ (37.5)	$ (34.0)	$ (24.4)
Corporate general costs [1]	(63.4)	(52.1)	(41.9)
Unallocated Items:			
Restructuring and severance related charges [2]	(2.2)	(7.0)	(4.9)
Amortization of acquisition-related intangible assets [3]	(0.8)	(0.6)	—
Asset impairment [4]	(2.8)	—	—
Cost investment activity [5]	(4.3)	(2.5)	—
Gain on restructuring-related sale of assets	—	—	1.7
Argentina currency devaluation	—	—	(1.0)
Tax recovery [6]	—	—	4.4
Total Corporate and Unallocated	(111.0)	(96.2)	(66.1)
Total consolidated operating profit	$ 752.3	$ 406.9	$ 296.6
Other expense/(income), net	3.4	5.6	4.8
Income before income taxes	$ 748.9	$ 401.3	$ 291.8

(1) Corporate general costs includes executive and director compensation, certain pension and other retirement benefit costs, and other corporate facilities and administrative expenses not allocated to the segments.

(2) During 2021 and 2020, the Company recorded a restructuring and severance related charge of $2.2 million and $7.0 million, respectively, to optimize certain organizational structure within the Company. During 2019, the Company recorded $4.9 million in restructuring and related charges in connection with the 2018 plan.

(3) During 2021, the company recorded $0.8 million of amortization expense within operating profit associated with an acquisition of an intangible asset during the second quarter of 2020. During 2020, the company recorded $0.6 million of amortization expense within operating profit associated with an acquisition of an intangible asset during the second quarter of 2020.

(4) The Company recorded a $2.8 million impairment charge for certain long-lived and intangible assets within the Proprietary Products segment as it determined the carrying value was not fully recoverable. $1.9 million of this charge is recorded in Cost of Goods Sold and $0.9 million of the charge is recorded in Selling, General, and Administrative expense, due to the nature of the impaired assets.

(5) During 2021, the net cost investment activity was equal to $4.3 million, inclusive of an impairment charge of $4.6 million partially offset by a $0.3 million gain on the sale of a cost investment. During 2020, the Company recorded a cost investment impairment charge of $2.5 million.

(6) During the twelve months ended December 31, 2019, the Company recorded a net tax recovery of $4.4 million related to previously-paid international excise taxes, following a favorable court ruling.

Please refer to Note 16, *Other Expense (Income)*, for further discussion of unallocated items.

The following tables provide summarized financial information for our two reportable segments and corporate and unallocated:

($ in millions)

Assets	2021	2020
Proprietary Products	$ 2,152.6	$ 1,798.3
Contract-Manufactured Products	443.7	411.6
Corporate and Unallocated	717.5	583.9
Total consolidated	$ 3,313.8	$ 2,793.8

($ in millions)

Depreciation and Amortization	2021	2020	2019
Proprietary Products	$ 93.8	$ 84.6	$ 82.2
Contract-Manufactured Products	21.1	20.4	17.9
Corporate and Unallocated	7.4	4.1	3.3
Total consolidated	$ 122.3	$ 109.1	$ 103.4

($ in millions)

Capital Expenditures	2021	2020	2019
Proprietary Products	$ 218.0	$ 139.5	$ 88.7
Contract-Manufactured Products	26.6	25.0	36.1
Corporate and Unallocated	8.8	9.9	1.6
Total consolidated	$ 253.4	$ 174.4	$ 126.4

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders of West Pharmaceutical Services, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of West Pharmaceutical Services, Inc. and its subsidiaries (the "Company") as of December 31, 2021 and 2020, and the related consolidated statements of income, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2021, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2021 appearing under Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

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

Provision for Income Taxes

As described in Notes 1 and 17 to the consolidated financial statements, the Company's consolidated deferred tax assets were $92.2 million, net of a valuation allowance of $12.2 million, as of December 31, 2021, and income tax expense was $107.2 million for the year ended December 31, 2021. As a global organization, the Company files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. As disclosed by management, management estimates income taxes payable based upon current domestic and international tax legislation. Deferred income taxes are recognized by applying enacted statutory tax rates to tax loss carryforwards and temporary differences between the tax basis and financial statement carrying values of assets and liabilities. The enacted statutory tax rate applied is based on the rate expected to be applicable at the time of the forecasted utilization of the loss carryforward or reversal of the temporary difference. Valuation allowances on deferred tax assets are established when it is more likely than not that all or a portion of a deferred tax asset will not be realized. The realizability of deferred tax assets is subject to estimates of future taxable income, generally at the respective subsidiary company and the country level.

The principal considerations for our determination that performing procedures relating to the provision for income taxes is a critical audit matter are the significant judgment by management in determining the income tax provision due to the Company's global footprint and complexity in the various tax laws applicable in determining the Company's effective tax rate. This in turn led to a high degree of auditor judgment, effort, and subjectivity in performing procedures and in evaluating audit evidence related to the income tax provision. Also, the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to income taxes, including controls over the determination of the income tax provision. These procedures also included, among others, (i) testing the income tax provision, including testing the Company's rate reconciliation, return to provision adjustments, permanent and temporary differences, and financial data used in the income tax provision calculation, and (ii) testing the accuracy of the income tax rates utilized in the provision. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of management's application of relevant income tax law in certain jurisdictions.

/s/ PricewaterhouseCoopers LLP
Philadelphia, Pennsylvania
February 22, 2022

We have served as the Company's auditor since 1963.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure controls are controls and procedures designed to reasonably ensure that information required to be disclosed in our reports filed under the Exchange Act, such as this annual report, is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. Disclosure controls include, without limitation, controls and procedures designed to ensure that information required to be disclosed in our reports filed under the Securities Exchange Act of 1934, as amended, is accumulated and communicated to our management, including our CEO and Chief Financial Officer ("CFO"), or persons performing similar functions, as appropriate, to allow timely decisions regarding required disclosure. Our disclosure controls include some, but not all, components of our internal control over financial reporting.

Evaluation of Disclosure Controls and Procedures
An evaluation was performed under the supervision and with the participation of our management, including our CEO and CFO, of the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934), as of the end of the period covered by this Form 10-K. Based on this evaluation, our CEO and CFO have concluded that, as of December 31, 2021, our disclosure controls and procedures are effective.

Management's Report on Internal Control over Financial Reporting
Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934. Our internal control over financial reporting is a process designed under the supervision of our CEO and CFO to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with U.S. generally accepted accounting principles.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2021 based on the framework established in "Internal Control-Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management has determined that our internal control over financial reporting was effective as of December 31, 2021.

Internal control over financial reporting has inherent limitations. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. Internal control over financial reporting also can be circumvented by collusion or improper management override. Because of such limitations, there is a risk that material misstatements will not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to design into the process safeguards to reduce, though not eliminate, this risk.

The effectiveness of our internal control over financial reporting as of December 31, 2021 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Changes in Internal Controls
During the fourth quarter ended December 31, 2021, there have been no changes to our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information is incorporated by reference from the discussion under the heading *Proposal 1 - Election of Directors*; *Corporate Governance Documents and Policies - Ethics and Our Code of Business Conduct*; *Voting and Other Information - Shareholder Proposals or Nominations;* and *Board and Director Information and Policies - Committees - Audit Committee* in our 2022 Proxy Statement. The balance of the information required by this item is contained in the discussion entitled *Information About Our Executive Officers* in Part I of this Form 10-K.

ITEM 11. EXECUTIVE COMPENSATION

Information about director and executive compensation is incorporated by reference from the discussion under the headings *Director Compensation, Compensation Committee Report, Compensation Discussion and Analysis,* and *Compensation Tables* in our 2022 Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Information required by this Item is incorporated by reference from the discussion under the heading *Stock Ownership* in our 2022 Proxy Statement.

Equity Compensation Plan Information Table

The following table sets forth information about the grants of stock options, all share units and other rights under all of the Company's equity compensation plans as of the close of business on December 31, 2021. The table does not include information about tax-qualified plans such as the West 401(k) Plan or the West Contract Manufacturing Savings and Retirement Plan.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights (a)	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Columns (a)) (c)
Equity compensation plans approved by security holders	2,559,296 [1]	$ 101.59 [2]	5,819,087 [3]
Equity compensation plans not approved by security holders	—	—	—
Total	2,559,296	101.59	5,819,087

[1] Includes 1,234,591 outstanding stock options, 11,138 stock appreciation rights, 165,793 performance share units, 22,507 restricted retention share units, and 140,049 deferred stock-equivalents units under the 2016 Plan. Includes 810,267 outstanding stock options, 9,916 stock appreciation rights, and 132,107 deferred stock-equivalents units under the 2011 Plan (which was terminated in 2016). Includes 35,593 deferred stock-equivalents under the 2007 Omnibus Incentive Compensation Plan (which was terminated in 2011). The average term of remaining options is 5.5 years. No future grants or awards may be made under the terminated plans. The total includes restricted performance share units at 100% of grant. The restricted performance share unit payouts were at 154.52%, 82.61%, and 49.39% in 2021, 2020 and 2019, respectively.

[2] All share units and deferred stock-equivalent units are excluded when determining the weighted-average exercise price of outstanding options.

[3] Represents 3,766,202 shares reserved under the Company's Employee Stock Purchase Plan and 2,052,885 shares remaining available for issuance under the 2016 Plan. The estimated number of shares that could be issued for 2021 from the Employee Stock Purchase Plan is 126,360. This number of shares is calculated by multiplying the 65 shares per offering period per participant limit by 1,944, the number of current participants in the plan.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information called for by this Item is incorporated by reference from the discussion under the heading *Corporate Governance Documents and Policies - Related Person Transactions and Procedures* in our 2022 Proxy Statement. Information about director independence is incorporated by reference from the discussion under the heading *Corporate Governance Documents and Policies - Director Independence* in our 2022 Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

Information is incorporated by reference from the discussion under the heading *Independent Auditors and Fees - Fees Paid to PricewaterhouseCoopers LLP* and *Independent Auditors and Fees - Audit Committee Policy on Pre-Approval of Audit and Permissible Non-Audit Services* in our 2022 Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) 1. Financial Statements

The following documents are included in Part II, Item 8:

Consolidated Statements of Income for the years ended December 31, 2021, 2020 and 2019
Consolidated Statements of Comprehensive Income for the years ended December 31, 2021, 2020 and 2019
Consolidated Balance Sheets at December 31, 2021 and 2020
Consolidated Statement of Equity for the years ended December 31, 2021, 2020 and 2019
Consolidated Statements of Cash Flows for the years ended December 31, 2021, 2020 and 2019
Notes to Consolidated Financial Statements
Report of Independent Registered Public Accounting Firm (PCAOB ID 238)

(a) 2. Financial Statement Schedules

Schedule II - Valuation and Qualifying Accounts

($ in millions)	Balance at beginning of period	Charged to costs and expenses	Deductions (1)	Balance at end of period
For the year ended December 31, 2021				
Allowances deducted from assets:				
Deferred tax asset valuation allowance	$ 15.1	$ (2.9)	$ —	$ 12.2
Allowance for doubtful accounts	1.1	(0.7)	—	0.4
Total allowances deducted from assets	$ 16.2	$ (3.6)	$ —	$ 12.6
For the year ended December 31, 2020				
Allowances deducted from assets:				
Deferred tax asset valuation allowance	$ 15.9	$ —	$ (0.8)	$ 15.1
Allowance for doubtful accounts	0.5	0.7	(0.1)	1.1
Total allowances deducted from assets	$ 16.4	$ 0.7	$ (0.9)	$ 16.2
For the year ended December 31, 2019				
Allowances deducted from assets:				
Deferred tax asset valuation allowance	$ 16.0	$ —	$ (0.1)	$ 15.9
Allowance for doubtful accounts	2.0	0.1	(1.6)	0.5
Total allowances deducted from assets	$ 18.0	$ 0.1	$ (1.7)	$ 16.4

(1) Includes accounts receivable written off, the write-off or write-down of valuation allowances, and translation adjustments.

All other schedules are omitted because they are either not applicable, not required or because the information required is contained in the consolidated financial statements or notes thereto.

(a) 3. Exhibits - An index of the exhibits included in this Form 10-K is contained on pages F-1 through F-3 and is incorporated herein by reference.
(b) See subsection (a) 3. above.
(c) Financial Statements of affiliates are omitted because they do not meet the tests of a significant subsidiary at the 20% level.

ITEM 16. FORM 10-K SUMMARY

None.

SIGNATURES

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

WEST PHARMACEUTICAL SERVICES, INC.
(Registrant)

By: /s/ Bernard J. Birkett
Bernard J. Birkett
Senior Vice President and Chief Financial Officer

February 22, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of West Pharmaceutical Services, Inc. and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Eric M. Green	Director, President and Chief Executive Officer	February 22, 2022
Eric M. Green	(Principal Executive Officer)	
/s/ Bernard J. Birkett	Senior Vice President and Chief Financial Officer	February 22, 2022
Bernard J. Birkett	(Principal Financial Officer)	
/s/ Chad R. Winters	Vice President, Chief Accounting Officer and Corporate Controller	February 22, 2022
Chad R. Winters	(Principal Accounting Officer)	
/s/ Mark A. Buthman	Director	February 22, 2022
Mark A. Buthman		
/s/ William F. Feehery, Ph.D.	Director	February 22, 2022
William F. Feehery, Ph.D.		
/s/ Robert F. Friel	Director	February 22, 2022
Robert F. Friel		
/s/ Thomas W. Hofmann	Director	February 22, 2022
Thomas W. Hofmann		
/s/ Molly E. Joseph	Director	February 22, 2022
Molly E. Joseph		
/s/ Deborah L.V. Keller	Director	February 22, 2022
Deborah L.V. Keller		
/s/ Myla P. Lai-Goldman, M.D.	Director	February 22, 2022
Myla P. Lai-Goldman, M.D.		
/s/ Douglas A. Michels	Director	February 22, 2022
Douglas A. Michels		
/s/ Paolo Pucci	Director	February 22, 2022
Paolo Pucci		
/s/ Patrick J. Zenner	Director and Chairman of the Board	February 22, 2022
Patrick J. Zenner		

EXHIBIT INDEX

Exhibit Number	Description
3.1	Our Amended and Restated Articles of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Form 10-Q report for the quarter ended June 30, 2020, filed July 24, 2020).
3.2	Our Bylaws, as amended through February 23, 2021 (incorporated by reference from our Form 8-k, filed March 1, 2021).
4.1	Form of stock certificate for common stock (incorporated by reference to Exhibit 4 to the Company's 1998 Form 10-K, filed May 6, 1999)
4.2	Article 5, 6, 8(c) and 9 of our Amended and Restated Articles of Incorporation (incorporated by reference to Exhibit 3.1 to the Company's Form 10-Q report for the quarter ended June 30, 2020, filed July 24, 2020).
4.3	Article I and V of our Bylaws, as amended through February 23, 2021 (incorporated by reference from our Form 8-k, filed March 1, 2021).
4.4	Description of Registered Securities (incorporated by reference to Exhibit 4.4 to the Company's 2020 Form 10-K, filed February 23, 2021).
4.5 (1)	Instruments defining the rights of holders of long-term debt securities of West and its subsidiaries constituting less than 10% of West's total assets have been omitted.
10.1	LIBOR Transition Amendment to the Credit Agreement, dated as of March 28, 2019 (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended September 30, 2021, filed October 28, 2021), between West, each of the lenders party thereto from time to time, and Bank of America, N.A
10.2	First Amendment and Incremental Facility Amendment, dated as of December 30, 2019, between West, each of the lenders party thereto from time to time, and Bank of America, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.2 to the Company's 2019 10-K file February 24, 2020).
10.3	Note Purchase Agreement, dated July 5, 2012, among the Company and the Purchasers named therein (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed July 10, 2012).
10.4 (2)	Employment Agreement, dated as of April 13, 2015, between us and Eric M. Green (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K dated April 15, 2015).
10.5 (2)	Indemnification Agreement, dated as of April 24, 2015, between us and Eric M. Green (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K dated April 30, 2015).
10.6 (2)	Sign-On Retention Award Notice, dated as of April 24, 2015, from us to Eric M. Green (incorporated by reference to Exhibit 10.2 to the Company's Form 8-K dated April 30, 2015).
10.7 (2)	Employment Agreement, dated May 29, 2018, between us and Bernard J. Birkett (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed June 21, 2018).
10.8 (2)	Employment Agreement, dated August 28, 2016, between David Montecalvo and us (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended September 30, 2016, filed October 31, 2016).
10.9 (2)	Employment Agreement dated November 4, 2020, between Kimberly MacKay and us.
10.10 (2)	Employment Agreement dated February 8, 2018, between Silji Abraham and us.
10.11 (2)	Supplemental Employees' Retirement Plan, as amended and restated effective January 1, 2008 (incorporated by reference to Exhibit 10.17 to the Company's 2008 Form 10-K report, filed February 27, 2009).
10.12 (2)	Non-Qualified Deferred Compensation Plan for Designated Employees, as amended and restated effective January 1, 2020 (incorporated by reference to Exhibit 10.10 to the Company's Form 10-Q report for the quarter ended September 30, 2020, filed October 23, 2020).
10.13 (2)	Deferred Compensation Plan for Outside Directors, as amended and restated effective June 30, 2013 (incorporated by reference to Exhibit 10.26 to the Company's 2013 Form 10-K report, filed February 27, 2014).
10.14 (2)	2016 Omnibus Incentive Compensation Plan, as amended through May 4, 2021 (incorporated by reference from our Form 8-k, filed May 4, 2021).
10.15 (2)	2011 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed May 6, 2011).
10.16 (2)	2007 Omnibus Incentive Compensation Plan effective as of May 1, 2007 (incorporated by reference to Exhibit 99.1 to the Company's Form 8-K filed May 4, 2007).
10.17 (2)	Form of Executive 2006 Non-Qualified Stock Option Award is incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended March 31, 2006, filed May 10,

Exhibit Number	Description
10.18 (2)	Form of Director 2006 Non-Qualified Stock Option Award Notice (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended June 30, 2006, filed August 7, 2006).
10.19 (2)	Form of Director 2006 Stock Unit Award Notice (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended June 30, 2006, filed August 7, 2006).
10.20 (2)	Form of Director 2007 Deferred Stock Award, issued pursuant to the 2007 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended June 30, 2007, filed August 3, 2007).
10.21 (2)	Form of 2008 Non-Qualified Stock Option and Performance-Vesting Share Unit Award, issued pursuant to the 2007 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended March 31, 2008, filed May 8, 2008).
10.22 (2)	Form of Director 2008 Deferred Stock Award, issued pursuant to the 2007 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.41 to the Company's 2008 Form 10-K report, filed February 27, 2009).
10.23 (2)	Form of 2009 Supplemental Long-Term Incentive Award (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended September 30, 2009, filed November 14, 2009).
10.24 (2)	Form of 2014 Long-Term Incentive Plan Award (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended March 31, 2014, filed May 8, 2014).
10.25 (2)	Form of 2014 Stock-Settled Restricted Stock Unit Award (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended June 30, 2014, filed August 1, 2014).
10.26 (2)	Form of 2019 Performance Stock Unit (PSU) Award issued under the 2016 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended March 31, 2019, filed May 8, 2019).
10.27 (2)	Form of 2019 Stock Option Award issued under the 2016 Omnibus Incentive Compensation Plan (incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q report for the quarter ended March 31, 2019, filed May 8, 2019).
10.28	Indemnification agreements between us and each of our directors (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K report filed January 6, 2009).
10.29 (2)	Form of Change-in-Control Agreement between us and certain of our executive officers (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended September 30, 2017, filed October 31, 2017).
10.30 (3)	Agreement, effective as of January 1, 2005, between us and The Goodyear Tire & Rubber Company (incorporated by reference to Exhibit 10d to the Company's Form 10-Q report for the quarter ended June 30, 2005, filed August 9, 2005).
10.31 (3)	First Agreement, effective as of July 1, 2008, to amend Agreement between us and The Goodyear Tire & Rubber Company (incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q report for the quarter ended March 31, 2009, filed May 6, 2009).
10.32 (3)	Second Agreement, dated August 16, 2016, to amend Agreement between us and The Goodyear Tire & Rubber Company and us (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended September 30, 2016, filed October 31, 2016).
10.33 (3)	Distributorship Agreement, dated and effective January 18, 2017, between Daikyo Seiko, Ltd. and us (incorporated by reference to Exhibit 10.39 to the Company's 2016 Form 10-K report filed February 28, 2017).
10.34 (3)	Amended and Restated Technology Exchange and CrossLicense Agreement, dated and effective January 18, 2017, between Daikyo Seiko, Ltd. and us (incorporated by reference to Exhibit 10.40 to the Company's 2016 Form 10-K report, filed February 28, 2017).
10.35 (3)	Amended Agreement, dated and effective July 2, 2018, between Daikyo Seiko, Ltd. and us (incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q report for the quarter ended June 30, 2018, filed July 31, 2018).
10.36 (4)	Amendment Agreement, dated as of October 15, 2019, between us and Daikyo Seiko, Ltd., (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed October 16, 2019).
10.37 (4)	Global Master Supply Agreement by and between ExxonMobil Chemical Company and us, entered into on January 10, 2020, and effective January 1, 2019 through December 31, 2023 (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K report filed January 16, 2020).
21	Subsidiaries of the Company.
23	Consent of Independent Registered Public Accounting Firm.
31.1	Certification by the Chief Executive Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.

Exhibit Number	Description
31.2	Certification by the Chief Financial Officer Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification by the Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification by the Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
104*	Inline XBRL for the cover page of this Annual Report on Form 10-K, included in the Exhibit 101 Inline XBRL Document Set.

(1) We agree to furnish to the SEC, upon request, a copy of each instrument with respect to issuances of long-term debt of the Company and its subsidiaries.

(2) Management compensatory plan.

(3) Certain portions of this exhibit have been omitted and filed separately with the SEC pursuant to a confidential treatment order of the SEC.

(4) Portions of this exhibit (indicated therein by asterisks) have been omitted for confidential treatment.

* Furnished, not filed.

INDEPENDENT DIRECTORS

The Board of Directors has designated directors who are independent of Management as "Independent Directors." The Independent Directors' duties include annual evaluations of the Chief Executive Officer, his leadership succession plans and achievement of long-range strategic initiatives.

Written Affirmation

On June 2, 2021, Eric M. Green, West's President & Chief Executive Officer, submitted to the NYSE the Written Affirmation required by the rules of the NYSE certifying that he was not aware of any violations by the Company of NYSE Corporate Governance listing standards.

Section 302 and 906 Certifications

The certifications of Mr. Green and Bernard J. Birkett, West's Chief Financial Officer, made pursuant to Section 302 and Section 906 of the Sarbanes-Oxley Act of 2002 regarding the quality of the Company's public disclosures, have been filed as exhibits to West's 2021 Form 10-K.

Dividends

West Pharmaceutical Services has paid 205 consecutive quarterly common stock cash dividends since becoming a public company in 1970. Dividends usually are declared by the Board during the last month of each calendar quarter and, if approved, typically are paid on the first Wednesday of February, May, August and November to shareholders of record two weeks prior to the payment date.

Dividend Reinvestment Plan

The West Pharmaceutical Services Dividend Reinvestment Plan for all registered shareholders is a convenient and economical way for shareholders to increase their investment in West through the purchase of additional shares with dividends and voluntary cash payments. All brokerage commissions and costs of administering the plan are paid by West. For details of the plan and an enrollment form, please contact the Dividend Reinvestment Department of Broadridge Corporate Issuer Solutions (see Transfer Agent and Registrar).

Publications

To receive copies of press releases or quarterly and annual reports filed with the United States Securities and Exchange Commission, write to Investor Relations at our global headquarters, call 888-594-3222 or send a message through West's website: www.westpharma.com.

Online Investor Site

http://investor.westpharma.com

Trademarks

West without Borders is not affiliated with Doctors Without Borders®, which is a registered service mark of Bureau International de Médecins Sans Frontières.

INVESTOR INFORMATION

Stock Listing

NYSE symbol: WST

Shareholders of Record

As of December 31, 2021: 671

Average Daily Trading Volume 2021

First Quarter: 491,480 shares
Second Quarter: 379,863 shares
Third Quarter: 330,919 shares
Fourth Quarter: 376,080 shares

Global Headquarters

West Pharmaceutical Services, Inc.
530 Herman O. West Drive
Exton, PA 19341 | USA
610-594-2900
www.westpharma.com

Annual Meeting (Virtual)

Tuesday, May 24, 2022, 2:00 p.m.

Code of Business Conduct

Available at http://investor.westpharma.com

Investor Relations Contact

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West
By your side
for a healthier world™

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for a healthier world™

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