BORGWARNER INC
Form 10-K
February 19, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington D.C. 20549
Form 10-K
ANNUAL REPORT

(Mark One)
þ Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the fiscal year ended December 31, 2018
OR
o 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: 1-12162
BorgWarner Inc.
(Exact name of registrant as specified in its charter)

Delaware	13-3404508
State or other jurisdiction of Incorporation or organization	(I.R.S. Employer Identification No.)

3850 Hamlin Road,
Auburn Hills, Michigan 48326
(Address of principal executive offices) (Zip Code)
Registrant's telephone number, including area code: (248) 754-9200
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value $0.01 per share	New York Stock Exchange

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

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Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
Yes þ No o
Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
Yes o No þ
Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.
Yes þ No o
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes þ No o

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

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

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

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

The aggregate market value of the voting common stock of the registrant held by stockholders (not including voting common stock held by directors and executive officers of the registrant) on June 30, 2018 (the last business day of the most recently completed second fiscal quarter) was approximately $8.9 billion.

As of February 8, 2019, the registrant had 207,700,721 shares of voting common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the following documents are incorporated herein by reference into the Part of the Form 10-K indicated.

Document	Part of Form 10-K into which incorporated
Portions of the BorgWarner Inc. Proxy Statement for the 2019 Annual Meeting of Stockholders	Part III

BORGWARNER INC.
FORM 10-K
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CAUTIONARY STATEMENTS FOR FORWARD-LOOKING INFORMATION

Statements contained in this Annual Report on Form 10-K ("Form 10-K") (including Management's Discussion and Analysis of Financial Condition and Results of Operations) may contain forward-looking statements as contemplated by the 1995 Private Securities Litigation Reform Act (the “Act”) that are based on management's current outlook, expectations, estimates and projections. Words such as "anticipates," "believes," "continues," "could," "designed," "effect," "estimates," "evaluates," "expects," "forecasts," "goal," "initiative," "intends," "outlook," "plans," "potential," "project," "pursue," "seek," "should," "target," "when," "would," and variations of such words and similar expressions are intended to identify such forward-looking statements. Further, all statements, other than statements of historical fact contained or incorporated by reference in this Form 10-K, that we expect or anticipate will or may occur in the future regarding our financial position, business strategy and measures to implement that strategy, including changes to operations, competitive strengths, goals, expansion and growth of our business and operations, plans, references to future success and other such matters, are forward-looking statements. Accounting estimates, such as those described under the heading "Critical Accounting Policies" in Item 7 of this Annual Report on Form 10-K, are inherently forward-looking. All forward looking statements are based on assumptions and analyses made by us in light of our experience and our perception of historical trends, current conditions and expected future developments, as well as other factors we believe are appropriate in the circumstances. Forward-looking statements are not guarantees of performance and the Company's actual results may differ materially from those expressed, projected or implied in or by the forward-looking statements.

You should not place undue reliance on these forward-looking statements, which speak only as of the date of this Annual Report. Forward-looking statements are subject to risks and uncertainties, many of which are difficult to predict and generally beyond our control, that could cause actual results to differ materially from those expressed, projected or implied in or by the forward-looking statements. These risks and uncertainties, among others, include: our dependence on automotive and truck production, both of which are highly cyclical; our reliance on major OEM customers; commodities availability and pricing; supply disruptions; fluctuations in interest rates and foreign currency exchange rates; availability of credit; our dependence on key management; our dependence on information systems; the uncertainty of the global economic environment; the outcome of existing or any future legal proceedings, including litigation with respect to various claims; future changes in laws and regulations in the countries in which we operate; and the other risks noted under Item 1A, “Risk Factors,” and in other reports that we file with the Securities and Exchange Commission. We do not undertake any obligation to update or announce publicly any updates to or revisions to any of the forward-looking statements in this Form 10-K to reflect any change in our expectations or any change in events, conditions, circumstances, or assumptions underlying the statements.

This section and the discussions contained in Item 1A, "Risk Factors," and in Item 7, subheading "Critical Accounting Policies" in this report, are intended to provide meaningful cautionary statements for purposes of the safe harbor provisions of the Act. This should not be construed as a complete list of all of the economic, competitive, governmental, technological and other factors that could adversely affect our expected consolidated financial position, results of operations or liquidity. Additional risks and uncertainties, including without limitation those not currently known to us or that we currently believe are immaterial, also may impair our business, operations, liquidity, financial condition and prospects.

Changes in global trade policies and newly enacted tariffs had a modestly negative impact on the Company's financial results for the year ended December 31, 2018. The Company is continuing to evaluate the future impact that these newly enacted tariffs, and any other proposed tariffs, may have on our business, including without limitation, the imposition of new tariffs by the United States government on imports to the U.S. (which could increase the cost of raw materials or components we purchase) and/or the imposition of retaliatory tariffs by foreign countries (which could increase the cost of products we sell). Restrictive global trade policies and the implementation of new tariffs could adversely affect our business.

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Use of Non-GAAP Financial Measures

In addition to results presented in accordance with accounting principles generally accepted in the United States of America (“GAAP”), this report includes non-GAAP financial measures. The Company believes these non-GAAP financial measures provide additional information that is useful to investors in understanding the underlying performance and trends of the Company. Readers should be aware that non-GAAP financial measures have inherent limitations and should be cautious with respect to the use of such measures. To compensate for these limitations, we use non-GAAP measures as comparative tools, together with GAAP measures, to assist in the evaluation of our operating performance or financial condition. We calculate these measures using the appropriate GAAP components in their entirety and compute them in a manner intended to facilitate consistent period-to-period comparisons. The Company's method of calculating these non-GAAP measures may differ from methods used by other companies. These non-GAAP measures should not be considered in isolation or as a substitute for those financial measures prepared in accordance with GAAP. Where non-GAAP financial measures are used, the most directly comparable GAAP financial measure, as well as the reconciliation to the most directly comparable GAAP financial measure, can be found in this report.

PART I

ITEM 1. BUSINESS

BorgWarner Inc. (together with it Consolidated Subsidiaries, the “Company”) is a Delaware corporation incorporated in 1987. We are a global product leader in clean and efficient technology solutions for combustion, hybrid and electric vehicles. Our products help improve vehicle performance, propulsion efficiency, stability and air quality. We manufacture and sell these products worldwide, primarily to original equipment manufacturers (“OEMs”) of light vehicles (passenger cars, sport-utility vehicles ("SUVs"), vans and light trucks). The Company's products are also sold to OEMs of commercial vehicles (medium-duty trucks, heavy-duty trucks and buses) and off-highway vehicles (agricultural and construction machinery and marine applications). We also manufacture and sell our products to certain Tier One vehicle systems suppliers and into the aftermarket for light, commercial and off-highway vehicles. The Company operates manufacturing facilities serving customers in Europe, the Americas and Asia and is an original equipment supplier to every major automotive OEM in the world.

Financial Information About Reporting Segments

Refer to Note 21, “Reporting Segments and Related Information,” to the Consolidated Financial Statements in Item 8 of this report for financial information about the Company's reporting segments.

Narrative Description of Reporting Segments

The Company reports its results under two reporting segments: Engine and Drivetrain. Net sales by reporting segment for the years ended December 31, 2018, 2017 and 2016 are as follows:

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Engine	$6,447.4	$6,061.5	$5,590.1
Drivetrain	4,139.4	3,790.3	3,523.7
Inter-segment eliminations	(57.2)	(52.5)	(42.8)
Net sales	$10,529.6	$9,799.3	$9,071.0

The sales information presented above does not include the sales by the Company's unconsolidated joint ventures (see sub-heading “Joint Ventures”). Such unconsolidated sales totaled approximately $947 million, $844 million, and $737 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Engine

The Engine Segment develops and manufactures products to improve fuel economy, reduce emissions and enhance performance. Increasingly stringent regulations of, and consumer demand for, better fuel economy and emissions performance are driving demand for the Engine Segment's products in combustion, hybrid and electric propulsion systems. The Engine Segment's technologies include: turbochargers, eBoosters, timing systems, emissions systems, thermal systems, gasoline ignition technology, cabin heaters, battery heaters and battery charging.

Turbochargers provide several benefits including increased power for a given engine size, improved fuel economy and reduced emissions. The Engine Segment has benefited from the growth in turbocharger demand around the world for both combustion and hybrid propulsion systems. The Engine Segment provides turbochargers for light, commercial and off-highway applications for combustion and hybrid vehicles in Europe, the Americas and Asia. The Engine Segment also designs and manufactures turbocharger actuators using integrated electronics to precisely control turbocharger speed and pressure ratio.

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Sales of turbochargers for light vehicles represented approximately 27%, 28% and 28% of total net sales for the years ended December 31, 2018, 2017 and 2016, respectively. The Engine Segment currently supplies turbochargers to many OEMs including BMW, Daimler, Fiat Chrysler Automobiles ("FCA"), Ford, General Motors, Great Wall, Hyundai, Renault, Volkswagen and Volvo. The Engine Segment also supplies turbochargers to several commercial vehicle and off-highway OEMs including Caterpillar, Daimler, Deutz, International, John Deere, MAN, Navistar and Weichai.

The Engine Segment's timing systems enable precise control of air and exhaust flow through the engine, improving fuel economy and emissions. The Engine Segment's timing systems products include timing chain, variable cam timing (“VCT”), crankshaft and camshaft sprockets, tensioners, guides and snubbers, HY-VO® front-wheel drive (“FWD”) transmission chain, four-wheel drive (“4WD”) chain for light vehicles and hybrid power transmission chain. The Engine Segment is a leading manufacturer of timing systems for OEMs around the world.

The Engine Segment's engine timing technology includes VCT with mid position lock, which allows a greater range of camshaft positioning thereby enabling greater control over airflow and the opportunity to improve fuel economy, reduce emissions and improve engine performance compared with conventional VCT systems.

The Engine Segment's emissions systems products improve emissions performance and fuel economy. Products include electric air pumps and exhaust gas recirculation ("EGR") modules, EGR coolers, EGR valves, glow plugs and instant starting systems for combustion, both gasoline and diesel propulsion systems, and hybrid vehicles.

The Engine Segment's thermal systems products are designed to optimize temperatures in propulsion systems and vehicle cabins. Products include viscous fan drives that sense and respond to multiple cooling requirements, polymer fans, coolant pumps, cabin heaters, battery heaters and battery charging.

On February 28, 2014, the Company acquired 100% of the equity interests in Gustav Wahler GmbH u. Co. KG and its general partner ("Wahler"). Wahler was a producer of EGR valves, EGR pipes and thermostats, and had operations in Germany, Brazil, the U.S., and China.

In 2017, the Company started exploring strategic options for its non-core emission product lines in the Engine segment and launched an active program to locate a buyer and initiated all other actions required to complete the plan to sell and exit the non-core pipe and thermostat product lines. In December 2018, the Company reached an agreement to sell its thermostat product lines for approximately $28.0 million subject to customary adjustments. Completion of the sale is expected in the first quarter of 2019, subject to satisfaction of customary closing conditions. The assets and liabilities of the pipe and thermostat product lines are reported as assets and liabilities held for sale as of December 31, 2018. Refer to Note 20, “Assets and Liabilities Held for Sale,” to the Consolidated Financial Statements in Item 8 of this report for more information.

Drivetrain

The Drivetrain Segment develops and manufactures products to improve fuel economy, reduce emissions and enhance performance in combustion, hybrid and electric vehicles. The Drivetrain Segment’s technologies include: rotating electrical components, power electronics, clutching systems, control modules and all-wheel drive systems. The core design features of its rotating electrical components portfolio are meeting the demands of increasing vehicle electrification, improved fuel efficiency, reduced weight, and lowered electrical and mechanical noise. The Drivetrain Segment's mechanical products include friction, mechanical and controls products for automatic transmissions and torque management products for All-Wheel Drive ("AWD") vehicles, and its rotating electrical components include starter motors, alternators and electric motors for hybrid and electric vehicles.

Friction and mechanical products for automatic transmissions include dual clutch modules, friction clutch modules, friction and separator plates, transmission bands, torque converter clutches, one-way clutches and torsional vibration dampers. Controls products for automatic transmissions feature electro-hydraulic solenoids for standard and high pressure hydraulic systems, transmission solenoid modules and dual clutch control modules. The Company's 50%-owned joint venture in Japan, NSK-Warner KK ("NSK-Warner"), is a leading producer of friction plates and one-way clutches in Japan and China.

The Drivetrain Segment has led the globalization of today's dual clutch transmission ("DCT") technology for over 15 years. BorgWarner's award-winning DualTronic® technology enables a conventional, manual gearbox to function as a fully automatic transmission by eliminating the interruption in power flow that occurs when shifting a single clutch manual transmission. The result is a smooth shifting automatic transmission with the fuel efficiency and driving experience of a manual gearbox.

In 2008, the Company entered into a joint venture agreement with China Automobile Development United Investment Company, a company owned by 12 leading Chinese automakers, to produce various DCT modules for the Chinese market. The Company owns 66% of the joint venture. In 2013, the Drivetrain Segment launched its first DCT application in a Chinese transmission with SAIC. The Drivetrain Segment is producing several other DCT programs with OEMs around the world.

The Drivetrain Segment's torque management products include rear-wheel drive (“RWD”)-AWD transfer case systems, FWD-AWD coupling systems and cross-axle coupling systems. The Drivetrain Segment's focus is on developing electronically-controlled torque management devices and systems that will benefit fuel economy and vehicle dynamics.

Transfer cases are installed on RWD-based light trucks, SUVs, cross-over utility vehicles, and passenger cars. A transfer case attaches to the transmission and distributes torque to the front and rear axles improving vehicle traction and stability in dynamic driving conditions. There are many variants of the Drivetrain Segment's transfer case technology in the market today, including Torque On-Demand (TOD®), chain-driven, gear-driven, Pre-Emptive, Part-Time, 1-speed and 2-speed transfer cases. The Drivetrain Segment's transfer cases are featured on Ford and Ram light-duty and heavy-duty trucks.

The Drivetrain Segment is involved in the AWD market for FWD based vehicles with couplings that use electronically-controlled clutches to distribute power to the rear wheels as traction is required. The Drivetrain Segment's latest coupling innovation, the Centrifugal Electro-Hydraulic (“CEH”) Actuator, used to engage the clutches in the coupling, produces outstanding vehicle stability and traction while promoting better fuel economy with reduced weight. The CEH Actuator is found in the AWD couplings featured in several current FWD-AWD vehicles.

In 2015, the Company acquired Remy International, Inc. (“Remy”), a global market leader in the design, manufacture, remanufacture and distribution of rotating electrical components for light and commercial vehicles, OEMs and the

aftermarket. Remy's principal products include starter motors, alternators and

electric motors. The Company’s starter motors and alternators are used in gasoline, diesel, natural gas and alternative fuel engines for light vehicle, commercial vehicle, and off-highway applications. The product technology continues to evolve to meet the demands of increasing vehicle electrical loads, improved fuel efficiency, reduced weight and lowered electrical and mechanical noise. The Company’s electric motors are used in both light and commercial vehicles including off-highway applications. These include both pure electric applications as well as hybrid applications, where the electric motors are combined with traditional gasoline or diesel propulsion systems.

The Company sells new starters, alternators and hybrid electric motors to OEMs globally for factory installation on new vehicles, and remanufactured and new starters and alternators to heavy duty aftermarket customers outside of Europe and to OEMs for original equipment service. As a leading remanufacturer, BorgWarner obtains used starters and alternators, commonly referred to as cores, then disassembles, cleans, combines them with new subcomponents and reassembles them into saleable, finished products, which are tested to meet OEM requirements.

In 2016, the Company sold the Remy light vehicle aftermarket business, which sells remanufactured and new starters, alternators and multi-line products to aftermarket customers, mainly retailers in North America, and warehouse distributors in North America, South America and Europe. The sale of this business allowed the Company to focus on the rapidly developing OEM electrification trend in propulsion systems.

In 2017, the Company acquired Sevcon, Inc. ("Sevcon"), a global provider of electrification technologies, serving customers in the U.S., U.K., France, Germany, Italy, China and the Asia Pacific region. Principal products include motor controllers, battery chargers, and uninterrupted power source systems for electric and hybrid vehicles, industrial, medical and telecom applications. Sevcon products complement BorgWarner’s power electronics capabilities utilized to provide electrified propulsion solutions.

Joint Ventures

As of December 31, 2018, the Company had seven joint ventures in which it had a less-than-100% ownership interest. Results from the five joint ventures in which the Company is the majority owner are consolidated as part of the Company's results. Results from the two joint ventures in which the Company's effective ownership interest is 50% or less, were reported by the Company using the equity method of accounting.

Management of the unconsolidated joint ventures is shared with the Company's respective joint venture partners. Certain information concerning the Company's joint ventures is set forth below:

Joint venture	Products	Year organized	Percentage owned by the Company	Location of operation	Joint venture partner	Fiscal 2018 net sales (millions of dollars) (a)
Unconsolidated:						
NSK-Warner	Transmission components	1964	50 %	Japan/China	NSK Ltd.	$ 731.8
Turbo Energy Private Limited (b)	Turbochargers	1987	32.6 %	India	Sundaram Finance Limited; Brakes India Limited	$ 215.3
Consolidated:						
BorgWarner Transmission Systems Korea Ltd. (c)	Transmission components	1987	60 %	Korea	NSK-Warner	$ 270.1
Borg-Warner Shenglong (Ningbo) Co. Ltd.	Fans and fan drives	1999	70 %	China	Ningbo Shenglong Automotive Powertrain Systems Co., Ltd.	$ 70.6
BorgWarner TorqTransfer Systems Beijing Co. Ltd.	Transfer cases	2000	80 %	China	Beijing Automotive Components Stock Co. Ltd.	$ 204.3
SeohanWarner Turbo Systems Ltd.	Turbochargers	2003	71 %	Korea	Korea Flange Company	$ 226.6
BorgWarner United Transmission Systems Co. Ltd.	Transmission components	2009	66 %	China	China Automobile Development United Investment Co., Ltd.	$ 333.1

(a) All sales figures are for the year ended December 31, 2018, except NSK-Warner and Turbo Energy Private Limited. NSK-Warner’s sales are reported for the 12 months ended November 30, 2018. Turbo Energy Private Limited’s sales are reported for the 12 months ended September 30, 2018.

(b) The Company made purchases from Turbo Energy Private Limited totaling $42.3 million, $31.9 million and $28.9 million for the years ended December 31, 2018, 2017 and 2016, respectively.

(c) BorgWarner Inc. owns 50% of NSK-Warner, which has a 40% interest in BorgWarner Transmission Systems Korea Ltd. This gives the Company an additional indirect effective ownership percentage of 20%, resulting in a total effective ownership interest of 80%.

Financial Information About Geographic Areas

Refer to Note 21, “Reporting Segments and Related Information,” to the Consolidated Financial Statements in Item 8 of this report for financial information about geographic areas.

Product Lines and Customers

During the year ended December 31, 2018, approximately 82% of the Company's net sales were for light-vehicle applications; approximately 10% were for commercial vehicle applications; approximately 4% were for off-highway vehicle applications; and approximately 4% were to distributors of aftermarket replacement parts.

The Company’s worldwide net sales to the following customers (including their subsidiaries) were approximately as follows:

	Year Ended December 31,		
Customer	2018	2017	2016
Ford	14%	15%	15%
Volkswagen	12%	13%	13%

No other single customer accounted for more than 10% of our consolidated net sales in any of the years presented.

The Company's automotive products are generally sold directly to OEMs, substantially pursuant to negotiated annual contracts, long-term supply agreements or terms and conditions as may be modified by the parties. Deliveries are subject to periodic authorizations based upon OEM production schedules. The Company typically ships its products directly from its plants to the OEMs.

Sales and Marketing

Each of the Company's businesses within its two reporting segments has its own sales function. Account executives for each of our businesses are assigned to serve specific customers for one or more businesses' products. Our account executives spend the majority of their time in direct contact with customers' purchasing and engineering employees and are responsible for servicing existing business and for identifying and obtaining new business. Because of their close relationship with customers, account executives are able to identify and meet customers' needs based upon their knowledge of our products' design and manufacturing capabilities. Upon securing a new order, account executives participate in product launch team activities and serve as a key interface with customers. In addition, sales and marketing employees of our Engine and Drivetrain reporting segments often work together to explore cross-development opportunities where appropriate.

Seasonality

Our operations are directly related to the automotive industry. Consequently, we may experience seasonal fluctuations to the extent automotive vehicle production slows, such as in the summer months when many customer plants typically close for model year changeovers or vacations. Historically, model changeovers or vacations have generally resulted in lower sales volume in the third quarter.

Research and Development

The Company conducts advanced Engine and Drivetrain research at the reporting segment level. This advanced engineering function seeks to leverage know-how and expertise across product lines to create new Engine and Drivetrain systems and modules that can be commercialized. This function manages a venture capital fund that was created by the Company as seed money for new innovation and collaboration across businesses.

In addition, each of the Company's businesses within its two reporting segments has its own research and development (“R&D”) organization, including engineers and technicians, engaged in R&D activities at facilities worldwide. The Company also operates testing facilities such as prototype, measurement and calibration, life cycle testing and dynamometer laboratories.

By working closely with OEMs and anticipating their future product needs, the Company's R&D personnel conceive, design, develop and manufacture new proprietary automotive components and systems. R&D personnel also work to improve current products and production processes. The Company believes its commitment to R&D will allow it to continue to obtain new orders from its OEM customers.

The Company's net R&D expenditures are included in selling, general and administrative expenses of the Consolidated Statements of Operations. Customer reimbursements are netted against gross R&D expenditures as they are considered a recovery of cost. Customer reimbursements for prototypes are recorded net of prototype costs based on customer contracts, typically either when the prototype is shipped or when it is accepted by the customer. Customer reimbursements for engineering services are recorded when performance obligations are satisfied in accordance with the contract. Financial risks and rewards transfer upon shipment, acceptance of a prototype component by the customer or upon completion of the performance obligation as stated in the respective customer agreement.

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Gross R&D expenditures	$511.7	$473.1	$417.8
Customer reimbursements	(71.6)	(65.6)	(74.6)
Net R&D expenditures	$440.1	$407.5	$343.2

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Net R&D expenditures as a percentage of net sales were 4.2%, 4.2% and 3.8% for the years ended December 31, 2018, 2017 and 2016, respectively. None of the Company's R&D related contracts exceeded 5% of net R&D expenditures in any of the years presented.

Intellectual Property

The Company has approximately 6,930 active domestic and foreign patents and patent applications pending or under preparation, and receives royalties from licensing patent rights to others. While it considers its patents on the whole to be important, the Company does not consider any single patent, any group of related patents or any single license essential to its operations in the aggregate or to the operations of any of the Company's business groups individually. The expiration of the patents individually and in the aggregate is not expected to have a material effect on the Company's financial position or future operating results. The Company owns numerous trademarks, some of which are valuable, but none of which are essential to its business in the aggregate.

The Company owns the “BorgWarner” trade name and numerous BORGWARNER trademarks, including without limitation "BORGWARNER" and "BORGWARNER and Bug Design", which are material to the Company's business.

Competition

The Company's reporting segments compete worldwide with a number of other manufacturers and distributors that produce and sell similar products. Many of these competitors are larger and have greater resources than the Company. Technological innovation, application engineering development, quality, price, delivery and program launch support are the primary elements of competition.

The Company’s major non-OEM competitors by product type follow:

Product Type: Engine	Names of Competitors	
Turbochargers:	Cummins Turbo Technology	IHI
	Garret Motion, Inc.	Mitsubishi Heavy Industries (MHI)
	Bosch Mahle Turbo Systems	Continental
Emissions systems:	Mahle	T.RAD
	Denso	Pierburg
	Bosch	NGK
	Eldor	Eberspaecher
Timing devices and chains:	Denso	Schaeffler Group
	Iwis	Tsubaki Group
	Delphi Technologies	
Thermal systems:	Horton	Usui
	Mahle	Xuelong

Product Type: Drivetrain	Names of Competitors	
Torque transfer:	GKN Driveline	JTEKT
	Magna Powertrain	
Rotating electrical machines:	Denso	Valeo
	Zhengzhou Coal Mining Machinery Group	Continental
	Mitsubishi Electric	
Transmission systems:	Bosch	FCC
	Dynax	Schaeffler Group
	Valeo	Denso

In addition, a number of the Company's major OEM customers manufacture, for their own use and for others, products that compete with the Company's products. Other current OEM customers could elect to manufacture products to meet their own requirements or to compete with the Company. There is no assurance that the Company's business will not be adversely affected by increased competition in the markets in which it operates.

For many of its products, the Company's competitors include suppliers in parts of the world that enjoy economic advantages such as lower labor costs, lower health care costs, lower tax rates and, in some cases, export subsidies and/or raw materials subsidies. Also, see Item 1A, "Risk Factors."

Workforce

As of December 31, 2018, the Company had a salaried and hourly workforce of approximately 30,000 (as compared with approximately 29,000 at December 31, 2017), of which approximately 6,500 were in the U.S. Approximately 15% of the Company's U.S. workforce is unionized. The workforces at certain international facilities are also unionized. The Company believes the present relations with our workforce to be satisfactory.

We have one domestic collective bargaining agreement which is for one facility in New York, which expires in September 2020.

Raw Materials

The Company uses a variety of raw materials in the production of its products including aluminum, copper, nickel, plastic resins, steel and certain alloy elements. Manufacturing operations for each of the Company's operating segments are dependent upon natural gas, fuel oil and electricity.

The Company uses a variety of tactics to limit the impact of supply shortages and inflationary pressures. The Company's global procurement organization works to accelerate cost reductions, purchases from lower cost regions, optimize the supply base, mitigate risk and collaborate on its buying activities. In addition, the Company uses long-term contracts, cost sharing arrangements, design changes, customer buy programs and limited financial instruments to help control costs. The Company intends to use similar measures in 2019 and beyond. Refer to Note 11, “Financial Instruments,” of the Consolidated Financial Statements in Item 8 of this report for information related to the Company's hedging activities.

For 2019, the Company believes that its supplies of raw materials are adequate and available from multiple sources to support its manufacturing requirements.

Available Information

Through its Internet website (www.borgwarner.com), the Company makes available, free of charge, its Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, all amendments to those reports, and other filings with the Securities and Exchange Commission as soon as reasonably practicable after they are filed or furnished. The Company also makes the following documents available on its Internet website: the Audit Committee Charter; the Compensation Committee Charter; the Corporate Governance Committee Charter; the Company's Corporate Governance Guidelines; the Company's Code of Ethical Conduct; and the Company's Code of Ethics for CEO and Senior Financial Officers. You may also obtain a copy of any of the foregoing documents, free of charge, if you submit a written request to Investor Relations, 3850 Hamlin Road, Auburn Hills, Michigan 48326. The public may read and copy materials filed by the Company with the SEC at the SEC’s Public Reference Room at 100 F Street, NE, Washington, DC, 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at http://www.sec.gov.

Executive Officers of the Company

Set forth below are the names, ages, positions and certain other information concerning the executive officers of the Company as of February 14, 2019.

Name	Age	Position with the Company
Frederic B. Lissalde	51	President and Chief Executive Officer
Thomas J. McGill	52	Vice President, Interim Chief Financial Officer and Treasurer
Tonit M. Calaway	50	Executive Vice President, Chief Legal Officer and Secretary
Brady D. Ericson	47	Executive Vice President and Chief Strategy Officer
Stefan Demmerle	54	Vice President
Joseph F. Fadool	52	Vice President
Martin Fischer	48	Vice President
Anthony D. Hensel	60	Vice President and Controller
Robin Kendrick	54	Vice President
Joel Wiegert	45	Vice President

Mr. Lissalde has been President and Chief Executive Officer of the Company since August 2018. He was Executive Vice President and Chief Operating Officer of the Company from January 2018 to July 2018. From May 2013 to December 2017, he was Vice President of the Company and President and General Manager of BorgWarner Turbo Systems LLC.

Mr. McGill has been Vice President and Interim Chief Financial Officer since January 2019. Additionally, he has been the Treasurer of the Company since May 2012.

Ms. Calaway has been Executive Vice President and Chief Legal Officer and Secretary since August 2018. She was Chief Human Resources Officer of the Company from August 2016 to August 2018. She was Vice President of Human Resources of Harley-Davidson Inc. and President of The Harley-Davidson Foundation from February 2010 to July 2016.

Mr. Ericson has been Executive Vice President and Chief Strategy Officer of the Company since January 2017. He was Vice President of the Company and President and General Manager of BorgWarner Emissions Systems LLC from March 2014 until December 2016, during which time BorgWarner BERU Systems GmbH was combined with BorgWarner Emissions Systems Inc. He was Vice President of the Company and President and General Manager of BorgWarner BERU Systems GmbH and Emissions Systems Inc. from September 2011 until March 2014.

Dr. Demmerle has been Vice President of the Company and President and General Manager of BorgWarner PDS (USA) Inc. (formerly known as BorgWarner TorqTransfer Systems Inc.) since September 2012 and President and General Manager of BorgWarner PDS (Indiana) Inc. (formerly known as Remy International, Inc.) since December 2015.

Mr. Fadool has been Vice President of the Company and President and General Manager of BorgWarner Emissions Systems LLC and BorgWarner Thermal Systems Inc. since January 2017. He was Vice President of the Company and President and General Manager of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems) from July 2015 until December 2016. From May 2012 to July 2015, he was the Vice President of the Company and President and General Manager of BorgWarner Morse TEC Inc.

Dr. Fischer has been Vice President of the Company and President and General Manager of BorgWarner Transmission Systems LLC since January 2018. From July 2015 until December 2017, he was Vice President and General Manager of BorgWarner Turbo Systems LLC Europe and South America. From

January 2014 until June 2015, he was Vice President and General Manager of BorgWarner Turbo Systems LLC Europe.

Mr. Hensel has been Vice President and Controller of the Company since December 2016. From May 2009 through November 2016, he was Vice President of Internal Audit of the Company.
Mr. Kendrick has been Vice President of the Company and President and General Manager of BorgWarner Turbo Systems LLC since January 2018. He was Vice President of the Company and President and General Manager of BorgWarner Transmissions Systems LLC from September 2011 to December 2017.

Mr. Wiegert has been Vice President of the Company and President and General Manager of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems) since January 2017. He was President and General Manager of BorgWarner Thermal Systems Inc. from September 2016 until December 2016. From July 2015 to August 2016, he was Vice President and General Manager, Americas, Aftermarket and Global Integration Leader for BorgWarner PDS (USA) Inc. From January 2012 to July 2015, he was Vice President and General Manager, Asia and Americas for BorgWarner Turbo Systems LLC.

Item 1A. Risk Factors

The following risk factors and other information included in this Annual Report on Form 10-K should be considered. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impact our business operations. If any of the following risks occur, our business including its financial performance, financial condition, operating results and cash flows could be adversely affected.

Risks related to our industry

Conditions in the automotive industry may adversely affect our business.

Our financial performance depends on conditions in the global automotive industry. Automotive and truck production and sales are cyclical and sensitive to general economic conditions and other factors including interest rates, consumer credit, and consumer spending and preferences. Economic declines that result in significant reduction in automotive or truck production would have an adverse effect on our sales to OEMs.

We face strong competition.

We compete worldwide with a number of other manufacturers and distributors that produce and sell products similar to ours. Price, quality, delivery, technological innovation, engineering development and program launch support are the primary elements of competition. Our competitors include vertically integrated units of our major OEM customers, as well as a large number of independent domestic and international suppliers. A number of our competitors are larger than we are, and some competitors have greater financial and other resources than we do. Although OEMs have indicated that they will continue to rely on outside suppliers, a number of our major OEM customers manufacture products for their own uses that directly compete with our products. These OEMs could elect to manufacture such products for their own uses in place of the products we currently supply. The competitive environment has changed dramatically over the past few years as our traditional U.S. OEM customers, faced with intense international competition, have expanded their worldwide sourcing of components. As a result, we have experienced competition from suppliers in other parts of the world that enjoy economic advantages, such as lower labor costs, lower health care costs, lower tax rates and, in some cases, export or raw materials subsidies. Increased competition could adversely affect our business. In addition, any of our competitors may foresee the course of market development more accurately than we do, develop products that are superior to our products, produce

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similar products at a cost that is lower than our cost, or adapt more quickly than we do to new technologies or evolving customer requirements. As a result, our products may not be able to compete successfully with our competitors' products, and we may not be able to meet the growing demands of customers. These trends may adversely affect our sales as well as the profit margins on our products.

If we do not respond appropriately, the evolution of the automotive industry could adversely affect our business.

The automotive industry is increasingly focused on the development of hybrid and electric vehicles and of advanced driver assistance technologies, with the goal of developing and introducing a commercially-viable, fully-automated driving experience. There has also been an increase in consumer preferences for mobility on demand services, such as car- and ride-sharing, as opposed to automobile ownership, which may result in a long-term reduction in the number of vehicles per capita. In addition, some industry participants are exploring transportation through alternatives to automobiles. These evolving areas have also attracted increased competition from entrants outside the traditional automotive industry. If we do not continue to innovate, to develop, or acquire new and compelling products that capitalize upon new technologies in response to OEM and consumer preferences, this could have an adverse impact on our results of operations.

The increased adoption of gasoline and hybrid propulsion systems in Western Europe may materially reduce the demand for our current products.

The industry mix shift away from diesel propulsion systems in Western Europe may result in lower demand for current diesel components. This shift is expected to drive increased demand for gasoline and hybrid propulsion systems. We have developed and are currently in production with products for gasoline and hybrid propulsion systems. Industry penetration rates for these products are expected to increase significantly over the next several years. However, due to the high current penetration rates of our key technologies on diesel propulsion systems, this industry mix shift could adversely impact our near-term results of operations, financial condition, and cash flows.

Risks related to our business

We are under substantial pressure from OEMs to reduce the prices of our products.

There is substantial and continuing pressure on OEMs to reduce costs, including costs of products we supply. Annual price reductions to OEM customers are a permanent component of our business. To maintain our profit margins, we seek price reductions from our suppliers, improved production processes to increase manufacturing efficiency, and updated product designs to reduce costs, and we attempt to develop new products, the benefits of which support stable or increased prices. Our ability to pass through increased raw material costs to our OEM customers is limited, with cost recovery often less than 100% and often on a delayed basis. Inability to reduce costs in an amount equal to annual price reductions, increases in raw material costs, and increases in employee wages and benefits could have an adverse effect on our business.

We continue to face volatile costs of commodities used in the production of our products.

The Company uses a variety of commodities (including aluminum, copper, nickel, plastic resins, steel, other raw materials and energy) and materials purchased in various forms such as castings, powder metal, forgings, stampings and bar stock. Increasing commodity costs will have an impact on our results. We have sought to alleviate the impact of increasing costs by including a material pass-through provision in our customer contracts wherever possible and by selectively hedging certain commodity exposures. Customers frequently challenge these contractual provisions and rarely pay the full cost of any increases in the cost of materials. The discontinuation or lessening of our ability to pass-through or hedge increasing commodity costs could adversely affect our business.

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From time to time, commodity prices may also fall rapidly. When this happens, suppliers may withdraw capacity from the market until prices improve which may cause periodic supply interruptions. The same may be true of our transportation carriers and energy providers. If these supply interruptions occur, it could adversely affect our business.

Changes in U.S. administrative policy, including changes to existing trade agreements and any resulting changes in international trade relations, may have an adverse effect on us.

The United States has implemented tariffs on imported steel and aluminum, as well as certain other listed products imported from China. The United States is also considering implementing new tariffs on items imported by us from China or other countries and export controls on additional items. The impact of these tariffs could increase the cost of raw materials or components we purchase. The imposition of tariffs by the United States has resulted in retaliatory tariffs from a number of countries, including China, which could increase the cost of products we sell. Any resulting trade war could have a negative impact on the global market and an adverse effect on our business. The potential imposition of additional tariffs on Chinese imports and imports of automobiles, including cars, SUVs, vans and light trucks, and automotive parts could increase our costs and could result in lowering our gross margin on products sold.

We use important intellectual property in our business. If we are unable to protect our intellectual property or if a third party makes assertions against us or our customers relating to intellectual property rights, our business could be adversely affected.

We own important intellectual property, including patents, trademarks, copyrights and trade secrets, and are involved in numerous licensing arrangements. Our intellectual property plays an important role in maintaining our competitive position in a number of the markets that we serve. Our competitors may develop technologies that are similar or superior to our proprietary technologies or design around the patents we own or license. Further, as we expand our operations in jurisdictions where the enforcement of intellectual property rights is less robust, the risk of others duplicating our proprietary technologies increases, despite efforts we undertake to protect them. Our inability to protect or enforce our intellectual property rights or claims that we are infringing intellectual property rights of others could adversely affect our business and our competitive position.

We are subject to business continuity risks associated with increasing centralization of our information technology (IT) systems.

To improve efficiency and reduce costs, we have regionally centralized the information systems that support our business processes such as invoicing, payroll and general management operations. If the centralized systems are disrupted or disabled, key business processes could be interrupted, which could adversely affect our business.

A failure of our information technology infrastructure could adversely impact our business and operations.

We rely on the capacity, reliability and security of our IT systems and infrastructure. IT systems are vulnerable to disruptions, including those resulting from natural disasters, cyber-attacks or failures in third-party-provided services. Disruptions and attacks on our IT systems pose a risk to the security of our systems and our ability to protect our networks and the confidentiality, availability and integrity of information and data and that of third parties, including our employees. As a result, such attacks or disruptions could potentially lead to the inappropriate disclosure of confidential information, including our intellectual property, improper use of our systems and networks, manipulation and destruction of data, production downtimes and both internal and external supply shortages. In addition, we may be required to incur significant costs to protect against damage caused by such attacks or disruptions in the future. This could cause significant damage to our reputation, affect our relationships with our customers and suppliers, lead to claims against the Company and ultimately adversely affect our business.

Our business success depends on attracting and retaining qualified personnel.

Our ability to sustain and grow our business requires us to hire, retain and develop a highly skilled and diverse management team and workforce worldwide. In particular, any unplanned turnover or inability to attract and retain key employees and employees with technical and software capabilities in numbers sufficient for our needs could adversely affect our business.

Our profitability and results of operations may be adversely affected by program launch difficulties.

The launch of new business is a complex process, the success of which depends on a wide range of factors, including the production readiness of our manufacturing facilities and manufacturing processes and those of our suppliers, as well as factors related to tooling, equipment, employees, initial product quality and other factors. Our failure to successfully launch new business, or our inability to accurately estimate the cost to design, develop and launch new business, could have an adverse effect on our profitability and results of operations.

To the extent we are not able to successfully launch new business, vehicle production at our customers could be significantly delayed or shut down. Such situations could result in significant financial penalties to us or a diversion of personnel and financial resources to improving launches rather than investment in continuous process improvement or other growth initiatives, and could result in our customers shifting work away from us to a competitor, all of which could result in loss of revenue, or loss of market share and could have an adverse effect on our profitability and cash flows.

Part of our workforce is unionized which could subject us to work stoppages.

As of December 31, 2018, approximately 15% of our U.S. workforce was unionized. We have a domestic collective bargaining agreement for one facility in New York, which expires in September 2020. The workforce at certain of our international facilities is also unionized. A prolonged dispute with our employees could have an adverse effect on our business.

Work stoppages and similar events could significantly disrupt our business.

Because the automotive industry relies heavily on just-in-time delivery of components during the assembly and manufacture of vehicles, a work stoppage at one or more of our manufacturing and assembly facilities could have adverse effects on our business. Similarly, if one or more of our customers were to experience a work stoppage, that customer would likely halt or limit purchases of our products, which could result in the shutdown of the related manufacturing facilities. A significant disruption in the supply of a key

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component due to a work stoppage at one of our suppliers or any other supplier could have the same consequences and, accordingly, have an adverse effect on our financial results.

Changes in interest rates and asset returns could increase our pension funding obligations and reduce our profitability.

We have unfunded obligations under certain of our defined benefit pension and other postretirement benefit plans. The valuation of our future payment obligations under the plans and the related plan assets is subject to significant adverse changes if the credit and capital markets cause interest rates and projected rates of return to decline. Such declines could also require us to make significant additional contributions to our pension plans in the future. Additionally, a material deterioration in the funded status of the plans could significantly increase our pension expenses and reduce profitability in the future.

We also sponsor post-employment medical benefit plans in the U.S. that are unfunded. If medical costs continue to increase or actuarial assumptions are modified, this could have an adverse effect on our business.

We are subject to extensive environmental regulations.

Our operations are subject to laws governing, among other things, emissions to air, discharges to waters and the generation, handling, storage, transportation, treatment and disposal of waste and other materials. The operation of automotive parts manufacturing plants entails risks in these areas, and we cannot assure that we will not incur material costs or liabilities as a result. Through various acquisitions over the years, we have acquired a number of manufacturing facilities, and we cannot assure that we will not incur material costs and liabilities relating to activities that predate our ownership. In addition, potentially significant expenditures could be required to comply with evolving interpretations of existing environmental, health and safety laws and regulations or any new such laws and regulations (including concerns about global climate change and its impact) that may be adopted in the future. Costs associated with failure to comply with such laws and regulations could have an adverse effect on our business.

We have liabilities related to environmental, product warranties, litigation and other claims.

We and certain of our current and former direct and indirect corporate predecessors, subsidiaries and divisions have been identified by the United States Environmental Protection Agency and certain state environmental agencies and private parties as potentially responsible parties at various hazardous waste disposal sites under the Comprehensive Environmental Response, Compensation and Liability Act and equivalent state laws, and, as such, may be liable for the cost of clean-up and other remedial activities at such sites. While responsibility for clean-up and other remedial activities at such sites is typically shared among potentially responsible parties based on an allocation formula, we could have greater liability under applicable statutes. Refer to Note 15, "Contingencies," to the Condensed Consolidated Financial Statements in item 8 of this report for further discussion.

We provide product warranties to our customers for some of our products. Under these product warranties, we may be required to bear costs and expenses for the repair or replacement of these products. As suppliers become more integrally involved in the vehicle design process and assume more of the vehicle assembly functions, auto manufacturers are increasingly looking to their suppliers for contribution when faced with recalls and product warranty claims. A recall claim brought against us, or a product warranty claim brought against us, could have an adverse impact on our results of operations. In addition, a recall claim could require us to review our entire product portfolio to assess whether similar issues are present in other product lines, which could result in significant disruption to our business and could have an adverse impact on our results of operations. We cannot assure that costs and expenses associated with these product warranties will not be material, or that those costs will not exceed any amounts accrued for such product warranties in our financial statements.

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We are currently, and may in the future become, subject to legal proceedings and commercial or contractual disputes. These claims typically arise in the normal course of business and may include, but not be limited to, commercial or contractual disputes with our customers and suppliers, intellectual property matters, personal injury, product liability, environmental and employment claims. There is a possibility that such claims may have an adverse impact on our business that is greater than we anticipate. While the Company maintains insurance for certain risks, the amount of insurance may not be adequate to cover all insured claims and liabilities. The incurring of significant liabilities for which there is no, or insufficient, insurance coverage could adversely affect our business.

We have faced, and in the future expect to face, substantial numbers of asbestos-related claims. The cost of resolving those claims is inherently uncertain and could have an adverse effect on our results of operations, financial position, and cash flows.

We have in the past been named in a significant number of lawsuits each year alleging injury related to exposure to asbestos in certain of our historical products. We no longer manufacture, distribute, or sell products that contain asbestos. We vigorously defend against asbestos-related claims. Despite these factors, asbestos-related claims may be asserted against us in the future, and the number of those claims may be substantial. We have estimated the claim resolution costs and associated defense costs relating to the asbestos-related claims that have been asserted against us but not yet resolved, as well as those asbestos-related claims that we estimate may be asserted against us in the future. Our estimate of future asbestos-related claims that may be asserted against us is based on assumptions as to the likely rates of occurrence of asbestos-related disease in the U.S. population in the future and the number of asbestos-related claims asserted as a result. Furthermore, our estimates are based on a number of assumptions derived from our historical experience in resolving asbestos-related claims, including:

- the number and type of future asbestos-related claims that will be asserted against us;
- the number of future asbestos-related claims asserted against us that will result in a payment by us;
- the average payment necessary to resolve such claims; and
- the costs of defending such claims.

If our actual experience, as noted above, in receiving and resolving asbestos-related claims in the future differs significantly from these assumptions, then our expenditures to resolve such claims may be significantly higher or lower than the estimates contained in our financial statements, and if they are higher, they could have an adverse impact on our results of operations, financial position, or cash flows that is greater than we have estimated. See “Management’s Discussion and Analysis of Financial Condition and Results of Operations - Other Matters - Contingencies - Asbestos-Related Liability”.

While we have certain insurance coverage available respecting asbestos-related claims asserted against us, substantially all of that insurance coverage is the subject of pending litigation. The insurance that is at issue in the litigation is subject to various uncertainties, including: the assertion of defenses or the development of facts of which we are not presently aware, changes in the case law, and future financial viability of remaining insurance carriers. This insurance coverage is additionally subject to claims from other co-insured parties. We currently project that our remaining insurance coverage for current and future asbestos-related claims will cover only a portion of the amounts that we estimate we ultimately may pay to resolve such claims. The resolution of the insurance coverage litigation, and the number and amount of claims on our insurance from co-insured parties, may increase or decrease the amount of insurance coverage available to us for asbestos-related claims from the estimates contained in our financial statements.

Compliance with and changes in laws could be costly and could affect operating results.

We have operations in multiple countries that can be impacted by expected and unexpected changes in the legal and business environments in which we operate. Compliance-related issues in certain countries

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associated with laws such as the Foreign Corrupt Practices Act and other anti-corruption laws could adversely affect our business. We have internal policies and procedures relating to compliance with such laws; however, there is a risk that such policies and procedures will not always protect us from the improper acts of employees, agents, business partners, joint venture partners or representatives, particularly in the case of recently-acquired operations that may not have significant training in applicable compliance policies and procedures. Violations of these laws, which are complex, may result in criminal penalties, sanctions and/or fines that could have an adverse effect on our business, financial condition and results of operations and reputation.

Changes that could impact the legal environment include new legislation, new regulations, new policies, investigations and legal proceedings and new interpretations of existing legal rules and regulations, in particular, changes in import and export control laws or exchange control laws, additional restrictions on doing business in countries subject to sanctions, and changes in laws in countries where we operate or intend to operate.

Changes in tax laws or tax rates taken by taxing authorities and tax audits could adversely affect our business.

Changes in tax laws or tax rates, the resolution of tax assessments or audits by various tax authorities, and the inability to fully utilize our tax loss carryforwards and tax credits could adversely affect our operating results. In addition, we may periodically restructure our legal entity organization.

If taxing authorities were to disagree with our tax positions in connection with any such restructurings, our effective tax rate could be materially affected. Our tax filings for various periods are subject to audit by the tax authorities in most jurisdictions where we conduct business. We have received tax assessments from various taxing authorities and are currently at varying stages of appeals and/or litigation regarding these matters. These audits may result in assessment of additional taxes that are resolved with the authorities or through the courts. We believe these assessments may occasionally be based on erroneous and even arbitrary interpretations of local tax law. Resolution of any tax matters involves uncertainties and there are no assurances that the outcomes will be favorable.

On December 22, 2017, the Tax Cuts and Jobs Act (the “ Tax Act”) was enacted into law, which significantly changed existing U.S. tax law and included many provisions applicable to the Company, such as reducing the U.S. federal statutory tax rate, imposing a one-time transition tax on deemed repatriation of deferred foreign income, and adopting a territorial tax system. The Tax Act reduced the U.S. federal statutory tax rate from 35% to 21% effective January 1, 2018. The Tax Act also includes a provision to tax global intangible low-taxed income of foreign subsidiaries, a special tax deduction for foreign-derived intangible income, and a base erosion anti-abuse tax measure that may tax certain payments between a U.S. corporation and its subsidiaries. These additional provisions of the Tax Act were effective beginning January 1, 2018. In future periods, our effective tax rate could be subject to additional uncertainty as a result of regulatory developments related to the Tax Act. Furthermore, changes in the earnings mix or applicable foreign tax laws may result in significant fluctuations in our effective tax rates. Refer to Note 5, "Income Taxes," to the Consolidated Financial Statements in Item 8 of this report for more information regarding income taxes.

Our growth strategy may prove unsuccessful.

We have a stated goal of increasing sales and operating income at a rate greater than growth, if any, in global vehicle production by increasing content per vehicle with innovative new components and through select acquisitions.

We may not meet our goal because of any of the risks in the following paragraph, or other factors such as the failure to develop new products that our customers will purchase and technology changes rendering our products obsolete; and a reversal of the trend of supplying systems (which allows us to increase content per vehicle) instead of components.

We expect to continue to pursue business ventures, acquisitions, and strategic alliances that leverage our technology capabilities, enhance our customer base, geographic representation, and scale to complement our current businesses, and we regularly evaluate potential growth opportunities, some of which could be material. While we believe that such transactions are an integral part of our long-term strategy, there are risks and uncertainties related to these activities. Assessing a potential growth opportunity involves extensive due diligence. However, the amount of information we can obtain about a potential growth opportunity can be limited, and we can give no assurance that past or future business ventures, acquisitions, and strategic alliances will positively affect our financial performance or will perform as planned. We may not be able to successfully assimilate or integrate companies that we have acquired or acquire in the future, including their personnel, financial systems, distribution, operations and general operating procedures. The integration of companies that we have acquired or will acquire in the future may be more difficult, time consuming or costly than expected. Revenues following the acquisition of a company may be lower than expected, customer loss and business disruption (including, without limitation, difficulties in maintaining relationships with employees, customers, or suppliers) may be greater than expected, and we may not be able to retain key employees at the acquired company. We may also encounter challenges in achieving appropriate internal control over financial reporting in connection with the integration of an acquired company. If we fail to assimilate or integrate acquired companies successfully, our business, reputation and operating results could be adversely affected. Likewise, our failure to integrate and manage acquired companies successfully may lead to future impairment of any associated goodwill and intangible asset balances. Failure to execute our growth strategy could adversely affect our business.

We are subject to risks related to our international operations.

We have manufacturing and technical facilities in many regions including Europe, Asia, and the Americas. For 2018, approximately 77% of our consolidated net sales were outside the U.S. Consequently, our results could be affected by changes in trade, monetary and fiscal policies, trade restrictions or prohibitions, import or other charges or taxes, fluctuations in foreign currency exchange rates, limitations on the repatriation of funds, changing economic conditions, unreliable intellectual property protection and legal systems, insufficient infrastructures, social unrest, political instability and disputes, and international terrorism. Compliance with multiple and potentially conflicting laws and regulations of various countries is challenging, burdensome and expensive.

The financial statements of foreign subsidiaries are translated to U.S. dollars using the period-end exchange rate for assets and liabilities and an average exchange rate for each period for revenues, expenses and capital expenditures. The local currency is typically the functional currency for the Company's foreign subsidiaries. Significant foreign currency fluctuations and the associated translation of those foreign currencies could adversely affect our business. Additionally, significant changes in currency exchange rates, particularly the Euro, Korean Won and Chinese Renminbi, could cause fluctuations in the reported results of our businesses’ operations that could negatively affect our results of operations.

Because we are a U.S. holding company, one significant source of our funds is distributions from our non-U.S. subsidiaries. Certain countries in which we operate have adopted or could institute currency exchange controls that limit or prohibit our local subsidiaries' ability to convert local currency into U.S. dollars or to make payments outside the country. This could subject us to the risks of local currency devaluation and business disruption.

Our business in China is subject to aggressive competition and is sensitive to economic, political and market conditions.

Maintaining a strong position in the Chinese market is a key component of our global growth strategy. The automotive supply market in China is highly competitive, with competition from many of the largest global manufacturers and numerous smaller domestic manufacturers. As the Chinese market evolves, we anticipate that market participants will act aggressively to increase or maintain their market share. Increased competition may result in price reductions, reduced margins and our inability to gain or hold market share. In addition, our business in China is sensitive to economic, political and market conditions that drive sales volumes in China. In fact, recently, economic growth has slowed in China. If we are unable to maintain our position in the Chinese market or if vehicle sales in China decrease, our business and financial results could be adversely affected.

A downgrade in the ratings of our debt could restrict our ability to access the debt capital markets.

Changes in the ratings that rating agencies assign to our debt may ultimately impact our access to the debt capital markets and the costs we incur to borrow funds. If ratings for our debt fall below investment grade, our access to the debt capital markets could become restricted and our cost of borrowing or the interest rate for any subsequently issued debt would likely increase.

Our revolving credit agreement includes an increase in interest rates if the ratings for our debt are downgraded. The interest costs on our revolving credit agreement are based on a rating grid agreed to in our credit agreement. Further, an increase in the level of our indebtedness and related interest costs may increase our vulnerability to adverse general economic and industry conditions and may affect our ability to obtain additional financing.

We could incur additional restructuring charges as we continue to execute actions in an effort to improve future profitability and competitiveness and to optimize our product portfolio and may not achieve the anticipated savings and benefits from these actions.

We have initiated and may continue to initiate restructuring actions designed to improve future profitability and competitiveness, enhance treasury management flexibility, optimize our product portfolio or create an optimal legal entity structure. We may not realize anticipated savings or benefits from past or future actions in full or in part or within the time periods we expect. We are also subject to the risks of labor unrest, negative publicity and business disruption in connection with our actions. Failure to realize anticipated savings or benefits from our actions could have an adverse effect on our business.

Risks related to our customers

We rely on sales to major customers.

We rely on sales to OEMs around the world of varying credit quality and manufacturing demands. Supply to several of these customers requires significant investment by the Company. We base our growth projections, in part, on commitments made by our customers. These commitments generally renew yearly during a program life cycle. Among other things, the level of production orders we receive is dependent on the ability of our OEM customers to design and sell products that consumers desire to purchase. If actual production orders from our customers do not approximate such commitments due to a variety of factors including non-renewal of purchase orders, a customer's financial hardship or other unforeseen reasons, it could adversely affect our business.

Some of our sales are concentrated. Our worldwide sales in 2018 to Ford and Volkswagen constituted approximately 14% and 12% of our 2018 consolidated net sales, respectively.

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We are sensitive to the effects of our major customers' labor relations.

All three of our primary North American customers, Ford, Fiat Chrysler Automobiles and General Motors, have major union contracts with the United Automobile, Aerospace and Agricultural Implement Workers of America. Because of domestic OEMs' dependence on a single union, we are affected by labor difficulties and work stoppages at OEMs' facilities. Similarly, a majority of our global customers' operations outside of North America are also represented by various unions. Any extended work stoppage at one or more of our customers could have an adverse effect on our business.

Risks related to our suppliers

We could be adversely affected by supply shortages of components from our suppliers.

In an effort to manage and reduce the cost of purchased goods and services, we have been rationalizing our supply base. As a result, we are dependent on fewer sources of supply for certain components used in the manufacture of our products. We select suppliers based on total value (including total landed price, quality, delivery, and technology), taking into consideration their production capacities and financial condition. We expect that they will deliver to our stated written expectations.

However, there can be no assurance that capacity limitations, industry shortages, labor unrest, weather emergencies, commercial disputes, government actions, riots, wars, sabotage, cyber-attacks, non-conforming parts, acts of terrorism, "Acts of God," or other problems that our suppliers experience will not result in occasional shortages or delays in their supply of components to us. If we were to experience a significant or prolonged shortage of critical components from any of our suppliers and could not procure the components from other sources, we would be unable to meet the production schedules for some of our key products and could miss customer delivery expectations. In addition, with fewer sources of supply for certain components, each supplier may perceive that it has greater leverage and, therefore, some ability to seek higher prices from us at a time that we face substantial pressure from OEMs to reduce the prices of our products. This could adversely affect our customer relations and business.

Suppliers' economic distress could result in the disruption of our operations and could adversely affect our business.

Rapidly changing industry conditions such as volatile production volumes; our need to seek price reductions from our suppliers as a result of the substantial pressure we face from OEMs to reduce the prices of our products; credit tightness; changes in foreign currencies; raw material, commodity, tariffs, transportation, and energy price escalation; drastic changes in consumer preferences; and other factors could adversely affect our supply chain, and sometimes with little advance notice. These conditions could also result in increased commercial disputes and supply interruption risks. In certain instances, it would be difficult and expensive for us to change suppliers that are critical to our business. On occasion, we must provide financial support to distressed suppliers or take other measures to protect our supply lines. We cannot predict with certainty the potential adverse effects these costs might have on our business.

We are subject to possible insolvency of financial counterparties.

We engage in numerous financial transactions and contracts including insurance policies, letters of credit, credit line agreements, financial derivatives, and investment management agreements involving various counterparties. We are subject to the risk that one or more of these counterparties may become insolvent and therefore be unable to meet its obligations under such contracts.

Other risks

A variety of other factors could adversely affect our business.

Any of the following could materially and adversely affect our business: the loss of or changes in supply contracts or sourcing strategies of our major customers or suppliers; start-up expenses associated with new vehicle programs or delays or cancellation of such programs; utilization of our manufacturing facilities, which can be dependent on a single product line or customer; inability to recover engineering and tooling costs; market and financial consequences of recalls that may be required on products we supplied; delays or difficulties in new product development; the possible introduction of similar or superior technologies by others; global excess capacity and vehicle platform proliferation; and the impact of fire, flood or other natural disasters.

Item 1B. Unresolved Staff Comments

The Company has received no written comments regarding its periodic or current reports from the staff of the Securities and Exchange Commission that were issued 180 days or more preceding the end of its 2018 fiscal year that remain unresolved.

Item 2. Properties

As of December 31, 2018, the Company had 68 manufacturing, assembly, and technical locations worldwide. In addition to its 16 U.S. locations, the Company had nine locations in China; eight locations in Germany, seven locations in South Korea; four locations in each of India and Mexico; three locations in each of Brazil, Japan and the United Kingdom; two locations in Italy; and one location in each of Canada, France, Hungary, Ireland, Poland, Portugal, Spain, Sweden, and Thailand. Individual locations may design or manufacture for both operating segments. The Company also has several sales offices, warehouses and technical centers. The Company's worldwide headquarters are located in a leased facility in Auburn Hills, Michigan. In general, the Company believes its facilities to be suitable and adequate to meet its current and reasonably anticipated needs.

The following is additional information concerning principal manufacturing, assembly, and technical facilities operated by the Company, its subsidiaries, and affiliates.

ENGINE[(a)]

Americas	Europe	Asia
Asheville, North Carolina	Arcore, Italy	Aoyama, Japan
Auburn Hills, Michigan (d)	Bradford, England (UK)	Chennai, India (b)
Cadillac, Michigan	Kirchheimbolanden, Germany	Chungju-City, South Korea
Dixon, Illinois	Ludwigsburg, Germany	Taicang, China (b)
El Salto Jalisco, Mexico	Lugo, Italy (b)	Kakkalur, India
Fletcher, North Carolina	Markdorf, Germany	Manesar, India
Itatiba, Brazil	Muggendorf, Germany	Nabari City, Japan
Ithaca, New York	Oberboihingen, Germany	Ningbo, China (b) (e)
Marshall, Michigan	Oroszlany, Hungary (d)	Pune, India
Piracicaba, Brazil	Rzeszow, Poland (d)	Pyongtaek, South Korea (b) (c)
Ramos, Mexico	Tralee, Ireland	Rayong, Thailand (d)
	Viana de Castelo, Portugal	
	Vigo, Spain	

DRIVETRAIN[(a)]

Americas	Europe	Asia
Anderson, Indiana (b)	Arnstadt, Germany	Beijing, China (b)
Bellwood, Illinois	Gateshead, England (UK)	Dae-Gu, South Korea (b)
Brusque, Brazil (b)	Heidelberg, Germany	Dalian, China (b)
Frankfort, Illinois	Ketsch, Germany	Eumsung, South Korea
Irapuato, Mexico	Landskrona, Sweden (b)	Fukuroi City, Japan
Laredo, Texas (b)	Tulle, France	Changnyeong, South Korea
Livonia, Michigan	Wrexham, Wales (UK)	Ochang, South Korea (b)
Melrose Park, Illinois (b)		Shanghai, China (b)
Noblesville, Indiana (b)		Tianjin, China (b)
San Luis Potosi, Mexico (b)		Wuhan, China (b)
Seneca, South Carolina		
Water Valley, Mississippi		
Waterloo, Ontario, Canada		

(a) The table excludes joint ventures owned less than 50% and administrative offices.
(b) Indicates leased land rights or a leased facility.
(c) City has 2 locations: a wholly owned subsidiary and a joint venture.
(d) Location serves both segments.
(e) City has 3 locations: 2 wholly owned subsidiaries and a joint venture

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Item 3. Legal Proceedings

The Company is subject to a number of claims and judicial and administrative proceedings (some of which involve substantial amounts) arising out of the Company’s business or relating to matters for which the Company may have a contractual indemnity obligation. See Note 15, "Contingencies," to the Consolidated Financial Statements in Item 8 of this report for a discussion of environmental, product liability and other litigation, which is incorporated herein by reference.

On July 31, 2018, the Division of Enforcement of the SEC informed the Company that it is conducting an investigation related to the Company's accounting for asbestos-related claims not yet asserted. The Company is fully cooperating with the SEC in connection with its investigation.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

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

The Company's common stock is listed for trading on the New York Stock Exchange under the symbol BWA. As of February 8, 2019, there were 1,602 holders of record of Common Stock.

While the Company currently expects that quarterly cash dividends will continue to be paid in the future at levels comparable to recent historical levels, the dividend policy is subject to review and change at the discretion of the Board of Directors.

The line graph below compares the cumulative total shareholder return on our Common Stock with the cumulative total return of companies on the Standard & Poor's (S&P's) 500 Stock Index, and companies within Standard Industrial Code (“SIC”) 3714 - Motor Vehicle Parts.

COMPARISON OF 5 YEAR CUMULATIVE TOTAL RETURN*
Among BorgWarner Inc., the S&P 500 Index, and SIC 374 Motor Vehicle Parts

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*$100 invested on 12/31/2013 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

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BWA and S&P 500 data are from Capital IQ; SIC Code Index data is from Research Data Group

	December 31,					
	2013	2014	2015	2016	2017	2018
BorgWarner Inc.(1)	$100.00	$99.14	$78.80	$73.02	$95.81	$66.14
S&P 500(2)	100.00	113.69	115.26	129.05	157.22	150.33
SIC Code Index(3)	100.00	113.23	115.70	132.31	176.25	146.65

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(1)BorgWarner Inc.
(2)S&P 500 — Standard & Poor’s 500 Total Return Index
(3)Standard Industrial Code (“SIC”) 3714-Motor Vehicle Parts

Purchase of Equity Securities

On February 11, 2015, the Company's Board of Directors authorized the purchase of up to $1.0 billion of the Company's common stock up to 79.6 million shares in the aggregate. As of December 31, 2018, the Company had repurchased 72.8 million shares in the aggregate under the Common Stock Repurchase Program. All shares purchased under this authorization have been and will continue to be repurchased in the open market at prevailing prices and at times and in amounts to be determined by management as market conditions and the Company's capital position warrant. The Company may use Rule 10b5-1 and 10b-18 plans to facilitate share repurchases. Repurchased shares will be deemed common stock held in treasury and may subsequently be reissued for general corporate purposes.

Employee transactions include restricted stock withheld to offset statutory minimum tax withholding that occurs upon vesting of restricted stock. The BorgWarner Inc. 2014 Stock Incentive Plan, as amended and the BorgWarner Inc. 2018 Stock Incentive Plan provide that the withholding obligations be settled by the Company retaining stock that is part of the Award. Withheld shares will be deemed common stock held in treasury and may subsequently be reissued for general corporate purposes.

The following table provides information about the Company's purchases of its equity securities that are registered pursuant to Section 12 of the Exchange Act during the quarter ended December 31, 2018:

Issuer Purchases of Equity Securities

Period	Total number of shares purchased	Average price per share	Total number of shares purchased as part of publicly announced plans or programs	Maximum number of shares that may yet be purchased under the plans or programs
Month Ended October 31, 2018				
Common Stock Repurchase Program	—	$ —	—	6,819,833
Employee transactions	—	$ —	—	
Month Ended November 30, 2018				
Common Stock Repurchase Program	—	$ —	—	6,819,833
Employee transactions	695	$ 38.87	—	
Month Ended December 31, 2018				
Common Stock Repurchase Program	—	$ —	—	6,819,833
Employee transactions	—	$ —	—	

Equity Compensation Plan Information

As of December 31, 2018, the number of shares of restricted common stock outstanding under our equity compensation plans, the weighted average exercise price of outstanding restricted common stock and the number of securities remaining available for issuance were as follows:

	Number of securities to be issued upon exercise of outstanding options,	Weighted average exercise price of outstanding options, restricted	Number of securities remaining available for future issuance under equity

	restricted common stock, warrants and rights	common stock, warrants and rights	compensation plans (excluding securities reflected in column (a))
Plan category	(a)	(b)	(c)
Equity compensation plans approved by security holders	1,515,984	$ 42.97	6,963,017
Equity compensation plans not approved by security holders	—	$ —	—
Total	1,515,984	$ 42.97	6,963,017

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Item 6. Selected Financial Data

	Year Ended December 31,				
(in millions, except share and per share data)	2018	2017	2016	2015	2014
Operating results					
Net sales	$10,529.6	$9,799.3	$9,071.0	$8,023.2	$8,305.1
Operating income [(a)]	$1,189.9	$1,072.0	$973.2	$888.3	$908.7
Net earnings attributable to BorgWarner Inc.[(a)]	$930.7	$439.9	$595.0	$577.2	$628.5
Earnings per share — basic	$4.47	$2.09	$2.78	$2.57	$2.77
Earnings per share — diluted	$4.44	$2.08	$2.76	$2.56	$2.75
Net R&D expenditures	$440.1	$407.5	$343.2	$307.4	$336.2
Capital expenditures, including tooling outlays	$546.6	$560.0	$500.6	$577.3	$563.0
Depreciation and amortization	$431.3	$407.8	$391.4	$320.2	$330.4
Number of employees	30,000	29,000	27,000	30,000	22,000
Financial position					
Cash	$739.4	$545.3	$443.7	$577.7	$797.8
Total assets	$10,095.3	$9,787.6	$8,834.7	$9,210.5	$7,636.3
Total debt	$2,113.3	$2,188.3	$2,219.5	$2,550.3	$1,337.2
Common share information					
Cash dividend declared and paid per share	$0.68	$0.59	$0.53	$0.52	$0.51
Market prices of the Company's common stock					
High	$57.91	$55.68	$42.25	$63.01	$67.38
Low	$33.20	$37.99	$27.69	$38.89	$50.24
Weighted average shares outstanding (thousands)					
Basic	208,197	210,429	214,374	224,414	227,150
Diluted	209,496	211,548	215,325	225,648	228,924

(a) Refer to Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," for discussion of non-comparable items impacting the years ended December 31, 2018, 2017 and 2016.

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

INTRODUCTION

BorgWarner Inc. and Consolidated Subsidiaries (the “Company”) is a global product leader in clean and efficient technology solutions for combustion, hybrid and electric vehicles. Our products help improve vehicle performance, propulsion efficiency, stability and air quality. These products are manufactured and sold worldwide, primarily to original equipment manufacturers (“OEMs”) of light vehicles (passenger cars, sport-utility vehicles ("SUVs"), vans and light trucks). The Company's products are also sold to other OEMs of commercial vehicles (medium-duty trucks, heavy-duty trucks and buses) and off-highway vehicles (agricultural and construction machinery and marine applications). We also manufacture and sell our products to certain Tier One vehicle systems suppliers and into the aftermarket for light, commercial and off-highway vehicles. The Company operates manufacturing facilities serving customers in Europe, the Americas and Asia and is an original equipment supplier to every major automotive OEM in the world.

The Company's products fall into two reporting segments: Engine and Drivetrain. The Engine segment's products include turbochargers, timing devices and chains, emissions systems and thermal systems. The Drivetrain segment's products include transmission components and systems, AWD torque transfer systems and rotating electrical devices.

RESULTS OF OPERATIONS

A summary of our operating results for the years ended December 31, 2018, 2017 and 2016 is as follows:

	Year Ended December 31,		
(millions of dollars, except per share data)	2018	2017	2016
Net sales	$10,529.6	$9,799.3	$9,071.0
Cost of sales	8,300.2	7,683.7	7,142.3
Gross profit	2,229.4	2,115.6	1,928.7
Selling, general and administrative expenses	945.7	899.1	818.0
Other expense, net	93.8	144.5	137.5
Operating income	1,189.9	1,072.0	973.2
Equity in affiliates’ earnings, net of tax	(48.9)	(51.2)	(42.9)
Interest income	(6.4)	(5.8)	(6.3)
Interest expense and finance charges	58.7	70.5	84.6
Other postretirement income	(9.4)	(5.1)	(4.9)
Earnings before income taxes and noncontrolling interest	1,195.9	1,063.6	942.7
Provision for income taxes	211.3	580.3	306.0
Net earnings	984.6	483.3	636.7
Net earnings attributable to the noncontrolling interest, net of tax	53.9	43.4	41.7
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0
Earnings per share — diluted	$4.44	$2.08	$2.76

Non-comparable items impacting the Company's earnings per diluted share and net earnings

The Company's earnings per diluted share were $4.44, $2.08 and $2.76 for the years ended December 31, 2018, 2017 and 2016, respectively. The non-comparable items presented below are calculated after tax using the corresponding effective tax rate and the weighted average number of diluted shares for each of the years then ended. The Company believes the following table is useful in highlighting non-comparable items that impacted its earnings per diluted share:

	Year Ended December 31,		
Non-comparable items:	2018	2017	2016
Restructuring expense	$(0.24)	$(0.23)	$(0.10)
Asset impairment and loss on divestiture	(0.09)	(0.25)	(0.48)
Asbestos-related adjustments	(0.08)	—	0.14
Merger, acquisition and divestiture expense	(0.03)	(0.05)	(0.11)
Gain on sale of building	0.07	—	—
Officer stock awards modification	(0.04)	—	—
Gain on commercial settlement	0.01	—	—
Intangible asset impairment	—	—	(0.04)
Contract expiration gain	—	—	0.02
Tax reform adjustments	0.06	(1.29)	—
Tax adjustments	0.30	0.02	0.04
Total impact of non-comparable items per share — diluted	$(0.04)	$(1.80)	$(0.53)

A summary of non-comparable items impacting the Company’s net earnings for the years ended December 31, 2018, 2017 and 2016 is as follows:

Year ended December 31, 2018:

- The Company recorded restructuring expense of $67.1 million related to Engine and Drivetrain segment actions designed to improve future profitability and competitiveness, primarily related to employee termination benefits, professional fees, and manufacturing footprint rationalization activities. The Company will continue to explore improving the future profitability and competitiveness of its Engine and Drivetrain business and these actions may result in the recognition of additional restructuring charges that could be material. Refer to Note 16, "Restructuring," to the Consolidated Financial Statements in Item 8 of this report for more information.
- During the year ended December 31, 2018, the Company recorded an additional asset impairment expense of $25.6 million to adjust the net book value of the pipe and thermostat product lines to fair value less costs to sell. Additionally, the Company recorded $5.8 million of merger, acquisition and divestiture expense primarily related to professional fees associated with divestiture activities for the non-core pipe and thermostat product lines. Refer to Note 20, "Assets and Liabilities Held for Sale," to the Consolidated Financial Statements in Item 8 of this report for more information.
- During the year ended December 31, 2018, the Company recorded asbestos-related adjustments resulting in an increase to Other Expense of $22.8 million. This increase was the result of actuarial valuation changes of $22.8 million associated with the Company's estimate of liabilities for asbestos-related claims asserted but not yet resolved and potential claims not yet asserted. Refer to Note 15, "Contingencies," to the Consolidated Financial Statements in Item 8 of this report for more information.
- During the fourth quarter of 2018, the Company recorded a gain of $19.4 million related to the sale of a building at a manufacturing facility located in Europe.

- The Company recorded net restricted stock and performance share unit compensation expense of $8.3 million in the year ended December 31, 2018 as the Company modified the vesting provisions of restricted stock and performance share unit grants made to retiring executive officers to allow certain of the outstanding awards, that otherwise would have been forfeited, to vest upon retirement. Refer to Note 13, "Stock-Based Compensation," to the Consolidated Financial Statements in Item 8 of this report for more information.
- During the year ended December 31, 2018, the Company recorded a gain of approximately $4.0 million related to the settlement of a commercial contract for an entity acquired in the 2015 Remy acquisition.
- The Company's provision for income taxes for the year ended December 31, 2018, includes reductions of income tax expense of $15.0 million related to restructuring expense, $0.3 million related to merger, acquisition and divestiture expense, $5.5 million related to the asbestos-related adjustments, and $7.7 million related to asset impairment expense, offset by increases to tax expense of $0.9 million and $5.8 million related to a gain on commercial settlement and a gain on the sale of a building, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements. The provision for income taxes also includes reductions of income tax expense of $12.6 million related to final adjustments made to measurement period provisional estimates associated with the Tax Act, $22.0 million related to a decrease in our deferred tax liability due to a tax benefit for certain foreign tax credits now available due to actions the Company took during the year, $9.1 million related to valuation allowance releases, $2.8 million related to tax reserve adjustments, and $29.8 million related to changes in accounting methods and tax filing positions for prior years primarily related to the Tax Act. Refer to Note 5, "Income Taxes," to the Consolidated Financial Statements in Item 8 of this report for more information.

Year ended December 31, 2017:

- The Company determined that the assets and liabilities of the pipe and thermostat product lines met the held for sale criteria as of December 31, 2017. As a result, the Company recorded an asset impairment expense of $71.0 million in the fourth quarter of 2017 to adjust the net book value of this business to fair value less costs to sell. Refer to Note 20, "Assets and Liabilities Held for Sale," to the Consolidated Financial Statements in Item 8 of this report for more information.
- The Company recorded restructuring expense of $58.5 million related to Engine and Drivetrain segment actions designed to improve future profitability and competitiveness, including $48.2 million primarily related to professional fees and negotiated commercial costs associated with emissions business divestiture and manufacturing footprint rationalization activities. The Company also recorded restructuring expense of $6.8 million primarily related to contractually-required severance associated with Sevcon, Inc. ("Sevcon") executive officers and other employee termination benefits. Refer to Note 16, "Restructuring," to the Consolidated Financial Statements in Item 8 of this report for more information.
- During the year ended December 31, 2017, the Company recorded $10.0 million of merger and acquisition expense primarily related to the acquisition of Sevcon completed on September 27, 2017. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements in Item 8 of this report for more information.
- The Company recorded reductions of income tax expense of $10.1 million, $1.0 million, $18.2 million and $3.8 million related to restructuring expense, merger and acquisition expense, asset impairment expense and other one-time tax adjustments, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements in Item 8 of this report. Additionally, the Company recorded a tax expense of $273.5 million for the change in the tax law related to tax effects of the Tax Act. Refer to Note 5, "Income Taxes," to the Consolidated Financial Statements in Item 8 of this report for more information.

Year ended December 31, 2016:

- The Company recorded asbestos-related adjustments resulting in a net decrease to expense of $48.6 million in Other Expense. This is comprised of actuarial valuation changes of $45.5 million associated with the Company's estimate of liabilities for asbestos-related claims asserted but not yet resolved and potential claims not yet asserted and a gain of $6.1 million from cash received from insolvent insurance carriers, offset by related consulting fees. Refer to Note 15, "Contingencies," to the Consolidated Financial Statements in Item 8 of this report for more information.
- In October 2016, the Company sold the Remy light vehicle aftermarket business associated with the 2015 Remy International, Inc. ("Remy") acquisition and recorded a loss on divestiture of $127.1 million. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements in Item 8 of this report for more information.
- The Company recorded $23.7 million of transition and realignment expenses associated with the Remy acquisition, including certain costs related to the sale of Remy light vehicle aftermarket business.
- The Company incurred restructuring expense of $26.9 million primarily related to continuation of prior year actions in both the Drivetrain and Engine segments. The Drivetrain segment charges represent other expenses and employee termination benefits associated with three labor unions at separate facilities in Western Europe for approximately 450 employees, as well as restructuring of the 2015 Remy acquisition. The Engine segment charges primarily relate to the restructuring of the 2014 Gustav Wahler GmbH u. Co. KG and its general partner ("Wahler") acquisition. These expenses included $10.6 million related to employee termination benefits and $16.3 million of other expenses including $3.1 million related to winding down certain operations in North America. Both the Drivetrain and Engine restructuring actions were designed to improve the future profitability and competitiveness of each segment.
- The Company recorded intangible asset impairment losses of $12.6 million related to Engine segment Etatech’s ECCOS intellectual technology due to the discontinuance of interest from potential customers during the fourth quarter of 2016 that significantly lowered the commercial feasibility of the product line.
- The Company recorded a $6.2 million gain associated with the release of certain Remy light vehicle aftermarket liabilities related to the expiration of a customer contract.
- The Company recorded reductions of income tax expense of $22.7 million, $8.6 million, $6.0 million and $4.4 million primarily related to the loss on Remy light vehicle aftermarket divestiture, other one-time tax adjustments, restructuring expense and intangible asset impairment loss, respectively, as well as tax expenses of $17.5 million associated with asbestos-related adjustments and $2.2 million associated with a gain on the release of certain Remy light vehicle aftermarket liabilities due to the expiration of a customer contract.

Net Sales

Net sales for the year ended December 31, 2018 totaled $10,529.6 million, an 7.5% increase from the year ended December 31, 2017. Excluding the impact of stronger foreign currencies and the net impact of acquisitions and divestitures, net sales increased 4.8%.

Net sales for the year ended December 31, 2017 totaled $9,799.3 million, an 8.0% increase from the year ended December 31, 2016. Excluding the impact of stronger foreign currencies and the net impact of acquisitions and divestitures, net sales increased 10.3%.

The following table details our results of operations as a percentage of net sales:

	Year Ended December 31,		
(percentage of net sales)	2018	2017	2016
Net sales	100.0 %	100.0 %	100.0 %
Cost of sales	78.8	78.4	78.7
Gross profit	21.2	21.6	21.3
Selling, general and administrative expenses	9.0	9.2	9.0
Other expense, net	0.9	1.5	1.5
Operating income	11.3	10.9	10.8
Equity in affiliates' earnings, net of tax	(0.5)	(0.5)	(0.5)
Interest income	(0.1)	(0.1)	(0.1)
Interest expense and finance charges	0.6	0.7	0.9
Other postretirement income	(0.1)	(0.1)	(0.1)
Earnings before income taxes and noncontrolling interest	11.4	10.9	10.4
Provision for income taxes	2.0	5.9	3.4
Net earnings	9.4	5.0	7.0
Net earnings attributable to the noncontrolling interest, net of tax	0.5	0.4	0.4
Net earnings attributable to BorgWarner Inc.	8.9 %	4.6 %	6.6 %

Cost of sales as a percentage of net sales was 78.8%, 78.4% and 78.7% in the years ended December 31, 2018, 2017 and 2016, respectively. The reduction of gross margin in 2018 compared to 2017 was primarily due to the cost of recently enacted tariffs and limited ability to reduce costs in response to the rapid decline in industry volumes in the second half of the year. The Company's material cost of sales was approximately 55% of net sales in the years ended December 31, 2018, 2017 and 2016. The Company's remaining cost to convert raw material to finished product, which includes direct labor and manufacturing overhead, were comparable in the years ended December 31, 2018, 2017 and 2016. Gross profit as a percentage of net sales was 21.2%, 21.6% and 21.3% in the years ended December 31, 2018, 2017 and 2016, respectively. Included in the 2016 gross profit and gross margin was a $6.2 million gain associated with the release of certain Remy light vehicle aftermarket liabilities related to the expiration of a customer contract.

Selling, general and administrative expenses ("SG&A") was $945.7 million, $899.1 million and $818.0 million or 9.0%, 9.2% and 9.0% of net sales for the years ended December 31, 2018, 2017 and 2016, respectively. Excluding the impact of the 2017 acquisition of Sevcon, SG&A and SG&A as a percentage of net sales were $919.7 million and 8.8% for the year ended December 31, 2018. Excluding the impact of the 2017 acquisition of Sevcon, SG&A and SG&A as a percentage of net sales were $891.3 million and 9.1% for the year ended December 31, 2017.

Research and development ("R&D") costs, net of customer reimbursements, was $440.1 million, or 4.2% of net sales, in the year ended December 31, 2018, compared to $407.5 million, or 4.2% of net sales, and $343.2 million, or 3.8% of net sales, in the years ended December 31, 2017 and 2016, respectively. The increase of R&D costs, net of customer reimbursements, in the year ended December 31, 2018 compared with the years ended December 31, 2017 and 2016 was primarily due to investments in advanced engineering programs across product lines. We will continue to invest in a number of cross-business R&D programs, as well as a number of other key programs, all of which are necessary for short- and long-term growth. Our current long-term expectation for R&D spending remains at 4% of net sales.

Other expense, net was $93.8 million, $144.5 million and $137.5 million for the years ended December 31, 2018, 2017 and 2016, respectively. This line item is primarily comprised of non-income tax items

discussed within the subtitle "Non-comparable items impacting the Company's earnings per diluted share and net earnings" above.

Equity in affiliates' earnings, net of tax was $48.9 million, $51.2 million and $42.9 million in the years ended December 31, 2018, 2017 and 2016, respectively. This line item is driven by the results of our 50%-owned Japanese joint venture, NSK-Warner, and our 32.6%-owned Indian joint venture, Turbo Energy Private Limited (“TEL”). Equity in affiliates' earnings in the year ended December 31, 2018 was comparable to the year ended December 31, 2017. The increase in the year ended December 31, 2017 to 2016 was primarily driven by higher earnings from NSK-Warner as a result of improved business conditions in Asia. Refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements in Item 8 of this report for further discussion of NSK-Warner.

Interest expense and finance charges were $58.7 million, $70.5 million and $84.6 million in the years ended December 31, 2018, 2017 and 2016, respectively. The decrease in interest expense for the year ended December 31, 2018 compared with the year ended December 31, 2017 was primarily due to the cross-currency swaps executed in 2018 and an increase in capitalized interest. The decrease in interest expense for the year ended December 31, 2017 compared with the year ended December 31, 2016 was primarily due to the reduction in average outstanding short term borrowings and senior notes and increase in capitalized interest.

Provision for income taxes the provision for income taxes resulted in an effective tax rate of 17.7% for the year ended December 31, 2018, compared with rates of 54.6% and 32.5% for the years ended December 31, 2017 and 2016, respectively. As of December 31, 2018, the Company has completed its accounting for the tax effects of the Tax Act. For further details, see Note 5, "Income Tax," to the Consolidated Financial Statements in Item 8.

The effective tax rate of 17.7% for the year ended December 31, 2018 includes reductions of income tax expense of $15.0 million related to restructuring expense, $0.3 million related to merger, acquisition and divestiture expense, $5.5 million related to the asbestos-related adjustments, and $7.7 million related to asset impairment expense, offset by increases to tax expense of $0.9 million and $5.8 million related to a gain on commercial settlement and a gain on the sale of a building, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements. The provision for income taxes also includes reductions of income tax expense of $12.6 million related to final adjustments made to measurement period provisional estimates associated with the Tax Act, $22.0 million related to a decrease in our deferred tax liability due to a tax benefit for certain foreign tax credits now available due to actions the Company took during the year, $9.1 million related to valuation allowance releases, $2.8 million related to tax reserve adjustments, and $29.8 million related to changes in accounting methods and tax filing positions for prior years primarily related to the Tax Act. Excluding the impact of these non-comparable items, the Company's annual effective tax rate associated with ongoing operations for 2018 was 23.8%.

The effective tax rate of 54.6% for the year ended December 31, 2017 includes reductions of income tax expense of $10.1 million, $1.0 million, $18.2 million and $3.8 million related to restructuring expense, merger and acquisition expense, asset impairment expense and other one-time tax adjustments, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements in Item 8 of this report for more information. Additionally, the Company recorded a tax expense of $273.5 million for the change in the tax law related to tax effects of the Tax Act. Excluding the impact of these non-comparable items, the Company's annual effective tax rate associated with ongoing operations for 2017 was 28.2%.

The effective tax rate of 32.5% for the year ended December 31, 2016 includes reductions of income tax expense of $22.7 million, $8.6 million, $6.0 million and $4.4 million associated with a loss on divestiture, other one-time tax adjustments, restructuring expense and intangible asset impairment loss, respectively, as well as tax expenses of $17.5 million associated with asbestos-related adjustments and $2.2 million

associated with a gain on the release of certain Remy light vehicle aftermarket liabilities due to the expiration of a customer contract. Excluding the impact of these non-comparable items, the Company's annual effective tax rate associated with ongoing operations for 2016 was 30.4%.

Net earnings attributable to the noncontrolling interest, net of tax of $53.9 million for the year ended December 31, 2018 increased by $10.5 million and $12.2 million compared to the years ended December 31, 2017 and 2016, respectively. The increase during the year ended December 31, 2018 compared to the years ended December 31, 2017 and 2016 was primarily related to higher sales and earnings by the Company's joint ventures.

Results By Reporting Segment

The Company's business is comprised of two reporting segments: Engine and Drivetrain. These segments are strategic business groups, which are managed separately as each represents a specific grouping of related automotive components and systems.

The Company allocates resources to each segment based upon the projected after-tax return on invested capital ("ROIC") of its business initiatives. ROIC is comprised of Adjusted EBIT after deducting notional taxes compared to the projected average capital investment required. Adjusted EBIT is comprised of earnings before interest, income taxes and noncontrolling interest (“EBIT") adjusted for restructuring, goodwill impairment charges, affiliates' earnings and other items not reflective of ongoing operating income or loss.

Adjusted EBIT is the measure of segment income or loss used by the Company. The Company believes Adjusted EBIT is most reflective of the operational profitability or loss of our reporting segments.

The following tables show segment information and Adjusted EBIT for the Company's reporting segments.

Net Sales by Reporting Segment

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Engine	$6,447.4	$6,061.5	$5,590.1
Drivetrain	4,139.4	3,790.3	3,523.7
Inter-segment eliminations	(57.2)	(52.5)	(42.8)
Net sales	$10,529.6	$9,799.3	$9,071.0

Adjusted Earnings Before Interest, Income Taxes and Noncontrolling Interest ("Adjusted EBIT")

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Engine	$1,039.9	$992.1	$943.9
Drivetrain	475.4	448.3	363.0
Adjusted EBIT	1,515.3	1,440.4	1,306.9
Restructuring expense	67.1	58.5	26.9
Asset impairment and loss on divestiture	25.6	71.0	127.1
Asbestos-related adjustments	22.8	—	(48.6)
Gain on sale of building	(19.4)	—	—
Other postretirement income	(9.4)	(5.1)	(4.9)
CEO stock awards modification	8.3	—	—
Merger, acquisition and divestiture expense	5.8	10.0	23.7
Lease termination settlement	—	5.3	—
Intangible asset impairment	—	—	12.6
Contract expiration gain	—	—	(6.2)
Other expense, net	(3.3)	2.1	—
Corporate, including equity in affiliates' earnings and stock-based compensation	169.6	170.3	155.3
Interest income	(6.4)	(5.8)	(6.3)
Interest expense and finance charges	58.7	70.5	84.6
Earnings before income taxes and noncontrolling interest	1,195.9	1,063.6	942.7
Provision for income taxes	211.3	580.3	306.0
Net earnings	984.6	483.3	636.7
Net earnings attributable to the noncontrolling interest, net of tax	53.9	43.4	41.7
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0

The Engine segment's net sales for the year ended December 31, 2018 increased $385.9 million, or 6.4%, and segment Adjusted EBIT increased $47.8 million, or 4.8%, from the year ended December 31, 2017 due to higher sales of light vehicle turbochargers, thermal products, engine timing systems and stronger commercial vehicle markets around the world. Excluding the impact of strengthening foreign currencies, primarily the Euro, Chinese Renminbi, and the net impact of acquisitions and divestitures, net sales increased 3.6% from the year ended December 31, 2017. The segment Adjusted EBIT margin was 16.1% for the year ended December 31, 2018, down from 16.4% in the year ended December 31, 2017. The Adjusted EBIT margin decrease was primarily related to the rapid industry volume declines in Europe and China in the second half of 2018.

The Engine segment's net sales for the year ended December 31, 2017 increased $471.4 million, or 8.4%, and segment Adjusted EBIT increased $48.2 million, or 5.1%, from the year ended December 31, 2017 due to higher sales of light vehicle turbochargers, thermal products, engine timing systems and stronger commercial vehicle markets around the world. Excluding the impact of strengthening foreign currencies, primarily the Euro and Korean Won, net sales increased 7.7% from the year ended December 31, 2016. The segment Adjusted EBIT margin was 16.4% for the year ended December 31, 2017, down from 16.9% in the year ended December 31, 2016. The Adjusted EBIT margin decrease was primarily related to inefficiencies in the non-core emission product lines. In the third quarter of 2017, the Company initiated actions designed to improve future profitability and competitiveness and started exploring strategic options for the non-core emission product lines. Refer to Note 16, "Restructuring," to the Consolidated Financial Statements in Item 8 of this report for more information.

The Drivetrain segment's net sales for the year ended December 31, 2018 increased $349.1 million, or 9.2%, and segment Adjusted EBIT increased $27.1 million, or 6.0%, from the year ended December 31, 2017 primarily due to higher sales of all-wheel drive systems and transmission components. Excluding the impact of strengthening foreign currencies, primarily the Euro and Chinese Renminbi, and the net impact of acquisitions and divestitures, net sales increased 6.8% from the year ended December 31, 2017. The segment Adjusted EBIT margin was 11.5% in the year ended December 31, 2018, compared to 11.8% in the year ended December 31, 2017. The Adjusted EBIT margin decrease was primarily due to the impact of the Sevcon acquisition.

The Drivetrain segment's net sales for the year ended December 31, 2017 increased $266.6 million, or 7.6%, and segment Adjusted EBIT increased $85.3 million, or 23.5%, from the year ended December 31, 2016 primarily due to higher sales of all-wheel drive systems and transmission components. Excluding the impact of strengthening foreign currencies, primarily the Euro and Korean Won, and the net impact of acquisitions and divestitures, net sales increased 14.9% from the year ended December 31, 2016. The segment Adjusted EBIT margin was 11.8% in the year ended December 31, 2017, compared to 10.3% in the year ended December 31, 2016. The Adjusted EBIT margin improvement was primarily due to increased sales and the divestiture of the Remy light vehicle aftermarket business.

Corporate represents headquarters' expenses not directly attributable to the individual segments and equity in affiliates' earnings. This net expense was $169.6 million, $170.3 million and $155.3 million for the years ended December 31, 2018, 2017 and 2016, respectively. The increase of Corporate expenses in 2018 and 2017 compared to 2016 is primarily due to costs associated with talent acquisition and severance expenses, stock-based compensation, compliance costs and various other corporate initiatives.

Outlook

Our overall outlook for 2019 is neutral. Net new business-related sales growth, due to increased penetration of BorgWarner products around the world, is expected to drive flat to increasing growth excluding the impact of foreign currencies and the net impact of acquisitions and divestitures, despite the declining global industry production expected in 2019.

The Company maintains a positive long-term outlook for its global business and is committed to new product development and strategic capital investments to enhance its product leadership strategy. The several trends that are driving our long-term growth are expected to continue, including the increased turbocharger adoption in North America and Asia, the increased adoption of automated transmissions in Europe and Asia-Pacific, and the move to variable cam in Europe and Asia-Pacific. Our long-term growth is also expected to benefit from the adoption of product offerings for hybrid and electric vehicles.

LIQUIDITY AND CAPITAL RESOURCES

The Company maintains various liquidity sources including cash and cash equivalents and the unused portion of our multi-currency revolving credit agreement. At December 31, 2018, the Company had $739.4 million of cash, of which $484.8 million of cash was held by our subsidiaries outside of the United States. Cash held by these subsidiaries is used to fund foreign operational activities and future investments, including acquisitions.

The vast majority of cash held outside the United States is available for repatriation. The Tax Act reduced the U.S. federal corporate tax rate from 35 percent to 21 percent and required companies to pay a one-time transition tax on earnings of certain foreign subsidiaries that were previously tax deferred. As of January 1, 2018, funds repatriated from foreign subsidiaries will generally no longer be taxable for U.S. federal tax purposes. In light of the treatment of foreign earnings under the Tax Act, the Company recorded a liability for the U.S. federal and applicable state income tax liabilities calculated under the provisions of the deemed repatriation of foreign earnings. A deferred tax liability has been recorded for substantially all estimated

legally distributable foreign earnings. The Company uses its U.S. liquidity primarily for various corporate purposes, including but not limited to debt service, share repurchases, dividend distributions and other corporate expenses.

The Company has a $1.2 billion multi-currency revolving credit facility, which includes a feature that allows the Company's borrowings to be increased to $1.5 billion. The facility provides for borrowings through June 29, 2022. The Company has one key financial covenant as part of the credit agreement which is a debt to EBITDA ("Earnings Before Interest, Taxes, Depreciation and Amortization") ratio. The Company was in compliance with the financial covenant at December 31, 2018. At December 31, 2018 and December 31, 2017, the Company had no outstanding borrowings under this facility.

The Company's commercial paper program allows the Company to issue short-term, unsecured commercial paper notes up to a maximum aggregate principal amount outstanding of $1.2 billion. Under this program, the Company may issue notes from time to time and will use the proceeds for general corporate purposes. The Company had no outstanding borrowings under this program as of December 31, 2018 and December 31, 2017.

The total current combined borrowing capacity under the multi-currency revolving credit facility and commercial paper program cannot exceed $1.2 billion.

In addition to the credit facility, the Company's universal shelf registration provides the ability to issue various debt and equity instruments.

On February 7, 2018, April 25, 2018, July 25, 2018 and November 7, 2018, the Company’s Board of Directors declared quarterly cash dividends of $0.17 per share of common stock. These dividends were paid on March 15, 2018, June 15, 2018, September 17, 2018 and December 17, 2018.

The Company's net debt to net capital ratio was 24.0% at December 31, 2018 versus 30.0% at December 31, 2017.

From a credit quality perspective, the Company has a credit rating of BBB+ from both Standard & Poor's and Fitch Ratings and Baa1 from Moody's. The current outlook from Standard & Poor's, Moody's and Fitch Ratings is stable. None of the Company's debt agreements require accelerated repayment in the event of a downgrade in credit ratings.

Capitalization

	December 31,	
(millions of dollars)	2018	2017
Notes payable and short-term debt	$172.6	$84.6
Long-term debt	1,940.7	2,103.7
Total debt	2,113.3	2,188.3
Less: cash	739.4	545.3
Total debt, net of cash	1,373.9	1,643.0
Total equity	4,344.8	3,825.9
Total capitalization	$5,718.7	$5,468.9
Total debt, net of cash, to capital ratio	24.0 %	30.0 %

Balance sheet debt decreased by $75.0 million and cash increased by $194.1 million compared with December 31, 2017. The $269.1 million decrease in balance sheet debt (net of cash) was primarily due to cash flow from operations.

Total equity increased by $518.9 million in the year ended December 31, 2018 as follows:

(millions of dollars)	
Balance, January 1, 2018	$3,825.9
Adoption of accounting standards	1.9
Net earnings	984.6
Purchase of treasury stock	(150.0)
Stock-based compensation	37.7
Other comprehensive income	(178.0)
Dividends declared to BorgWarner stockholders	(141.5)
Dividends declared to noncontrolling stockholders	(35.8)
Balance, December 31, 2018	$4,344.8

Operating Activities

Net cash provided by operating activities was $1,126.5 million, $1,180.3 million and $1,035.7 million in the years ended December 31, 2018, 2017 and 2016, respectively. The decrease for the year ended December 31, 2018 compared with the year ended December 31, 2017 primarily reflected changes in working capital, offset by higher earnings adjusted for noncash charges to operations. The increase for the year ended December 31, 2017 compared with the year ended December 31, 2016 primarily reflected higher net earnings adjusted for non-cash charges to operations and improved working capital.

Investing Activities

Net cash used in investing activities was $514.5 million, $752.3 million and $404.2 million in the years ended December 31, 2018, 2017 and 2016, respectively. The decrease in the year ended December 31, 2018 compared with the year ended December 31, 2017 was primarily due to the 2017 acquisition of Sevcon, higher proceeds from asset disposals and lower capital expenditures, including tooling outlays in 2018. The increase in the year ended December 31, 2017 compared with the year ended December 31, 2016 was primarily due to the acquisition of Sevcon and higher capital expenditures, including tooling outlays, offset by the 2016 divestitures of Divgi-Warner and the Remy light vehicle aftermarket business. Year over year capital spending decrease of $13.4 million during the year ended December 31, 2018 was primarily due to timing of the investment activity in the Drivetrain segment. Year over year capital spending increase of $59.4 million during the year ended December 31, 2017 was due to higher spending required for new program awards within the Drivetrain segment.

Financing Activities

Net cash used in financing activities was $383.4 million, $362.5 million and $733.8 million in the years ended December 31, 2018, 2017 and 2016, respectively. The increase in the year ended December 31, 2018 compared with the year ended December 31, 2017 was primarily driven by lower borrowings, higher share repurchases and dividend payments. The decrease in the year ended December 31, 2017 compared with the year ended December 31, 2016 was primarily due to lower debt repayments and share repurchases.

The Company's significant contractual obligation payments at December 31, 2018 are as follows:

(millions of dollars)	Total	2019	2020-2021	2022-2023	After 2023
Other postretirement employee benefits, excluding pensions (a)	$76.8	$11.0	$ 19.8	$ 17.1	$28.9
Defined benefit pension plans (b)	54.8	4.0	9.9	10.9	30.0
Notes payable and long-term debt	2,125.7	172.6	258.6	573.8	1,120.7
Projected interest payments	838.3	79.5	124.2	104.2	530.4
Non-cancelable operating leases	121.3	24.3	36.1	23.0	37.9
Capital spending obligations	103.7	103.7	—	—	—
Total	$3,320.6	$395.1	$ 448.6	$ 729.0	$1,747.9

(a) Other postretirement employee benefits, excluding pensions, include anticipated future payments to cover retiree medical and life insurance benefits. Amount contained in “After 2023” column includes estimated payments through 2028. Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements in Item 8 of this report for disclosures related to the Company’s other postretirement employee benefits.

(b) Since the timing and amount of payments for funded defined benefit pension plans are usually not certain for future years such potential payments are not shown in this table. Amount contained in “After 2023” column is for unfunded plans and includes estimated payments through 2028. Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements in Item 8 of this report for disclosures related to the Company’s pension benefits.

We believe that the combination of cash from operations, cash balances, available credit facilities, and the universal shelf registration capacity will be sufficient to satisfy our cash needs for our current level of operations and our planned operations for the foreseeable future. We will continue to balance our needs for internal growth, external growth, debt reduction and cash conservation.

Asbestos-related Liability

During 2018 and 2017, the Company paid $46.0 million and $51.7 million, respectively, in asbestos-related claim resolution costs and associated defense costs. These gross payments are before tax benefits and any insurance receipts. Asbestos-related claim resolution costs and associated defense costs are reflected in the Company's operating cash flows and will continue to be in the future.

Refer to Note 15, "Contingencies," to the Consolidated Financial Statements in Item 8 of this report for more information regarding costs and assumptions for asbestos-related liability.

Off Balance Sheet Arrangements

The Company has certain leases that are recorded as operating leases. Types of operating leases include leases on facilities, vehicles and certain office equipment. The total expected future cash outlays for non-cancelable operating lease obligations at December 31, 2018 is $121.3 million. Refer to Note 17, "Leases and Commitments," to the Consolidated Financial Statements in Item 8 of this report for more information on operating leases, including future minimum payments.

Pension and Other Postretirement Employee Benefits

The Company's policy is to fund its defined benefit pension plans in accordance with applicable government regulations and to make additional contributions when appropriate. At December 31, 2018, all legal funding requirements had been met. The Company contributed $25.8 million, $18.3 million and $19.7 million to its defined benefit pension plans in the years ended December 31, 2018, 2017 and 2016, respectively. The Company expects to contribute a total of $15 million to $25 million into its defined benefit pension plans during 2019. Of the $15 million to $25 million in projected 2019 contributions, $4 million are contractually obligated, while any remaining payments would be discretionary.

The funded status of all pension plans was a net unfunded position of $210.9 million and $188.6 million at December 31, 2018 and 2017, respectively. Of these amounts, $95.4 million and $75.7 million at December 31, 2018 and 2017, respectively, were related to plans in Germany, where there is not a tax deduction allowed under the applicable regulations to fund the plans; hence the common practice is to make contributions as benefit payments become due.

Other postretirement employee benefits primarily consist of postretirement health care benefits for certain employees and retirees of the Company's U.S. operations. The Company funds these benefits as retiree claims are incurred. Other postretirement employee benefits had an unfunded status of $86.5 million and $107.0 million at December 31, 2018 and 2017, respectively.

The Company believes it will be able to fund the requirements of these plans through cash generated from operations or other available sources of financing for the foreseeable future.

Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements in Item 8 of this report for more information regarding costs and assumptions for employee retirement benefits.

OTHER MATTERS

Contingencies

In the normal course of business, the Company is party to various commercial and legal claims, actions and complaints, including matters involving warranty claims, intellectual property claims, general liability and various other risks. It is not possible to predict with certainty whether or not the Company will ultimately be successful in any of these commercial and legal matters or, if not, what the impact might be. The Company's environmental and product liability contingencies are discussed separately below. The Company's management does not expect that an adverse outcome in any of these commercial and legal claims, actions and complaints will have a material adverse effect on the Company's results of operations, financial position or cash flows, although it could be material to the results of operations in a particular quarter.

Environmental

The Company and certain of its current and former direct and indirect corporate predecessors, subsidiaries and divisions have been identified by the United States Environmental Protection Agency and certain state environmental agencies and private parties as potentially responsible parties (“PRPs”) at various hazardous waste disposal sites under the Comprehensive Environmental Response, Compensation and Liability Act (“Superfund”) and equivalent state laws and, as such, may presently be liable for the cost of clean-up and other remedial activities at 28 such sites. Responsibility for clean-up and other remedial activities at a Superfund site is typically shared among PRPs based on an allocation formula.

The Company believes that none of these matters, individually or in the aggregate, will have a material adverse effect on its results of operations, financial position or cash flows. Generally, this is because either

the estimates of the maximum potential liability at a site are not material or the liability will be shared with other PRPs, although no assurance can be given with respect to the ultimate outcome of any such matter.

Refer to "Note 15 - Contingencies," to the Consolidated Financial Statements in Item 8 of this report for further details and information respecting the Company’s environmental liability.

Asbestos-related Liability

Like many other industrial companies that have historically operated in the United States, the Company, or parties the Company is obligated to indemnify, continues to be named as one of many defendants in asbestos-related personal injury actions. The Company has an estimated liability of $805.3 million as of December 31, 2018 for asbestos-related claim resolution costs and associated defense costs through 2074, which is the last date by which the Company currently estimates it may have resolved all asbestos-related claims. The Company additionally estimates that, as of December 31, 2018, it has aggregate insurance coverage available in the amount of $386.4 million to satisfy asbestos-related claim resolution costs and associated defense costs. As with any estimates, the actual experience may differ.

Refer to "Note 15 - Contingencies," to the Consolidated Financial Statements in Item 8 of this report for further details and information respecting the Company’s asbestos-related liability and corresponding insurance asset.

CRITICAL ACCOUNTING POLICIES

The consolidated financial statements are prepared in conformity with accounting principles generally accepted in the United States (“GAAP”). In preparing these financial statements, management has made its best estimates and judgments of certain amounts included in the financial statements, giving due consideration to materiality. Critical accounting policies are those that are most important to the portrayal of the Company's financial condition and results of operations. Some of these policies require management's most difficult, subjective or complex judgments in the preparation of the financial statements and accompanying notes. Management makes estimates and assumptions about the effect of matters that are inherently uncertain, relating to the reporting of assets, liabilities, revenues, expenses and the disclosure of contingent assets and liabilities. Our most critical accounting policies are discussed below.

Revenue recognition The Company recognizes revenue when performance obligations under the terms of a contract are satisfied, which generally occurs with the transfer of control of our products. Although the Company may enter into long-term supply arrangements with its major customers, the prices and volumes are not fixed over the life of the arrangements, and a contract does not exist for purposes of applying ASC 606 until volumes are contractually known. For most of our products, transfer of control occurs upon shipment or delivery, however, a limited number of our customer arrangements for our highly customized products with no alternative use provide us with the right to payment during the production process. As a result, for these limited arrangements, revenue is recognized as goods are produced and control transfers to the customer. Revenue is measured at the amount of consideration we expect to receive in exchange for transferring the good.

The Company continually seeks business development opportunities and at times provides customer incentives for new program awards. Customer incentive payments are capitalized when the payments are incremental and incurred only if the new business is obtained and these amounts are expected to be recovered from the customer over the term of the new business arrangement. The Company recognizes a reduction to revenue as products that the upfront payments are related to are transferred to the customer, based on the total amount of products expected to be sold over the term of the arrangement (generally 3 to 7 years). The Company evaluates the amounts capitalized each period end for recoverability and expenses any amounts that are no longer expected to be recovered over the term of the business arrangement.

Impairment of long-lived assets, including definite-lived intangible assets The Company reviews the carrying value of its long-lived assets, whether held for use or disposal, including other amortizing intangible assets, when events and circumstances warrant such a review under Accounting Standards Codification ("ASC") Topic 360. In assessing long-lived assets for an impairment loss, assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. In assessing long-lived assets for impairment, management generally considers individual facilities the lowest level for which identifiable cash flows are largely independent. A recoverability review is performed using the undiscounted cash flows if there is a triggering event. If the undiscounted cash flow test for recoverability identifies a possible impairment, management will perform a fair value analysis. Management determines fair value under ASC Topic 820 using the appropriate valuation technique of market, income or cost approach. If the carrying value of a long-lived asset is considered impaired, an impairment charge is recorded for the amount by which the carrying value of the long-lived asset exceeds its fair value.

Management believes that the estimates of future cash flows and fair value assumptions are reasonable; however, changes in assumptions underlying these estimates could affect the valuations. Significant judgments and estimates used by management when evaluating long-lived assets for impairment include: (i) an assessment as to whether an adverse event or circumstance has triggered the need for an impairment review; (ii) undiscounted future cash flows generated by the asset; and (iii) fair valuation of the asset. Events and conditions that could result in impairment in the value of our long-lived assets include changes in the industries in which we operate, particularly the impact of a downturn in the global economy, as well as competition and advances in technology, adverse changes in the regulatory environment, or other factors leading to reduction in expected long-term sales or profitability.

Assets and liabilities held for sale The Company classifies assets and liabilities (disposal groups) to be sold as held for sale in the period in which all of the following criteria are met: management, having the authority to approve the action, commits to a plan to sell the disposal group; the disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such disposal groups; an active program to locate a buyer and other actions required to complete the plan to sell the disposal group have been initiated; the sale of the disposal group is probable, and transfer of the disposal group is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond the Company's control extend the period of time required to sell the disposal group beyond one year; the disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

The Company initially measures a disposal group that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held for sale criteria are met. Conversely, gains are not recognized on the sale of a disposal group until the date of sale. The Company assesses the fair value of a disposal group, less any costs to sell, each reporting period it remains classified as held for sale and reports any subsequent changes as an adjustment to the carrying value of the disposal group, as long as the new carrying value does not exceed the carrying value of the disposal group at the time it was initially classified as held for sale.

Upon determining that a disposal group meets the criteria to be classified as held for sale, the Company reports the assets and liabilities of the disposal group, if material, in the line items assets held for sale and liabilities held for sale in the Consolidated Balance Sheet.

Refer to Note 20, "Assets and Liabilities Held for Sale," to the Consolidated Financial Statements in Item 8 of this report for more information.

Goodwill and other indefinite-lived intangible assets During the fourth quarter of each year, the Company qualitatively assesses its goodwill assigned to each of its reporting units. This qualitative

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assessment evaluates various events and circumstances, such as macro economic conditions, industry and market conditions, cost factors, relevant events and financial trends, that may impact a reporting unit's fair value. Using this qualitative assessment, the Company determines whether it is more-likely-than-not the reporting unit's fair value exceeds its carrying value. If it is determined that it is not more-likely-than-not the reporting unit's fair value exceeds the carrying value, or upon consideration of other factors, including recent acquisition, restructuring or divestiture activity, the Company performs a quantitative, "step one," goodwill impairment analysis. In addition, the Company may test goodwill in between annual test dates if an event occurs or circumstances change that could more-likely-than-not reduce the fair value of a reporting unit below its carrying value.

Similar to goodwill, the Company can elect to perform the impairment test for indefinite-lived intangibles other than goodwill (primarily trade names) using a qualitative analysis, considering similar factors as outlined in the goodwill discussion in order to determine if it is more-likely-than-not that the fair value of the trade names is less than the respective carrying values. If the Company elects to perform or is required to perform a quantitative analysis, the test consists of a comparison of the fair value of the indefinite-lived intangible asset to the carrying value of the asset as of the impairment testing date. We estimate the fair value of indefinite-lived intangibles using the relief-from-royalty method, which we believe is an appropriate and widely used valuation technique for such assets. The fair value derived from the relief-from-royalty method is measured as the discounted cash flow savings realized from owning such trade names and not being required to pay a royalty for their use.

During the fourth quarter of 2018, the Company performed an analysis on each reporting unit. For the reporting unit with restructuring activities, the Company performed a quantitative, "step one," goodwill impairment analysis, which requires the Company to make significant assumptions and estimates about the extent and timing of future cash flows, discount rates and growth rates. The basis of this goodwill impairment analysis is the Company's annual budget and long-range plan (“LRP”). The annual budget and LRP includes a five-year projection of future cash flows based on actual new products and customer commitments and assumes the last year of the LRP data is a fair indication of the future performance. Because the LRP is estimated over a significant future period of time, those estimates and assumptions are subject to a high degree of uncertainty. Further, the market valuation models and other financial ratios used by the Company require certain assumptions and estimates regarding the applicability of those models to the Company's facts and circumstances.

The Company believes the assumptions and estimates used to determine the estimated fair value are reasonable. Different assumptions could materially affect the estimated fair value. The primary assumptions affecting the Company's December 31, 2018 goodwill quantitative, "step one," impairment review are as follows:

- Discount rate: the Company used a 10.9% weighted average cost of capital (“WACC”) as the discount rate for future cash flows. The WACC is intended to represent a rate of return that would be expected by a market participant.

- Operating income margin: the Company used historical and expected operating income margins, which may vary based on the projections of the reporting unit being evaluated.

- Revenue growth rate:the Company used a global automotive market industry growth rate forecast adjusted to estimate its own market participation for product lines.

In addition to the above primary assumptions, the Company notes the following risks to volume and operating income assumptions that could have an impact on the discounted cash flow models:

- The automotive industry is cyclical and the Company's results of operations would be adversely affected by industry downturns.
- The Company is dependent on market segments that use our key products and would be affected by decreasing demand in those segments.
- The Company is subject to risks related to international operations.

Based on the assumptions outlined above, the impairment testing conducted in the fourth quarter of 2018 indicated the Company's goodwill assigned to the reporting unit with restructuring activity that was quantitatively assessed was not impaired and contained a fair value substantially higher than the reporting unit's carrying value. Additionally, for the reporting unit quantitatively assessed, sensitivity analyses were completed indicating that a one percent increase in the discount rate, a one percent decrease in the operating margin, or a one percent decrease in the revenue growth rate assumptions would not result in the carrying value exceeding the fair value.

Refer to Note 7, "Goodwill and Other Intangibles," to the Consolidated Financial Statements in Item 8 of this report for more information regarding goodwill.

Product warranties The Company provides warranties on some, but not all, of its products. The warranty terms are typically from one to three years. Provisions for estimated expenses related to product warranty are made at the time products are sold. These estimates are established using historical information about the nature, frequency and average cost of warranty claim settlements as well as product manufacturing and industry developments and recoveries from third parties. Management actively studies trends of warranty claims and takes action to improve product quality and minimize warranty claims. Management believes that the warranty accrual is appropriate; however, actual claims incurred could differ from the original estimates, requiring adjustments to the accrual:

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Net sales	$10,529.6	$9,799.3	$9,071.0
Warranty provision	$69.0	$73.1	$62.2
Warranty provision as a percentage of net sales	0.7 %	0.7 %	0.7 %

The following table illustrates the sensitivity of a 25 basis point change (as a percentage of net sales) in the assumed warranty trend on the Company's accrued warranty liability:

	December 31,		
(millions of dollars)	2018	2017	2016
25 basis point decrease (income)/expense	$(26.3)	$(24.5)	$(22.7)
25 basis point increase (income)/expense	$26.3	$24.5	$22.7

At December 31, 2018, the total accrued warranty liability was $103.2 million. The accrual is represented as $56.2 million in current liabilities and $47.0 million in non-current liabilities on our Consolidated Balance Sheet.

Refer to Note 8, "Product Warranty," to the Consolidated Financial Statements in Item 8 of this report for more information regarding product warranties.

Asbestos Like many other industrial companies that have historically operated in the United States, the Company, or parties that the Company is obligated to indemnify, continues to be named as one of many defendants in asbestos-related personal injury actions. With the assistance of a third party actuary, the

Company estimates the liability and corresponding insurance recovery for pending and future claims not yet asserted to extend through December 31, 2064 with a runoff through 2074 and defense costs. This estimate is based on the Company's historical claim experience and estimates of the number and resolution cost of potential future claims that may be filed based on anticipated levels of unique plaintiff asbestos-related claims in the U.S. tort system against all defendants. As with any estimates, actual experience may differ. This estimate is not discounted to present value. The Company currently believes that December 31, 2074 is a reasonable assumption as to the last date on which it is likely to have resolved all asbestos-related claims, based on the nature and useful life of the Company’s products and the likelihood of incidence of asbestos-related disease in the U.S. population generally. The Company assesses the sufficiency of its estimated liability for pending and future claims not yet asserted and defense costs on an ongoing basis by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in claim resolution costs. In addition to claims experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company continues to have additional excess insurance coverage available for potential future asbestos-related claims. In connection with the Company’s ongoing review of its asbestos-related claims, the Company also reviewed the amount of its potential insurance coverage for such claims, taking into account the remaining limits of such coverage, the number and amount of claims on our insurance from co-insured parties, ongoing litigation against the Company’s insurance carriers, potential remaining recoveries from insolvent insurance carriers, the impact of previous insurance settlements, and coverage available from solvent insurance carriers not party to the coverage litigation.

Refer to Note 15, "Contingencies," to the Consolidated Financial Statements in Item 8 of this report for more information regarding management's judgments applied in the recognition and measurement of asbestos-related assets and liabilities.

Pension and other postretirement defined benefits The Company provides postretirement defined benefits to a number of its current and former employees. Costs associated with postretirement defined benefits include pension and postretirement health care expenses for employees, retirees and surviving spouses and dependents.

The Company's defined benefit pension and other postretirement plans are accounted for in accordance with ASC Topic 715. The determination of the Company's obligation and expense for its pension and other postretirement employee benefits, such as retiree health care, is dependent on certain assumptions used by actuaries in calculating such amounts. Certain assumptions, including the expected long-term rate of return on plan assets, discount rate, rates of increase in compensation and health care costs trends are described in Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements in Item 8 of this report. The effects of any modification to those assumptions are either recognized immediately or amortized over future periods in accordance with GAAP.

In accordance with GAAP, actual results that differ from assumptions used are accumulated and generally amortized over future periods. The primary assumptions affecting the Company's accounting for employee benefits under ASC Topics 712 and 715 as of December 31, 2018 are as follows:

- Expected long-term rate of return on plan assets: The expected long-term rate of return is used in the calculation of net periodic benefit cost. The required use of the expected long-term rate of return on plan assets may result in recognized returns that are greater or less than the actual returns on those plan assets in any given year. Over time, however, the expected long-term rate of return on plan assets is designed to approximate actual earned long-term returns. The expected long-term rate of return for pension assets has been determined based on various inputs, including historical returns for the different asset classes held by the Company's trusts and its asset allocation, as well as inputs from internal and external sources regarding expected capital market return, inflation and other variables. The Company also considers the impact of active management of the plans' invested assets. In determining its pension expense for the year ended December 31, 2018, the Company used long-term rates of return on plan assets ranging from 1.75% to 6.0% outside of the U.S. and 6.0% in the U.S.

Actual returns on U.S. pension assets were -4.1%, 11.5% and 5.9% for the years ended December 31, 2018, 2017 and 2016, respectively, compared to the expected rate of return assumption of 6.0% for the same years ended.

Actual returns on U.K. pension assets were -3.1%, 9.7% and 22.0% for the years ended December 31, 2018, 2017 and 2016, respectively, compared to the expected rate of return assumption of 6.0% for the same years ended.

Actual returns on German pension assets were -4.2%, 7.0% and 8.6% for the years ended December 31, 2018, 2017 and 2016, respectively, compared to the expected rate of return assumption of 5.9% for the same years ended.

- Discount rate: The discount rate is used to calculate pension and other postretirement employee benefit obligations (“OPEB”). In determining the discount rate, the Company utilizes a full yield approach in the estimation of service and interest components by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. The Company used discount rates ranging from 0.66% to 10.75% to determine its pension and other benefit obligations as of December 31, 2018, including weighted average discount rates of 4.24% in the U.S., 2.28% outside of the U.S., and 4.05% for U.S. other postretirement health care plans. The U.S. discount rate reflects the fact that our U.S. pension plan has been closed for new participants since 1989 (1999 for our U.S. health care plan).

- Health care cost trend: For postretirement employee health care plan accounting, the Company reviews external data and Company specific historical trends for health care cost to determine the health care cost trend rate assumptions. In determining the projected benefit obligation for postretirement employee health care plans as of December 31, 2018, the Company used health care cost trend rates of 6.50%, declining to an ultimate trend rate of 5% by the year 2025.

While the Company believes that these assumptions are appropriate, significant differences in actual experience or significant changes in these assumptions may materially affect the Company's pension and OPEB and its future expense.

The following table illustrates the sensitivity to a change in certain assumptions for Company sponsored U.S. and non-U.S. pension plans on its 2019 pre-tax pension expense:

(millions of dollars)	Impact on U.S. 2019 pre-tax pension (expense)/income	Impact on Non-U.S. 2019 pre-tax pension (expense)/income
One percentage point decrease in discount rate	$ — *	$ (6.2)
One percentage point increase in discount rate	$ — *	$ 6.2
One percentage point decrease in expected return on assets	$ (2.0)	$ (4.4)
One percentage point increase in expected return on assets	$ 2.0	$ 4.4

* A one percentage point increase or decrease in the discount rate would have a negligible impact on the Company’s U.S. 2019 pre-tax pension expense.

The following table illustrates the sensitivity to a change in the discount rate assumption related to the Company’s U.S. OPEB interest expense:

(millions of dollars)	Impact on 2019 pre-tax OPEB interest (expense)/income
One percentage point decrease in discount rate	$ (0.6)
One percentage point increase in discount rate	$ 0.6

The sensitivity to a change in the discount rate assumption related to the Company's total 2019 U.S. OPEB expense is expected to be negligible, as any increase in interest expense will be offset by net actuarial gains.

The following table illustrates the sensitivity to a one-percentage point change in the assumed health care cost trend related to the Company's OPEB obligation and service and interest cost:

(millions of dollars)	One Percentage Point Increase	One Percentage Point Decrease
Effect on other postretirement employee benefit obligation	$5.5	$ (4.9)
Effect on total service and interest cost components	$0.2	$ (0.2)

Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements in Item 8 of this report for more information regarding the Company’s retirement benefit plans.

Restructuring Restructuring costs may occur when the Company takes action to exit or significantly curtail a part of its operations or implements a reorganization that affects the nature and focus of operations. A restructuring charge can consist of severance costs associated with reductions to the workforce, costs to terminate an operating lease or contract, professional fees and other costs incurred related to the implementation of restructuring activities.

Income taxes The Company accounts for income taxes in accordance with ASC Topic 740. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled.

Management judgment is required in determining the Company's provision for income taxes, deferred tax assets and liabilities and the valuation allowance recorded against the Company's net deferred tax assets. In calculating the provision for income taxes on an interim basis, the Company uses an estimate of the annual effective tax rate based upon the facts and circumstances known at each interim period. In

determining the need for a valuation allowance, the historical and projected financial performance of the operation recording the net deferred tax asset is considered along with any other pertinent information. Since future financial results may differ from previous estimates, periodic adjustments to the Company’s valuation allowance may be necessary.

The Company is subject to income taxes in the U.S. at the federal and state level and numerous non-U.S. jurisdictions. Significant judgment is required in determining our worldwide provision for income taxes and recording the related assets and liabilities. In the ordinary course of our business, there are many transactions and calculations where the ultimate tax determination is less than certain. Accruals for income tax contingencies are provided for in accordance with the requirements of ASC Topic 740. The Company’s U.S. federal and certain state income tax returns and certain non-U.S. income tax returns are currently under various stages of audit by applicable tax authorities. Although the outcome of ongoing tax audits is always uncertain, management believes that it has appropriate support for the positions taken on its tax returns and that its annual tax provisions included amounts sufficient to pay assessments, if any, which may be proposed by the taxing authorities. At December 31, 2018, the Company has a liability for significant tax positions the Company estimates are not more-likely-than-not to be sustained based on the technical merits, which is included in other current and non-current liabilities. Nonetheless, the amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ materially from the amounts accrued for each year.

The Tax Act that was signed into law in December 2017 constitutes a major change to the US tax system. The impact of the Tax Act on the Company is based on management’s current interpretations of the Tax Act, recently issued regulations and related analysis. The Company's tax liability may be materially different based on regulatory developments. In future periods, our effective tax rate could be subject to additional uncertainty as a result of regulatory developments related to Act.

Refer to Note 5, "Income Taxes," to the Consolidated Financial Statements in Item 8 of this report for more information regarding income taxes.

New Accounting Pronouncements

Refer to Note 1, "Summary of Significant Accounting Policies," to the Consolidated Financial Statements in Item 8 of this report for more information regarding new applicable accounting pronouncements.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The Company's primary market risks include fluctuations in interest rates and foreign currency exchange rates. We are also affected by changes in the prices of commodities used or consumed in our manufacturing operations. Some of our commodity purchase price risk is covered by supply agreements with customers and suppliers. Other commodity purchase price risk is addressed by hedging strategies, which include forward contracts. The Company enters into derivative instruments only with high credit quality counterparties and diversifies its positions across such counterparties in order to reduce its exposure to credit losses. We do not engage in any derivative instruments for purposes other than hedging specific operating risks.

We have established policies and procedures to manage sensitivity to interest rate, foreign currency exchange rate and commodity purchase price risk, which include monitoring the level of exposure to each market risk. For quantitative disclosures about market risk, refer to Note 11, "Financial Instruments," to the Consolidated Financial Statements in Item 8 of this report for information with respect to interest rate risk and foreign currency exchange rate risk and commodity purchase price risk.

Interest Rate Risk

Interest rate risk is the risk that we will incur economic losses due to adverse changes in interest rates. The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to optimize its interest costs. The Company selectively uses interest rate swaps to reduce market value risk associated with changes in interest rates (fair value hedges). At December 31, 2018, the amount of debt with fixed interest rates was 99.8% of total debt. Our earnings exposure related to adverse movements in interest rates is primarily derived from outstanding floating rate debt instruments that are indexed to floating money market rates. A 10% increase or decrease in the average cost of our variable rate debt resulted in a change in pre-tax interest expense of approximately $0.1 million and $0.1 million in the years ended December 31, 2018 and 2017, respectively.

Foreign Currency Exchange Rate Risk

Foreign currency exchange rate risk is the risk that we will incur economic losses due to adverse changes in foreign currency exchange rates. Currently, our most significant currency exposures relate to the Chinese Renminbi, the Euro, the Hungarian Forint, the Japanese Yen, the Mexican Peso, the Swedish Krona and the South Korean Won. We mitigate our foreign currency exchange rate risk by establishing local production facilities and related supply chain participants in the markets we serve, by invoicing customers in the same currency as the source of the products and by funding some of our investments in foreign markets through local currency loans. Such non-U.S. Dollar debt was $47.2 million and $59.2 million as of December 31, 2018 and 2017, respectively. We also monitor our foreign currency exposure in each country and implement strategies to respond to changing economic and political environments. The depreciation of the British Pound following the United Kingdom's 2016 vote to leave the European Union is not expected to have a significant impact on the Company since net sales from the United Kingdom represent less than 2% of the Company's net sales in 2018. In addition, the Company periodically enters into forward currency contracts in order to reduce exposure to exchange rate risk related to transactions denominated in currencies other than the functional currency. As of December 31, 2018 and 2017, the Company recorded a deferred gain related to foreign currency derivatives of $1.7 million and $1.6 million, respectively, and deferred loss related to foreign currency derivatives of $1.5 million and $3.9 million, respectively.

The foreign currency translation adjustment loss of $147.6 million, foreign currency translation adjustment gain of $236.5 million and foreign currency translation adjustment loss of $109.1 million for the year ended December 31, 2018, 2017 and 2016, respectively, contained within our Consolidated Statements of Comprehensive Income represent the foreign currency translational impacts of converting our non-U.S. dollar subsidiaries financial statements to the Company’s reporting currency (U.S. Dollar). The 2018 foreign currency translation adjustment loss was primarily due to the impact of a strengthening U.S. dollar against the Euro and Chinese Renminbi, which increased approximately 4% and 5% and increased other comprehensive loss by approximately $102 million and $48 million, respectively. The 2017 foreign currency translation adjustment gain was primarily due to the impact of a weakening U.S. dollar against the Euro, which decreased approximately 14% and increased other comprehensive income by approximately $266 million since December 31, 2016. The 2016 foreign currency translation adjustment loss was primarily due to the impact of a strengthening U.S. dollar against the Euro and Chinese Renminbi, which increased other comprehensive loss by approximately $60 million and $45 million, respectively.

Commodity Price Risk

Commodity price risk is the possibility that we will incur economic losses due to adverse changes in the cost of raw materials used in the production of our products. Commodity forward and option contracts are executed to offset our exposure to potential change in prices mainly for various non-ferrous metals and natural gas consumption used in the manufacturing of vehicle components. As of December 31, 2018 and 2017, the Company had commodity swap contracts with a total notional value of $1.7 million and a recorded short-term deferred loss of $0.2 million. As of December 31, 2017, the Company had no commodity swap contracts outstanding.

Disclosure Regarding Forward-Looking Statements

The matters discussed in this Item 7 include forward looking statements. See "Forward Looking Statements" at the beginning of this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

For quantitative and qualitative information regarding market risk, please refer to the discussion in Item 7 of this report under the caption "Quantitative and Qualitative Disclosures about Market Risk."

For information regarding interest rate risk, foreign currency exchange risk and commodity price risk, refer to Note 11, "Financial Instruments," to the Consolidated Financial Statements in Item 8 of this report. For information regarding the levels of indebtedness subject to interest rate fluctuation, refer to Note 9, "Notes Payable and Long-Term Debt," to the Consolidated Financial Statements in Item 8 of this report. For information regarding the level of business outside the United States, which is subject to foreign currency exchange rate market risk, refer to Note 21, "Reporting Segments and Related Information," to the Consolidated Financial Statements in Item 8 of this report.

Item 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of BorgWarner Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of BorgWarner Inc. and its subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of operations, comprehensive income, equity, and cash flows for each of the three years in the period ended December 31, 2018, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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

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.

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Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ PricewaterhouseCoopers LLP
Detroit, Michigan
February 19, 2019

We have served as the Company's auditor since 2008.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(in millions, except share and per share amounts)	December 31, 2018	2017
ASSETS		
Cash	$739.4	$545.3
Receivables, net	1,987.4	2,018.9
Inventories, net	780.8	766.3
Prepayments and other current assets	250.0	145.4
Assets held for sale	47.0	67.3
Total current assets	3,804.6	3,543.2
Property, plant and equipment, net	2,903.8	2,863.8
Investments and other long-term receivables	591.7	547.4
Goodwill	1,853.4	1,881.8
Other intangible assets, net	439.5	492.7
Other non-current assets	502.3	458.7
Total assets	$10,095.3	$9,787.6
LIABILITIES AND EQUITY		
Notes payable and other short-term debt	$172.6	$84.6
Accounts payable and accrued expenses	2,144.3	2,270.3
Income taxes payable	58.9	40.8
Liabilities held for sale	23.1	29.5
Total current liabilities	2,398.9	2,425.2
Long-term debt	1,940.7	2,103.7
Other non-current liabilities:		
Asbestos-related liabilities	755.3	775.7
Retirement-related liabilities	298.3	301.6
Other	357.3	355.5
Total other non-current liabilities	1,410.9	1,432.8
Commitments and contingencies		
Capital stock:		
Preferred stock, $0.01 par value; authorized shares: 5,000,000; none issued and outstanding	—	—
Common stock, $0.01 par value; authorized shares: 390,000,000; issued shares: (2018 - 246,387,057; 2017 - 246,387,057); outstanding shares: (2018- 208,214,934; 2017 - 210,812,793)	2.5	2.5
Non-voting common stock, $0.01 par value; authorized shares: 25,000,000; none issued and outstanding	—	—
Capital in excess of par value	1,145.8	1,118.7
Retained earnings	5,336.1	4,531.0
Accumulated other comprehensive loss	(674.1)	(490.0)
Common stock held in treasury, at cost: (2018 - 38,172,123 shares; 2017 - 35,574,264 shares)	(1,584.8)	(1,445.4)
Total BorgWarner Inc. stockholders' equity	4,225.5	3,716.8
Noncontrolling interest	119.3	109.1
Total equity	4,344.8	3,825.9

Total liabilities and equity	$10,095.3	$9,787.6

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
(in millions, except share and per share amounts)	2018	2017	2016
Net sales	$10,529.6	$9,799.3	$9,071.0
Cost of sales	8,300.2	7,683.7	7,142.3
Gross profit	2,229.4	2,115.6	1,928.7
Selling, general and administrative expenses	945.7	899.1	818.0
Other expense, net	93.8	144.5	137.5
Operating income	1,189.9	1,072.0	973.2
Equity in affiliates' earnings, net of tax	(48.9)	(51.2)	(42.9)
Interest income	(6.4)	(5.8)	(6.3)
Interest expense and finance charges	58.7	70.5	84.6
Other postretirement income	(9.4)	(5.1)	(4.9)
Earnings before income taxes and noncontrolling interest	1,195.9	1,063.6	942.7
Provision for income taxes	211.3	580.3	306.0
Net earnings	984.6	483.3	636.7
Net earnings attributable to the noncontrolling interest, net of tax	53.9	43.4	41.7
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0
Earnings per share — basic	$4.47	$2.09	$2.78
Earnings per share — diluted	$4.44	$2.08	$2.76
Weighted average shares outstanding (thousands):			
Basic	208,197	210,429	214,374
Diluted	209,496	211,548	215,328

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
(in millions of dollars)	2018	2017	2016
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0
Other comprehensive (loss) income			
Foreign currency translation adjustments	(147.6)	236.5	(109.1)
Hedge instruments*	1.6	(6.3)	7.0
Defined benefit postretirement plans*	(23.0)	0.5	(8.2)
Other*	(1.1)	1.4	(1.6)
Total other comprehensive (loss) income attributable to BorgWarner Inc.	(170.1)	232.1	(111.9)
Comprehensive income attributable to BorgWarner Inc.*	760.6	672.0	483.1
Net earnings attributable to noncontrolling interest, net of tax*	53.9	43.4	41.7
Other comprehensive (loss) income attributable to the noncontrolling interest*	(7.9)	11.4	(5.1)
Comprehensive income	$806.6	$726.8	$519.7

*Net of income taxes.

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
(in millions of dollars)	2018	2017	2016
OPERATING			
Net earnings	$984.6	$483.3	$636.7
Adjustments to reconcile net earnings to net cash flows from operations:			
Non-cash charges (credits) to operations:			
Asset impairment and loss on divestiture	25.6	71.0	127.1
Asbestos-related adjustments	22.8	—	(48.6)
Gain on sale of building	(19.4)	—	—
Depreciation and amortization	431.3	407.8	391.4
Stock-based compensation expense	52.9	52.7	43.6
Restructuring expense, net of cash paid	33.0	27.0	12.0
Deferred income tax (benefit) provision	(57.2)	41.8	6.8
Tax reform adjustments to provision for income taxes	(12.6)	273.5	—
Equity in affiliates' earnings, net of dividends received, and other	(15.0)	(32.0)	(17.0)
Net earnings adjusted for non-cash charges to operations	1,446.0	1,325.1	1,152.0
Changes in assets and liabilities:			
Receivables	(42.9)	(167.9)	(137.5)
Inventories	(53.3)	(84.5)	(36.5)
Prepayments and other current assets	(18.7)	0.5	8.8
Accounts payable and accrued expenses	(76.1)	232.8	134.9
Prepaid taxes and income taxes payable	(84.7)	(42.8)	(14.2)
Other assets and liabilities	(43.8)	(82.9)	(71.8)
Net cash provided by operating activities	1,126.5	1,180.3	1,035.7
INVESTING			
Capital expenditures, including tooling outlays	(546.6)	(560.0)	(500.6)
Proceeds from sale of businesses, net of cash divested	—	—	85.8
Proceeds from asset disposals and other	36.0	4.5	10.6
Payments for businesses acquired, including restricted cash, net of cash acquired	—	(185.7)	—
Proceeds from (payments for) settlement of net investment hedges	2.1	(8.5)	—
Payments for venture capital investment	(6.0)	(2.6)	—
Net cash used in investing activities	(514.5)	(752.3)	(404.2)
FINANCING			
Net decrease in notes payable	(34.2)	(88.3)	(129.1)
Additions to debt, net of debt issuance costs	58.7	3.0	4.6
Repayments of debt, including current portion	(65.7)	(19.3)	(193.6)
Payments for debt issuance cost	—	(2.4)	—
Proceeds from interest rate swap termination	—	—	8.9
Payments for purchase of treasury stock	(150.0)	(100.0)	(288.0)
(Payments for) proceeds from stock-based compensation items	(15.2)	(2.1)	6.7
Dividends paid to BorgWarner stockholders	(141.5)	(124.1)	(113.4)
Dividends paid to noncontrolling stockholders	(35.5)	(29.3)	(29.9)
Net cash used in financing activities	(383.4)	(362.5)	(733.8)
Effect of exchange rate changes on cash	(34.5)	36.1	(31.7)
Net increase (decrease) in cash	194.1	101.6	(134.0)
Cash at beginning of year	545.3	443.7	577.7
Cash at end of year	$739.4	$545.3	$443.7

SUPPLEMENTAL CASH FLOW INFORMATION			
Cash paid during the year for:			
Interest	$83.6	$92.0	$100.3
Income taxes, net of refunds	$315.7	$279.8	$300.5
Non-cash investing transactions			
Liabilities assumed from business acquired	$—	$18.0	$—

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY

	Number of shares		BorgWarner Inc. stockholder's equity					
(in millions of dollars, except share data)	Issued common stock	Common stock held in treasury	Issued common stock	Capital in excess of par value	Treasury stock	Retained earnings	Accumulated other comprehensive income (loss)	Noncontrolling interests
Balance, January 1, 2016	246,387,057	(27,062,236)	$2.5	$1,109.7	$(1,158.4)	$3,733.6	$ (610.2)	$ 77.8
Dividends declared ($0.53 per share) *	—	—	—	—	—	(113.4)	—	(26.0)
Stock incentive plans	—	793,230	—	(19.4)	32.4	—	—	—
Net issuance for executive stock plan	—	—	—	12.8	—	—	—	—
Net issuance of restricted stock	—	414,464	—	1.2	19.2	—	—	—
Purchase of treasury stock	—	(8,269,550)	—	—	(274.8)	—	—	—
Business divestiture	—	—	—	—	—	—	—	(4.8)
Net earnings	—	—	—	—	—	595.0	—	41.7
Other comprehensive loss	—	—	—	—	—	—	(111.9)	(5.1)
Balance, December 31, 2016	246,387,057	(34,124,092)	$2.5	$1,104.3	$(1,381.6)	$4,215.2	$ (722.1)	$ 83.6
Dividends declared ($0.59 per share) *	—	—	—	—	—	(124.1)	—	(29.3)
Stock incentive plans	—	473,419	—	(10.6)	18.9	—	—	—
Net issuance for executive stock plan	—	73,935	—	21.0	2.7	—	—	—
Net issuance of restricted stock	—	402,184	—	4.0	14.6	—	—	—
Purchase of treasury stock	—	(2,399,710)	—	—	(100.0)	—	—	—
Net earnings	—	—	—	—	—	439.9	—	43.4
Other comprehensive income	—	—	—	—	—	—	232.1	11.4
Balance, December 31, 2017	246,387,057	(35,574,264)	$2.5	$1,118.7	$(1,445.4)	$4,531.0	$ (490.0)	$ 109.1
Adoption of accounting standards (Note 1)	—	—	—	—	—	15.9	(14.0)	—
Dividends declared ($0.68 per share) *	—	—	—	—	—	(141.5)	—	(35.8)
Net issuance for executive stock plan	—	154,642	—	17.5	4.5	—	—	—
Net issuance of restricted stock	—	284,946	—	9.6	6.1	—	—	—
Purchase of treasury stock	—	(3,037,447)	—	—	(150.0)	—	—	—
Net earnings	—	—	—	—	—	930.7	—	53.9
	—	—	—	—	—	—	(170.1)	(7.9)

Other comprehensive loss								
Balance, December 31, 2018	246,387,057	(38,172,123)	$2.5	$1,145.8	$(1,584.8)	$5,336.1	$ (674.1)	$ 119.3

*The dividends declared relate to BorgWarner common stock.

See Accompanying Notes to Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

INTRODUCTION

BorgWarner Inc. (together with it Consolidated Subsidiaries, the “Company”) is a Delaware corporation incorporated in 1987. We are a global product leader in clean and efficient technology solutions for combustion, hybrid and electric vehicles. Our products help improve vehicle performance, propulsion efficiency, stability and air quality. We manufacture and sell these products worldwide, primarily to original equipment manufacturers (“OEMs”) of light vehicles (passenger cars, sport-utility vehicles ("SUVs"), vans and light trucks). The Company's products are also sold to OEMs of commercial vehicles (medium-duty trucks, heavy-duty trucks and buses) and off-highway vehicles (agricultural and construction machinery and marine applications). We also manufacture and sell our products to certain Tier One vehicle systems suppliers and into the aftermarket for light, commercial and off-highway vehicles. The Company operates manufacturing facilities serving customers in Europe, the Americas and Asia and is an original equipment supplier to every major automotive OEM in the world. The Company's products fall into two reporting segments: Engine and Drivetrain.

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The following paragraphs briefly describe the Company's significant accounting policies.

Basis of presentation Certain prior period amounts have been reclassified to conform to current period presentation.

Use of estimates The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (“GAAP”) requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements and the accompanying notes, as well as the amounts of revenues and expenses reported during the periods covered by these financial statements and accompanying notes. Actual results could differ from those estimates.

Principles of consolidation The Consolidated Financial Statements include all majority-owned subsidiaries with a controlling financial interest. All inter-company accounts and transactions have been eliminated in consolidation. Investments in 20% to 50% owned affiliates are accounted for under the equity method when the Company does not have a controlling financial interest.

Revenue recognition The Company recognizes revenue when performance obligations under the terms of a contract are satisfied, which generally occurs with the transfer of control of our products. Although the Company may enter into long-term supply arrangements with its major customers, the prices and volumes are not fixed over the life of the arrangements, and a contract does not exist for purposes of applying ASC 606 until volumes are contractually known. For most of our products, transfer of control occurs upon shipment or delivery, however, a limited number of our customer arrangements for our highly customized products with no alternative use provide us with the right to payment during the production process. As a result, for these limited arrangements, revenue is recognized as goods are produced and control transfers to the customer. Revenue is measured at the amount of consideration we expect to receive in exchange for transferring the good.

The Company continually seeks business development opportunities and at times provides customer incentives for new program awards. Customer incentive payments are capitalized when the payments are incremental and incurred only if the new business is obtained and these amounts are expected to be recovered from the customer over the term of the new business arrangement. The Company recognizes a reduction to revenue as products that the upfront payments are related to are transferred to the customer, based on the total amount of products expected to be sold over the term of the arrangement (generally 3

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

to 7 years). The Company evaluates the amounts capitalized each period end for recoverability and expenses any amounts that are no longer expected to be recovered over the term of the business arrangement.

Cost of sales The Company includes materials, direct labor and manufacturing overhead within cost of sales. Manufacturing overhead is comprised of indirect materials, indirect labor, factory operating costs and other such costs associated with manufacturing products for sale.

Cash Cash is valued at fair market value. It is the Company's policy to classify all highly liquid investments with original maturities of three months or less as cash. Cash is maintained with several financial institutions. Deposits held with banks may exceed the amount of insurance provided on such deposits. Generally, these deposits may be redeemed upon demand and are maintained with financial institutions of reputable credit and therefore bear minimal risk.

Receivables, net Accounts receivable are stated at cost less an allowance for bad debts. An allowance for doubtful accounts is recorded when it is probable amounts will not be collected based on specific identification of customer circumstances or age of the receivable.

Refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements for more information.

Inventories, net Cost of certain U.S. inventories is determined using the last-in, first-out (“LIFO”) method at the lower of cost or market, while other U.S. and foreign operations use the first-in, first-out (“FIFO”) or average-cost methods at the lower of cost or net realizable value. Inventory held by U.S. operations using the LIFO method was $137.9 million and $147.4 million at December 31, 2018 and 2017, respectively. Such inventories, if valued at current cost instead of LIFO, would have been greater by $16.7 million and $13.1 million at December 31, 2018 and 2017, respectively.

Refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements of this report for more information.

Pre-production costs related to long-term supply arrangements Engineering, research and development and other design and development costs for products sold on long-term supply arrangements are expensed as incurred unless the Company has a contractual guarantee for reimbursement from the customer. Costs for molds, dies and other tools used to make products sold on long-term supply arrangements for which the Company has title to the assets are capitalized in property, plant and equipment and amortized to cost of sales over the shorter of the term of the arrangement or over the estimated useful lives of the assets, typically three to five years. Costs for molds, dies and other tools used to make products sold on long-term supply arrangements for which the Company has a contractual guarantee for lump sum reimbursement from the customer are capitalized in prepayments and other current assets.

Property, plant and equipment, net Property, plant and equipment is valued at cost less accumulated depreciation. Expenditures for maintenance, repairs and renewals of relatively minor items are generally charged to expense as incurred. Renewals of significant items are capitalized. Depreciation is generally computed on a straight-line basis over the estimated useful lives of the assets. Useful lives for buildings range from 15 to 40 years and useful lives for machinery and equipment range from three to 12 years. For income tax purposes, accelerated methods of depreciation are generally used.

Refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements for more information.

Impairment of long-lived assets, including definite-lived intangible assets The Company reviews the carrying value of its long-lived assets, whether held for use or disposal, including other amortizing intangible assets, when events and

circumstances warrant such a review under Accounting Standards

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Codification ("ASC") Topic 360. In assessing long-lived assets for an impairment loss, assets are grouped with other assets and liabilities at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. In assessing long-lived assets for impairment, management generally considers individual facilities the lowest level for which identifiable cash flows are largely independent. A recoverability review is performed using the undiscounted cash flows if there is a triggering event. If the undiscounted cash flow test for recoverability identifies a possible impairment, management will perform a fair value analysis. Management determines fair value under ASC Topic 820 using the appropriate valuation technique of market, income or cost approach. If the carrying value of a long-lived asset is considered impaired, an impairment charge is recorded for the amount by which the carrying value of the long-lived asset exceeds its fair value.

Management believes that the estimates of future cash flows and fair value assumptions are reasonable; however, changes in assumptions underlying these estimates could affect the valuations. Significant judgments and estimates used by management when evaluating long-lived assets for impairment include: (i) an assessment as to whether an adverse event or circumstance has triggered the need for an impairment review; (ii) undiscounted future cash flows generated by the asset; and (iii) fair valuation of the asset.

Assets and liabilities held for sale The Company classifies assets and liabilities (disposal groups) to be sold as held for sale in the period in which all of the following criteria are met: management, having the authority to approve the action, commits to a plan to sell the disposal group; the disposal group is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such disposal groups; an active program to locate a buyer and other actions required to complete the plan to sell the disposal group have been initiated; the sale of the disposal group is probable, and transfer of the disposal group is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond the Company's control extend the period of time required to sell the disposal group beyond one year; the disposal group is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

The Company initially measures a disposal group that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held for sale criteria are met. Conversely, gains are not recognized on the sale of a disposal group until the date of sale. The Company assesses the fair value of a disposal group, less any costs to sell, each reporting period it remains classified as held for sale and reports any subsequent changes as an adjustment to the carrying value of the disposal group, as long as the new carrying value does not exceed the carrying value of the disposal group at the time it was initially classified as held for sale.

Upon determining that a disposal group meets the criteria to be classified as held for sale, the Company reports the assets and liabilities of the disposal group, if material, in the line items assets held for sale and liabilities held for sale in the Consolidated Balance Sheets. Additionally, depreciation is not recorded during the period in which the long-lived assets, included in the disposal group, are classified as held for sale.

Goodwill and other indefinite-lived intangible assets During the fourth quarter of each year, the Company qualitatively assesses its goodwill assigned to each of its reporting units. This qualitative assessment evaluates various events and circumstances, such as macro economic conditions, industry and market conditions, cost factors, relevant events and financial trends, that may impact a reporting unit's fair value. Using this qualitative assessment, the Company determines whether it is more-likely-than-not the reporting unit's fair value exceeds its carrying value. If it is determined that it is not more-likely-than-not the reporting unit's fair value exceeds the carrying value, or upon consideration of other factors, including recent acquisition, restructuring or divestiture activity, the Company performs a quantitative, "step one," goodwill impairment analysis. In addition, the Company may test goodwill in between

annual test dates if an event occurs or circumstances change that could more-likely-than-not reduce the fair value of a reporting unit below its carrying value.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Similar to goodwill, the Company can elect to perform the impairment test for indefinite-lived intangibles other than goodwill (primarily trade names) using a qualitative analysis, considering similar factors as outlined in the goodwill discussion in order to determine if it is more-likely-than-not that the fair value of the trade names is less than the respective carrying values. If the Company elects to perform or is required to perform a quantitative analysis, the test consists of a comparison of the fair value of the indefinite-lived intangible asset to the carrying value of the asset as of the impairment testing date. We estimate the fair value of indefinite-lived intangibles using the relief-from-royalty method, which we believe is an appropriate and widely used valuation technique for such assets. The fair value derived from the relief-from-royalty method is measured as the discounted cash flow savings realized from owning such trade names and not being required to pay a royalty for their use.

Refer to Note 7, "Goodwill and Other Intangibles," to the Consolidated Financial Statements for more information.

Product warranties The Company provides warranties on some, but not all, of its products. The warranty terms are typically from one to three years. Provisions for estimated expenses related to product warranty are made at the time products are sold. These estimates are established using historical information about the nature, frequency and average cost of warranty claim settlements as well as product manufacturing and industry developments and recoveries from third parties. Management actively studies trends of warranty claims and takes action to improve product quality and minimize warranty claims. Management believes that the warranty accrual is appropriate; however, actual claims incurred could differ from the original estimates, requiring adjustments to the accrual. The product warranty accrual is allocated to current and non-current liabilities in the Consolidated Balance Sheets.

Refer to Note 8, "Product Warranty," to the Consolidated Financial Statements for more information.

Other loss accruals and valuation allowances The Company has numerous other loss exposures, such as customer claims, workers' compensation claims, litigation and recoverability of assets. Establishing loss accruals or valuation allowances for these matters requires the use of estimates and judgment in regard to the risk exposure and ultimate realization. The Company estimates losses under the programs using consistent and appropriate methods, however, changes to its assumptions could materially affect the recorded accrued liabilities for loss or asset valuation allowances.

Asbestos Like many other industrial companies that have historically operated in the United States, the Company, or parties that the Company is obligated to indemnify, continues to be named as one of many defendants in asbestos-related personal injury actions. With the assistance of a third party actuary, the Company estimates the liability and corresponding insurance recovery for pending and future claims not yet asserted through December 31, 2064 with a runoff through 2074 and defense costs. This estimate is based on the Company's historical claim experience and estimates of the number and resolution cost of potential future claims that may be filed based on anticipated levels of unique plaintiff asbestos-related claims in the U.S. tort system against all defendants. This estimate is not discounted to present value. The Company currently believes that December 31, 2074 is a reasonable assumption as to the last date on which it is likely to have resolved all asbestos-related claims, based on the nature and useful life of the Company’s products and the likelihood of incidence of asbestos-related disease in the U.S. population generally. The Company assesses the sufficiency of its estimated liability for pending and future claims not yet asserted and defense costs on an ongoing basis by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in claim resolution costs. In addition to claims experience, the Company considers additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company continues to have additional excess insurance coverage available for potential future asbestos-related claims. In connection with the Company’s ongoing review of its asbestos-related claims, the Company also reviewed the amount of its potential insurance coverage for such claims, taking into account the

remaining limits of such coverage, the number

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

and amount of claims on our insurance from co-insured parties, ongoing litigation against the Company’s insurance carriers, potential remaining recoveries from insolvent insurance carriers, the impact of previous insurance settlements, and coverage available from solvent insurance carriers not party to the coverage litigation.

Refer to Note 15, "Contingencies," to the Consolidated Financial Statements for more information.

Environmental contingencies The Company accounts for environmental costs in accordance with ASC Topic 450. Costs related to environmental assessments and remediation efforts at operating facilities are accrued when it is probable that a liability has been incurred and the amount of that liability can be reasonably estimated. Estimated costs are recorded at undiscounted amounts, based on experience and assessments and are regularly evaluated. The liabilities are recorded in accounts payable and accrued expenses and other non-current liabilities in the Company's Consolidated Balance Sheets.

Refer to Note 15, "Contingencies," to the Consolidated Financial Statements for more information.

Derivative financial instruments The Company recognizes that certain normal business transactions generate risk. Examples of risks include exposure to exchange rate risk related to transactions denominated in currencies other than the functional currency, changes in commodity costs and interest rates. It is the objective and responsibility of the Company to assess the impact of these transaction risks and offer protection from selected risks through various methods, including financial derivatives. Virtually all derivative instruments held by the Company are designated as hedges, have high correlation with the underlying exposure and are highly effective in offsetting underlying price movements. Accordingly, gains and losses from changes in qualifying hedge fair values are matched with the underlying transactions. All hedge instruments are carried at their fair value based on quoted market prices for contracts with similar maturities. The Company does not engage in any derivative transactions for purposes other than hedging specific risks.

Refer to Note 11, "Financial Instruments," to the Consolidated Financial Statements for more information.

Foreign currency The financial statements of foreign subsidiaries are translated to U.S. dollars using the period-end exchange rate for assets and liabilities and an average exchange rate for each period for revenues, expenses and capital expenditures. The local currency is the functional currency for substantially all of the Company's foreign subsidiaries. Translation adjustments for foreign subsidiaries are recorded as a component of accumulated other comprehensive income (loss) in equity. The Company recognizes transaction gains and losses arising from fluctuations in currency exchange rates on transactions denominated in currencies other than the functional currency in earnings as incurred.

Refer to Note 14, "Accumulated Other Comprehensive Income," to the Consolidated Financial Statements for more information.

Pensions and other postretirement employee defined benefits The Company's defined benefit pension and other postretirement employee benefit plans are accounted for in accordance with ASC Topic 715. Disability, early retirement and other postretirement employee benefits are accounted for in accordance with ASC Topic 712.

Pensions and other postretirement employee benefit costs and related liabilities and assets are dependent upon assumptions used in calculating such amounts. These assumptions include discount rates, expected returns on plan assets, health care cost trends, compensation and other factors. In accordance with GAAP, actual results that differ from the assumptions used are accumulated and amortized over future periods, and accordingly, generally affect recognized expense in future periods.

Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements for more information.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Restructuring Restructuring costs may occur when the Company takes action to exit or significantly curtail a part of its operations or implements a reorganization that affects the nature and focus of operations. A restructuring charge can consist of severance costs associated with reductions to the workforce, costs to terminate an operating lease or contract, professional fees and other costs incurred related to the implementation of restructuring activities.

Refer to Note 16, "Restructuring," to the Consolidated Financial Statements for more information.

Income taxes In accordance with ASC Topic 740, the Company's income tax expense is calculated based on expected income and statutory tax rates in the various jurisdictions in which the Company operates and requires the use of management's estimates and judgments.

Refer to Note 5, "Income Taxes," to the Consolidated Financial Statements for more information.

New Accounting Pronouncements

In August 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2018-15, "Intangibles - Goodwill and Other - Internal-Use Software (Subtopic 350-40)." It requires implementation costs incurred by customers in cloud computing arrangements to be deferred and recognized over the term of the arrangement, if those costs would be capitalized by the customer in a software licensing arrangement under the internal-use software guidance (Subtopic 350-40). This guidance is effective for interim and annual periods beginning after December 15, 2019. Early adoption is permitted. The Company is currently assessing the impact of this guidance on its consolidated financial statements.

In August 2018, the FASB issued Accounting Standards Update ("ASU") No. 2018-14, "Compensation - Retirement Benefits - Defined Benefit Plans - General (Subtopic 715-20)." The new standard (i) requires the removal of disclosures that are no longer considered cost beneficial; (ii) clarifies specific requirements of certain disclosures; (iii) adds new disclosure requirements, including the weighted average interest crediting rates for cash balance plans and other plans with promised interest crediting rates, and reasons for significant gains and losses related to changes in the benefit obligation. This guidance is effective for annual periods beginning after December 15, 2020 and early adoption is permitted. The Company is currently assessing the guidance and will include enhanced disclosures in the consolidated financial statements upon adoption.

In August 2018, the FASB issued ASU No. 2018-13, "Fair Value Measurement (Topic 820)." It removes disclosure requirements on fair value measurements including the amount of and reasons for transfers between Level 1 and Level 2 of the fair value hierarchy, the policy for timing of transfers between levels, and the valuation processes for Level 3 fair value measurements. It also amends and clarifies certain disclosures and adds new disclosure requirements including the changes in unrealized gains and losses for the period included in other comprehensive income for recurring Level 3 fair value measurements, and the range and weighted average of significant unobservable inputs used to develop Level 3 fair value measurements. This guidance is effective for interim and annual periods beginning after December 15, 2019. An entity is permitted to early adopt any removed or modified disclosures and delay adoption of the additional disclosures until the effective date. The Company is currently assessing the guidance and does not expect this guidance to have a material impact on its consolidated financial statements.

In February 2018, the FASB issued ASU No. 2018-07, "Compensation - Stock Compensation (Topic 718)." It expands the scope of the employee share-based payments guidance, which currently only includes share-based payments issued to employees, to also include share-based payments issued to nonemployees for goods and services. This guidance is effective for interim and annual periods beginning after December 15, 2018. Early adoption is

permitted. The Company does not expect this guidance to have any impact on its Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

In February 2018, the FASB issued ASU No. 2018-02, "Income Statement - Reporting Comprehensive Income (Topic 220)." It allows a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017 ("the Tax Act"). This guidance is effective for interim and annual periods beginning after December 15, 2018, but early adoption is permitted. The Company early adopted this guidance in the fourth quarter of 2018 and recorded a transition adjustment as of January 1, 2018, which increased retained earnings and decreased accumulated other comprehensive income by $14.0 million on its consolidated balance sheet.

In August 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2017-12, "Derivatives and Hedging (Topic 815)." It expands and refines hedge accounting for both nonfinancial and financial risk components and reduces complexity in fair value hedges of interest rate risk. It eliminates the requirement to separately measure and report hedge ineffectiveness and generally requires the entire change in the fair value of a hedging instrument to be presented in the same income statement line as the hedged item. It also eases certain documentation and assessment requirements and modifies the accounting for components excluded from assessment of hedge effectiveness. In addition, the new guidance requires expanded disclosures as it pertains to the effect of hedging on individual income statement lines, including the effects of components excluded from the assessment of effectiveness. The guidance is effective prospectively for interim and annual periods beginning after December 15, 2018. Early adoption is permitted. The Company adopted this guidance during the first quarter of 2018 and the impact on the consolidated financial statements was not material. Refer to Note 11, "Financial Instruments," to the Consolidated Financial Statements for more information.

In March 2017, the FASB issued ASU No. 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." It requires disaggregating the service cost component from the other components of net benefit cost, provides explicit guidance on how to present the service cost component and the other components of net benefit cost in the income statement and allows only the service cost component of net benefit cost to be eligible for capitalization when applicable. This guidance is effective for interim and annual periods beginning after December 15, 2017. During the first quarter of 2018, the Company retrospectively adopted the presentation of service cost separate from the other components of net benefit costs. As a result, Cost of sales of $4.5 million and $4.4 million and Selling, general and administrative expenses of $0.6 million and $0.5 million for the year ended December 31, 2017 and 2016, respectively, have been reclassified to Other postretirement income as a separate line item in the Condensed Consolidated Statements of Operations.

In January 2017, the FASB issued Accounting Standards Update ("ASU") No. 2017-01, "Clarifying the Definition of a Business." It revises the definition of a business and provides a framework to evaluate when an input and a substantive process are present in an acquisition to be considered a business. This guidance is effective for annual periods beginning after December 15, 2017. The Company adopted this guidance in the first quarter of 2018 and there was no impact to the consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, "Restricted Cash." It requires that amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. This guidance is effective for interim and annual reporting periods beginning after December 15, 2017. The Company adopted this guidance in the first quarter of 2018 and there was no impact to the consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, "Classification of Certain Cash Receipts and Cash Payments." It provides guidance on eight specific cash flow issues with the objective of reducing the existing diversity in practice in how they are classified in the statement of cash flows. This guidance is effective for interim and annual reporting

periods beginning after December 15, 2017. The Company adopted this guidance in the first quarter of 2018 and there was no impact to the consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

In June 2016, the FASB issued ASU No. 2016-13, "Financial Instruments - Credit Losses (Topic 326)." It replaces the current incurred loss impairment method with a new method that reflects expected credit losses. Under this new model an entity would recognize an impairment allowance equal to its current estimate of credit losses on financial assets measured at amortized cost. This guidance is effective for fiscal years beginning after December 15, 2019, with early adoption permitted. The Company is currently evaluating the impact this guidance will have on its consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, "Leases (Topic 842)." Under this guidance, lessees will be required to recognize a right-of-use asset and a lease liability for leases with a term more than 12 months, including operating leases defined under previous GAAP. This guidance is effective for interim and annual reporting periods beginning after December 15, 2018. The Company has elected not to restate comparative periods upon adoption, but record a cumulative-effect adjustment to the opening balance of retained earnings at January 1, 2019. As permitted under the standard, the Company will elect the package of practical expedients, which does not require the Company to reassess whether existing contracts contain leases, classification of leases identified, nor classification and treatment of initial direct costs capitalized under ASC 840. The Company will also elect the practical expedients to combine the lease and non-lease components. The Company will not elect the practical expedient to apply hindsight as part of the leases evaluation. Additionally, the Company will elect the practical expedient under ASU No. 2018-01, which allows an entity to not reassess whether any existing land easements are or contain leases.

The Company has performed an assessment, which included evaluating all forms of leasing arrangements. The majority of the Company’s global lease portfolio represents leases of real estate, such as manufacturing facilities, warehouses, and office buildings, while the remainder represents leases of personal property, such as vehicle leases, manufacturing and IT equipment. Based on the results of the assessment, the Company has refined its internal policy to include criteria for evaluating the impact of the new standard and related controls to support the requirements of this new standard. The Company is currently implementing system solutions as part of the adoption process. The Company is in the process of finalizing its assessment of the impact upon adoption and estimates that the adoption of this guidance will result in the addition of right-of-use assets and corresponding lease obligations to the consolidated balance sheet between $100 million - $120 million. The adoption will not have a material impact to the consolidated statements of operations or cash flows.

In January 2016, the FASB issued ASU No. 2016-01, "Recognition and Measurement of Financial Assets and Financial Liabilities." It requires equity investments (except those accounted for under the equity method of accounting) to be measured at fair value with changes in fair value recognized in net income. However, an entity may choose to measure equity investments that do not have readily determinable fair values at cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. It also requires separate presentation of financial assets and financial liabilities by measurement category and form of financial asset on the balance sheet or the accompanying notes to the financial statements. This guidance is effective for interim and fiscal years beginning after December 15, 2017. The Company adopted this guidance in the first quarter of 2018 with no impact to the consolidated financial statements and elected the measurement alternative for equity investments without readily determinable fair values.

In May 2014, the FASB amended the Accounting Standards Codification to add Topic 606 and issued ASU 2014-09, "Revenue from Contracts with Customers," outlining a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and superseding the then applicable revenue recognition guidance. The new guidance requires new disclosures about the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. We adopted this new standard and all the related amendments (“new revenue standard”) effective January 1, 2018 and applied it to all contracts using the modified retrospective method.

We recognized the cumulative effect of initially applying the new revenue standard as an adjustment to the opening balance of retained earnings. The comparative information has not been restated and continues to be reported under the accounting standards

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

in effect for those periods. We expect the impact of adoption of the new standard to be immaterial to our sales and net income on an ongoing basis.

Revenue is recognized when performance obligations under the terms of a contract are satisfied, which generally occurs with the transfer of control of our products. For most of our products, transfer of control occurs upon shipment or delivery, however, a limited number of our customer arrangements for our highly customized products with no alternative use provide us with the right to payment during the production process. As a result, for these limited arrangements, under the new revenue standard, revenue is recognized as goods are produced and control transfers to the customer. The Company recorded a transition adjustment as of January 1, 2018, which increased retained earnings by $2.0 million related to these arrangements.

The Company also has a limited number of arrangements with customers where the price paid by the customer is dependent on the volume of product purchased over the term of the arrangement. Under the new revenue standard, the Company estimates the volumes to be sold over the term of the arrangement and recognizes revenue based on the estimated amount of consideration to be received from these arrangements. The Company recorded a transition adjustment, which decreased the opening balance of retained earnings by $0.1 million related to these arrangements.

The cumulative effect of the changes made to our consolidated January 1, 2018 balance sheet for the adoption of new revenue standard was as follows:

(In millions)	Balance at December 31, 2017	Adjustments due to ASC 606	Balance at January 1, 2018
Inventories, net	$ 766.3	$ (7.4)	$758.9
Prepayments and other current assets (including contract assets)	$ 145.4	$ 9.4	$154.8
Accounts payable and other accrued expenses (including contract liabilities)	$ 2,270.3	$ 0.1	$2,270.4
Retained earnings	$ 4,531.0	$ 1.9	$4,532.9

The impact from adopting the new revenue standard as compared to the previous revenue guidance is immaterial to our Consolidated Statements of Operations and Consolidated Balance Sheets for the year ended December 31, 2018.

NOTE 2 REVENUE FROM CONTRACTS WITH CUSTOMERS

The Company adopted the new accounting standard ASC 606, Revenue from Contracts with Customers and all the related amendments to all contracts using the modified retrospective method effective January 1, 2018. The Company manufactures and sells products, primarily to OEMs of light vehicles, and to a lesser extent, to other OEMs of commercial vehicles, off-highway vehicles, certain Tier One vehicle systems suppliers and into the aftermarket. Although the Company may enter into long-term supply arrangements with its major customers, the prices and volumes are not fixed over the life of the arrangements, and a contract does not exist for purposes of applying ASC 606 until volumes are contractually known. Revenue is recognized when performance obligations under the terms of a contract are satisfied, which generally occurs with the transfer of control of our products. For most of our products, transfer of control occurs upon shipment or delivery, however, a limited number of our customer arrangements for our highly customized products with no alternative use provide us with the right to payment during the production process. As a result, for these limited arrangements, revenue is recognized as goods are produced and control transfers to the customer using the input cost-to-cost method. The Company recorded a contract asset of $11.4 million and $9.4 million at December 31, 2018 and January 1, 2018 for these arrangements. These amounts are reflected in Prepayments and other current assets in our consolidated balance sheet.

Revenue is measured at the amount of consideration we expect to receive in exchange for transferring the goods. The Company has a limited number of arrangements with customers where the price paid by the customer is dependent on the volume of product purchased over the term of the arrangement. In other limited arrangements, the Company will provide a rebate to customers based on the volume of products

purchased during the course of the arrangement. The Company estimates the volumes to be sold over the term of the arrangement and recognizes revenue based on the estimated amount of consideration to be received from these arrangements. As a result of these arrangements, the Company recognized a liability of $5.8 million and $18.4 million at December 31, 2018 and December 31, 2017. These amounts are reflected in Accounts payable and accrued expenses in our consolidated balance sheet.

The Company's payment terms with customers are customary and vary by customer and geography but typically range from 30 to 90 days. We have evaluated the terms of our arrangements and determined that they do not contain significant financing components. The Company provides warranties on some of its products. Provisions for estimated expenses related to product warranty are made at the time products are sold. Refer to Note 8, "Product Warranty," to the Consolidated Financial Statements for more information. Shipping and handling fees billed to customers are included in sales, while costs of shipping and handling are included in cost of sales. The Company has elected to apply the accounting policy election available under ASC 606 and accounts for shipping and handling activities as a fulfillment cost.

In limited instances, certain customers have provided payments in advance of receiving related products, typically at the onset of an arrangement prior to the beginning of production. These contract liabilities are reflected as Accounts payable and accrued expenses and Other non-current liabilities in our consolidated balance sheet and were $13.4 million and $17.3 million at December 31, 2018 and $12.1 million and $21.9 million at December 31, 2017, respectively. These amounts are reflected as revenue over the term of the arrangement (typically 3 to 7 years) as the underlying products are shipped.

The Company continually seeks business development opportunities and at times provides customer incentives for new program awards. The Company evaluates the underlying economics of each amount of consideration payable to a customer to determine the proper accounting by understanding the reasons for the payment, the rights and obligations resulting from the payment, the nature of the promise in the contract, and other relevant facts and circumstances. When the Company determines that the payments are incremental and incurred only if the new business is obtained and expects to recover these amounts from the customer over the term of the new business arrangement, the Company capitalizes these amounts. The Company recognizes a reduction to revenue as products that the upfront payments are related to are transferred to the customer, based on the total amount of products expected to be sold over the term of the arrangement (generally 3 to 7 years). The Company evaluates the amounts capitalized each period end for recoverability and expenses any amounts that are no longer expected to be recovered over the term of the business arrangement. The Company had $29.4 million and $18.2 million recorded in Prepayments and other current assets, and $187.4 million and $180.4 million recorded in Other non-current assets in the consolidated balance sheet at December 31, 2018 and December 31, 2017.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following table represents a disaggregation of revenue from contracts with customers by segment and region:

	Twelve months ended December 31, 2018		
(In millions)	Engine	Drivetrain	Total
North America	$1,573.3	$1,798.6	$3,371.9
Europe	3,074.1	947.8	4,021.9
Asia	1,620.8	1,361.9	2,982.7
Other	121.7	31.4	153.1
Total	$6,389.9	$4,139.7	$10,529.6

	Twelve months ended December 31, 2017		
(In millions)	Engine	Drivetrain	Total
North America	$1,509.0	$1,691.2	$3,200.2
Europe	2,783.1	952.4	3,735.5
Asia	1,614.5	1,116.0	2,730.5
Other	102.4	30.7	133.1
Total	$6,009.0	$3,790.3	$9,799.3

	Twelve months ended December 31, 2016		
(In millions)	Engine	Drivetrain	Total
North America	$1,299.3	$1,745.0	$3,044.3
Europe	2,622.0	848.1	3,470.1
Asia	1,551.3	909.4	2,460.7
Other	74.7	21.2	95.9
Total	$5,547.3	$3,523.7	$9,071.0

NOTE 3 RESEARCH AND DEVELOPMENT COSTS

The Company's net Research & Development ("R&D") expenditures are included in selling, general and administrative expenses of the Consolidated Statements of Operations. Customer reimbursements are netted against gross R&D expenditures as they are considered a recovery of cost. Customer reimbursements for prototypes are recorded net of prototype costs based on customer contracts, typically either when the prototype is shipped or when it is accepted by the customer. Customer reimbursements for engineering services are recorded when performance obligations are satisfied in accordance with the contract. Financial risks and rewards transfer upon shipment, acceptance of a prototype component by the customer or upon completion of the performance obligation as stated in the respective customer agreement.

The following table presents the Company’s gross and net expenditures on R&D activities:

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Gross R&D expenditures	$511.7	$473.1	$417.8
Customer reimbursements	(71.6)	(65.6)	(74.6)
Net R&D expenditures	$440.1	$407.5	$343.2

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Net R&D expenditures as a percentage of net sales were 4.2%, 4.2% and 3.8% for the years ended December 31, 2018, 2017 and 2016, respectively. None of the Company's R&D related contracts exceeded 5% of net R&D expenditures in any of the years presented.

NOTE 4 OTHER EXPENSE, NET

Items included in other expense, net consist of:

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Restructuring expense	$67.1	$58.5	$26.9
Asset impairment and loss on divestiture	25.6	71.0	127.1
Asbestos-related adjustments	22.8	—	(48.6)
Gain on sale of building	(19.4)	—	—
Merger, acquisition and divestiture expense	5.8	10.0	23.7
Lease termination settlement	—	5.3	—
Intangible asset impairment	—	—	12.6
Gain on commercial settlement	(4.0)	—	—
Other income	(4.1)	(0.3)	(4.2)
Other expense, net	$93.8	$144.5	$137.5

During the years ended December 31, 2018, 2017 and 2016, the Company recorded restructuring expense of $67.1 million, $58.5 million and $26.9 million, respectively, primarily related to Drivetrain and Engine segment actions designed to improve future profitability and competitiveness. Refer to Note 16, "Restructuring," to the Consolidated Financial Statements for more information.

In the third quarter of 2017, the Company started exploring strategic options for the non-core emission product lines. In the fourth quarter of 2017, the Company launched an active program to locate a buyer for the non-core pipe and thermostat product lines and initiated all other actions required to complete the plan to sell the non-core product lines. The Company determined that the assets and liabilities of the pipes and thermostat product lines met the held for sale criteria as of December 31, 2017. As a result, the Company recorded an asset impairment expense of $71.0 million in the fourth quarter of 2017 to adjust the net book value of this business to its fair value less cost to sell. In December 2018, the Company reached an agreement to sell its thermostat product lines for approximately $28 million subject to customary adjustment. Completion of the sale is expected in the first quarter of 2019, subject to satisfaction of customary closing conditions. As a result, the Company recorded an additional asset impairment expense of $25.6 million in the year ended December 31, 2018 to adjust the net book value of this business to fair value less costs to sell. Refer to Note 20, "Assets and Liabilities Held for Sale," to the Consolidated Financial Statements for more information.

During the year ended December 31, 2018, the Company recorded asbestos-related adjustments resulting in an increase to Other Expense of $22.8 million. This increase was the result of actuarial valuation changes of $22.8 million associated with the Company's estimate of liabilities for asbestos-related claims asserted but not yet resolved and potential claims not yet asserted. During the year ended December 31, 2016, the Company recorded asbestos-related adjustments resulting in a net decrease to Other Expense of $48.6 million. This net decrease was comprised of actuarial valuation changes of $45.5 million associated with the Company's estimate of liabilities for asbestos-related claims asserted but not yet resolved and potential claims not yet asserted and a gain of $6.1 million from cash received from insolvent insurance carriers, offset by related consulting fees. Refer to Note 15, "Contingencies," to the Consolidated Financial Statements for more information.

In October 2016, the Company entered into a definitive agreement to sell the light vehicle aftermarket business associated with Remy. This transaction closed in the fourth quarter of 2016 and the Company

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

recorded a loss on divestiture of $127.1 million in the year ended December 31, 2016. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements for more information.

During the fourth quarter of 2018, the Company recorded a gain of $19.4 million related to the sale of a building at a manufacturing facility located in Europe.

During the years ended December 31, 2018, 2017 and 2016, the Company recorded $5.8 million, $10.0 million and $23.7 million of merger, acquisition and divestiture expenses. The merger, acquisition and divestiture expense in the year ended December 31, 2018 primarily related to professional fees associated with divestiture activities for the non-core pipe and thermostat product lines. Refer to Note 20, "Assets and Liabilities Held For Sale," to the Consolidated Financial Statements for more information. The merger and acquisition expense in the years ended December 31, 2017 and 2016 primarily related to the acquisition of Sevcon and Remy, respectively. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements for more information.

During the first quarter of 2017, the Company recorded a loss of $5.3 million related to the termination of a long term property lease for a manufacturing facility located in Europe.

During the fourth quarter of 2016, the Company recorded an intangible asset impairment loss of $12.6 million related to Engine segment Etatech’s ECCOS intellectual technology. The ECCOS intellectual technology impairment was due to the discontinuance of interest from potential customers during the fourth quarter of 2016 that significantly lowered the commercial feasibility of the product line.

During the year ended December 31, 2018, the Company recorded a gain of approximately $4.0 million related to the settlement of a commercial contract for an entity acquired in the 2015 Remy acquisition.

NOTE 5 INCOME TAXES

Earnings before income taxes and the provision for income taxes are presented in the following table.

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Earnings before income taxes:			
U.S.	$220.0	$203.0	$27.5
Non-U.S.	975.9	860.6	915.2
Total	$1,195.9	$1,063.6	$942.7
Provision for income taxes:			
Current:			
Federal	$17.1	$36.4	$37.4
State	5.4	4.6	6.1
Foreign	258.8	247.4	251.7
Total current	281.3	288.4	295.2
Deferred:			
Federal	(39.6)	323.7	23.5
State	(8.5)	2.1	(0.8)
Foreign	(21.9)	(33.9)	(11.9)
Total deferred	(70.0)	291.9	10.8
Total provision for income taxes	$211.3	$580.3	$306.0

The provision for income taxes resulted in an effective tax rate of 17.7%, 54.6% and 32.5% for the years ended December 31, 2018, 2017 and 2016, respectively. An analysis of the differences between the effective

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

tax rate and the U.S. statutory rate for the years ended December 31, 2018, 2017 and 2016 is presented below.

On December 22, 2017, the Tax Act was enacted into law, which significantly changed existing U.S. tax law and included many provisions applicable to the Company, such as reducing the U.S. federal statutory tax rate, imposing a one-time transition tax on deemed repatriation of deferred foreign income, and adopting a territorial tax system. The Tax Act reduced the U.S. federal statutory tax rate from 35% to 21% effective January 1, 2018. The Tax Act also includes a provision to tax Global Intangible Low-Taxed Income (“GILTI”) of foreign subsidiaries, a special tax deduction for Foreign-Derived Intangible Income (“FDII”), and a Base Erosion Anti-Abuse (“BEAT”) tax measure that may tax certain payments between a U.S. corporation and its subsidiaries. These additional provisions of the Tax Act were effective beginning January 1, 2018.

In accordance with guidance provided by Staff Accounting Bulletin No 118 (SAB 118), as of December 31, 2017, we had not completed our accounting for the tax effects of the Tax Act and had recorded provisional estimates for significant items including the following: (i) the effects on our existing deferred balances, including executive compensation, (ii) the one-time transition tax, and (iii) our indefinite reinvestment assertion. The measurement period begins in the reporting period that includes the Tax Act’s enactment date and ends when the additional information is obtained, prepared, or analyzed to complete the accounting requirements under ASC Topic 740. The measurement period should not extend beyond one year from the enactment date. In light of the treatment of foreign earnings under the Tax Act, we reconsidered our indefinite reinvestment position and concluded we would no longer assert indefinite reinvestment with respect to our foreign unremitted earnings as of December 31, 2017. We recognized income tax expense of $273.5 million for the year ended December 31, 2017 for the significant items we could reasonably estimate associated with the Tax Act. This amount was comprised of (i) a revaluation of our U.S. deferred tax assets and liabilities at December 31, 2017, resulting in a tax charge of $74.7 million, including $11.0 million for executive compensation (ii) a one-time transition tax resulting in a tax charge of $104.7 million and (iii) a tax charge of $94.1 million for additional provisional deferred tax liabilities with respect to the expected future remittance of foreign earnings.

For the year ended December 31, 2018, the Company completed its accounting for the tax effects of the Tax Act. The final SAB 118 adjustments resulted in: (i) an increase in the Company's existing deferred tax asset balances of $12.9 million, including $8.7 million for executive compensation (ii) a tax charge of $7.6 million for the one-time transition tax, and (iii) a decrease in the deferred tax liability associated with our indefinite reinvestment assertion of $7.3 million. The total impact to tax expense from these adjustments was a net tax benefit of $12.6 million. Compared to the year ended December 31, 2017, this additional tax benefit from the final adjustments was a result of further analysis performed by the Company and the issuance of additional regulatory guidance.

We have made an accounting policy election to treat the future tax impacts of the GILTI provisions of the Tax Act as a period cost to the extent applicable.

In January 2019, the U.S. Department of the Treasury and the Internal Revenue Service issued final Section 965 regulations subsequent to the reporting period which provide additional guidance related to the calculation of the one-time transition tax. The tax effect of this subsequent event will be recorded in 2019 is not material.

As discussed above, in light of the treatment of foreign earnings under the Tax Act, we reconsidered our indefinite reinvestment position with respect to our foreign unremitted earnings in 2017 and we are no longer asserting indefinite reinvestment with respect to our foreign unremitted earnings. The Company has recorded a deferred tax liability of $57.4 million with respect to our foreign unremitted earnings at December 31, 2018. With respect to certain book versus tax basis differences not represented by undistributed earnings of approximately $300 million as of December 31, 2018, the Company continues to assert indefinite reinvestment of these basis differences. These basis differences

would become taxable upon the sale or

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

liquidation of the foreign subsidiaries. The Company's best estimate of the unrecognized deferred tax liability on these basis differences is approximately $30 million as of December 31, 2018.

The following table provides a reconciliation of tax expense based on the U.S. statutory tax rate to final tax expense.

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Income taxes at U.S. statutory rate of 21% (35% for 2016 and 2017)	$251.2	$372.3	$330.0
Increases (decreases) resulting from:			
State taxes, net of federal benefit	5.6	2.3	1.8
U.S. tax on non-U.S. earnings	36.5	170.6	32.2
Affiliates' earnings	(10.3)	(17.9)	(15.0)
Foreign rate differentials	27.5	(100.2)	(93.3)
Tax holidays	(28.0)	(31.0)	(25.5)
Net tax on remittance of foreign earnings	(21.5)	80.3	21.8
Tax credits	(26.0)	(24.2)	(3.2)
Reserve adjustments, settlements and claims	32.5	8.0	11.6
Valuation allowance adjustments	(10.6)	12.2	(2.7)
Non-deductible transaction costs	2.6	10.9	8.3
Changes in accounting methods and filing positions	(29.8)	(1.9)	0.3
Impact of transactions	(0.1)	4.0	16.3
Other foreign taxes	8.4	8.1	12.9
Revaluation of U.S. deferred taxes	(4.2)	63.7	—
Impact of FDII	(15.3)	—	—
Other	(7.2)	23.1	10.5
Provision for income taxes, as reported	$211.3	$580.3	$306.0

The change in the effective tax rate for 2018, as compared to 2017, was primarily due to items related to the Tax Act. The Tax Act includes a reduction in the US income tax rate from 35% to 21%, as of January 1, 2018. Tax expense includes a provision for GILTI of $28.9 million, net of foreign tax credits and a tax benefit for FDII of $15.3 million that was not applicable in 2017. The one-time transition tax that resulted in a tax charge of $104.7 million in 2017 was not applicable in 2018. There was also a tax charge of $74.7 million related to a revaluation of U.S. deferred tax assets and liabilities, including $11.0 million for executive compensation in 2017 and the initial tax charge of $94.1 million related to the Company’s change in indefinite reinvestment assertion with respect to the expected future remittance of undistributed foreign earnings in 2017.

The Company's provision for income taxes for the year ended December 31, 2018, includes reductions of income tax expense of $15.0 million related to restructuring expense, $0.3 million related to merger, acquisition and divestiture expense, $5.5 million related to the asbestos-related adjustments, and $7.7 million related to asset impairment expense, offset by increases to tax expense of $0.9 million and $5.8 million related to a gain on commercial settlement and a gain on the sale of a building, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements. The provision for income taxes also includes reductions of income tax expense of $12.6 million related to final adjustments made to measurement period provisional estimates associated with the Tax Act, $22.0 million related to a decrease in our deferred tax liability due to a tax benefit for certain foreign tax credits now available due to actions the Company took during the year, $9.1 million related to valuation allowance releases, $2.8 million related to tax reserve adjustments, and $29.8 million related to changes in accounting methods and tax filing positions for prior years primarily related to the Tax Act.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company's provision for income taxes for the year ended December 31, 2017, includes reductions of income tax expense of $10.1 million, $1.0 million, $18.2 million and $3.8 million related to the restructuring expense, merger and acquisition expense, asset impairment expense and other one-time adjustments, respectively, discussed in Note 4, "Other Expense, Net," to the Consolidated Financial Statements.

The Company's provision for income taxes for the year ended December 31, 2016, includes reductions of income tax expense of $22.7 million, $8.6 million, $6.0 million and $4.4 million associated with a loss on divestiture, other one-time adjustments, restructuring expense and intangible asset impairment loss, respectively, discussed in Note 4, "Other Expense," to the Consolidated Financial Statements. The provision also includes additional tax expenses of $17.5 million associated with asbestos-related adjustments and $2.2 million associated with a gain on the release of certain Remy light vehicle aftermarket liabilities due to the expiration of a customer contract.

A roll forward of the Company's total gross unrecognized tax benefits for the years ended December 31, 2018 and 2017, respectively, is presented below.

(millions of dollars)	2018	2017	2016
Balance, January 1	$92.0	$91.1	$127.3
Additions based on tax positions related to current year	24.1	16.8	16.1
Additions/(reductions) for tax positions of prior years	17.7	(2.4)	1.6
Reductions for closure of tax audits and settlements	(7.7)	(19.9)	(45.7)
Reductions for lapse in statute of limitations	—	(0.8)	(5.0)
Translation adjustment	(5.7)	7.2	(3.2)
Balance, December 31	$120.4	$92.0	$91.1

The Company recognizes interest and penalties related to unrecognized tax benefits in income tax expense. The amount recognized in income tax expense for 2018 and 2017 is $10.4 million and $6.4 million, respectively. The Company has an accrual of approximately $31.5 million and $22.6 million for the payment of interest and penalties at December 31, 2018 and 2017, respectively. As of December 31, 2018, approximately $111.6 million represents the amount that, if recognized, would affect the Company's effective income tax rate in future periods. This amount includes a decrease in U.S. federal income taxes which would occur upon recognition of the state tax benefits and U.S. foreign tax credits included therein. The Company estimates that payments of approximately $9.7 million will be made in the next 12 months for assessed tax liabilities from certain taxing jurisdictions and has reclassified this amount to current in the balance sheet as shown in Note 6, "Balance Sheet Information," to the Consolidated Financial Statements.

The Company and/or one of its subsidiaries files income tax returns in the U.S. federal, various state jurisdictions and various foreign jurisdictions. In certain tax jurisdictions, the Company may have more than one taxpayer. The Company is no longer subject to income tax examinations by tax authorities in its major tax jurisdictions as follows:

Tax jurisdiction	Years no longer subject to audit	Tax jurisdiction	Years no longer subject to audit
U.S. Federal	2014 and prior	Japan	2015 and prior
China	2012 and prior	Mexico	2012 and prior
France	2015 and prior	Poland	2013 and prior
Germany	2011 and prior	South Korea	2012 and prior
Hungary	2013 and prior		

In the U.S., certain tax attributes created in years prior to 2015 were subsequently utilized. Even though the U.S. federal statute of limitations has expired for years prior to 2015, the years in which these tax attributes were created could still be subject to examination, limited to only the examination of the creation of the tax attribute.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The components of deferred tax assets and liabilities as of December 31, 2018 and 2017 consist of the following:

	December 31,	
(millions of dollars)	2018	2017
Deferred tax assets:		
Employee compensation	23.9	26.4
Other comprehensive loss	63.9	54.5
Research and development capitalization	91.8	76.4
Net operating loss and capital loss carryforwards	83.8	74.6
Pension and other postretirement benefits	18.8	19.1
Asbestos-related	172.7	167.1
Other	155.2	146.6
Total deferred tax assets	$610.1	$564.7
Valuation allowance	(86.3)	(95.9)
Net deferred tax asset	$523.8	$468.8
Deferred tax liabilities:		
Goodwill and intangible assets	(183.3)	(193.9)
Fixed assets	(117.5)	(104.6)
Unremitted foreign earnings	(57.4)	(98.5)
Other	(19.2)	(12.0)
Total deferred tax liabilities	$(377.4)	$(409.0)
Net deferred taxes	$146.4	$59.8

At December 31, 2018, certain non-U.S. subsidiaries have net operating loss carryforwards totaling $222.7 million available to offset future taxable income. Of the total $222.7 million, $155.1 million expire at various dates from 2019 through 2038 and the remaining $67.6 million have no expiration date. The Company has a valuation allowance recorded against $143.3 million of the $222.7 million of non-U.S. net operating loss carryforwards. Certain U.S. subsidiaries have state net operating loss carryforwards totaling $824.9 million which are partially offset by a valuation allowance of $756.8 million. The state net operating loss carryforwards expire at various dates from 2019 to 2038. Certain U.S. subsidiaries also have state tax credit carryforwards of $19.8 million which are partially offset by a valuation allowance of $17.9 million. Certain non-U.S. subsidiaries located in China had tax exemptions or tax holidays, which reduced local tax expense approximately $28.0 million and $31.0 million in 2018 and 2017, respectively. The tax holidays for these subsidiaries are issued in three year terms with expirations for certain subsidiaries ranging from 2018 to 2020. The Company is in the process of renewing the tax holidays for certain subsidiaries that expired as of December 31, 2018.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 6 BALANCE SHEET INFORMATION

Detailed balance sheet data is as follows:

	December 31,	
(millions of dollars)	2018	2017
Receivables, net:		
Customers	$1,727.7	$1,735.7
Indirect taxes	114.1	152.1
Other	152.2	136.8
Gross receivables	1,994.0	2,024.6
Bad debt allowance (a)	(6.6)	(5.7)
Total receivables, net	$1,987.4	$2,018.9
Inventories, net:		
Raw material and supplies	$485.0	$469.7
Work in progress	113.6	126.7
Finished goods	198.9	183.0
FIFO inventories	797.5	779.4
LIFO reserve	(16.7)	(13.1)
Total inventories, net	$780.8	$766.3
Prepayments and other current assets:		
Prepaid tooling	$82.9	$81.9
Prepaid taxes	84.4	5.3
Other	82.7	58.2
Total prepayments and other current assets	$250.0	$145.4
Property, plant and equipment, net:		
Land and land use rights	$107.9	$115.7
Buildings	762.6	783.5
Machinery and equipment	2,851.2	2,734.4
Capital leases	2.6	1.5
Construction in progress	425.8	410.5
Property, plant and equipment, gross	4,150.1	4,045.6
Accumulated depreciation	(1,473.5)	(1,391.7)
Property, plant & equipment, net, excluding tooling	2,676.6	2,653.9
Tooling, net of amortization	227.2	209.9
Property, plant & equipment, net	$2,903.8	$2,863.8
Investments and other long-term receivables:		
Investment in equity affiliates	$243.5	$239.6
Other long-term asbestos-related insurance receivables	303.3	258.7
Other long-term receivables	44.9	49.1
Total investments and other long-term receivables	$591.7	$547.4
Other non-current assets:		
Deferred income taxes	$197.7	$121.2
Deferred asbestos-related insurance asset	83.1	127.7
Other	221.5	209.8
Total other non-current assets	$502.3	$458.7

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	December 31,	
(millions of dollars)	2018	2017
Accounts payable and accrued expenses:		
Trade payables	$1,485.4	$1,545.6
Payroll and employee related	232.6	239.7
Indirect taxes	72.9	111.0
Product warranties	56.2	69.0
Customer related	49.2	75.7
Asbestos-related liability	50.0	52.5
Severance	25.0	5.8
Interest	19.1	22.9
Dividends payable to noncontrolling shareholders	17.2	17.7
Retirement related	15.9	17.2
Insurance	11.7	10.1
Derivatives	1.8	5.0
Other	107.3	98.1
Total accounts payable and accrued expenses	$2,144.3	$2,270.3
Other non-current liabilities:		
Deferred income taxes	$51.4	$61.4
Product warranties	47.0	42.5
Other	258.9	251.6
Total other non-current liabilities	$357.3	$355.5

(a) Bad debt allowance:	2018	2017	2016
Beginning balance, January 1	$(5.7)	$(2.9)	$(1.9)
Provision	(5.3)	(2.7)	(3.2)
Write-offs	4.2	0.1	0.2
Business divestiture	—	—	2.0
Translation adjustment and other	0.2	(0.2)	—
Ending balance, December 31	$(6.6)	$(5.7)	$(2.9)

As of December 31, 2018 and December 31, 2017, accounts payable of $103.7 million and $106.5 million, respectively, were related to property, plant and equipment purchases.

Interest costs capitalized for the years ended December 31, 2018, 2017 and 2016 were $22.3 million, $19.7 million and $14.1 million, respectively.

NSK-Warner KK ("NSK-Warner")

The Company has two equity method investments, the largest is a 50% interest in NSK-Warner, a joint venture based in Japan that manufactures automatic transmission components. The Company's share of the earnings reported by NSK-Warner is accounted for using the equity method of accounting. NSK-Warner is the joint venture partner with a 40% interest in the Drivetrain Segment's South Korean subsidiary, BorgWarner Transmission Systems Korea Ltd. Dividends from NSK-Warner were $40.5 million, $20.2 million and $34.3 million in calendar years ended December 31, 2018, 2017 and 2016, respectively.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NSK-Warner has a fiscal year-end of March 31. The Company's equity in the earnings of NSK-Warner consists of the 12 months ended November 30. Following is summarized financial data for NSK-Warner, translated using the ending or periodic rates, as of and for the years ended November 30, 2018, 2017 and 2016 (unaudited):

	November 30,	
(millions of dollars)	2018	2017
Balance sheets:		
Cash and securities	$116.6	$104.6
Current assets, including cash and securities	316.9	289.2
Non-current assets	283.3	231.9
Current liabilities	215.3	154.9
Non-current liabilities	88.9	68.1
Total equity	296.0	298.1

	Year Ended November 30,		
(millions of dollars)	2018	2017	2016
Statements of operations:			
Net sales	$731.8	$669.6	$601.8
Gross profit	152.3	149.2	134.1
Net earnings	86.4	85.2	71.7

Purchases by the Company from NSK-Warner were $9.7 million, $12.3 million and $23.9 million for the years ended December 31, 2018, 2017 and 2016, respectively.

NOTE 7 GOODWILL AND OTHER INTANGIBLES

During the fourth quarter of each year, the Company qualitatively assesses its goodwill assigned to each of its reporting units. This qualitative assessment evaluates various events and circumstances, such as macro economic conditions, industry and market conditions, cost factors, relevant events and financial trends, that may impact a reporting unit's fair value. Using this qualitative assessment, the Company determines whether it is more-likely-than-not the reporting unit's fair value exceeds its carrying value. If it is determined that it is not more-likely-than-not the reporting unit's fair value exceeds the carrying value, or upon consideration of other factors, including recent acquisition, restructuring or divestiture activity, the Company performs a quantitative, "step one," goodwill impairment analysis. In addition, the Company may test goodwill in between annual test dates if an event occurs or circumstances change that could more-likely-than-not reduce the fair value of a reporting unit below its carrying value.

During the fourth quarter of 2018, the Company performed an analysis on each reporting unit. For the reporting unit with restructuring activities, the Company performed a quantitative, "step one," goodwill impairment analysis, which requires the Company to make significant assumptions and estimates about the extent and timing of future cash flows, discount rates and growth rates. The basis of this goodwill impairment analysis is the Company's annual budget and long-range plan (“LRP”). The annual budget and LRP includes a five-year projection of future cash flows based on actual new products and customer commitments and assumes the last year of the LRP data is a fair indication of the future performance. Because the LRP is estimated over a significant future period of time, those estimates and assumptions are subject to a high degree of uncertainty. Further, the market valuation models and other financial ratios used by the Company require certain assumptions and estimates regarding the applicability of those models to the

Company's facts and circumstances.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company believes the assumptions and estimates used to determine the estimated fair value are reasonable. Different assumptions could materially affect the estimated fair value. The primary assumptions affecting the Company's December 31, 2018 goodwill quantitative, "step one," impairment review are as follows:

- Discount rate: the Company used a 10.9% weighted average cost of capital (“WACC”) as the discount rate for future cash flows. The WACC is intended to represent a rate of return that would be expected by a market participant.

- Operating income margin: the Company used historical and expected operating income margins, which may vary based on the projections of the reporting unit being evaluated.

- Revenue growth rate: the Company used a global automotive market industry growth rate forecast adjusted to estimate its own market participation for product lines.

In addition to the above primary assumptions, the Company notes the following risks to volume and operating income assumptions that could have an impact on the discounted cash flow models:

- The automotive industry is cyclical and the Company's results of operations would be adversely affected by industry downturns.
- The Company is dependent on market segments that use our key products and would be affected by decreasing demand in those segments.
- The Company is subject to risks related to international operations.

Based on the assumptions outlined above, the impairment testing conducted in the fourth quarter of 2018 indicated the Company's goodwill assigned to the reporting unit with restructuring activity that was quantitatively assessed was not impaired and contained a fair value substantially higher than the reporting unit's carrying value. Additionally, for the reporting unit quantitatively assessed, sensitivity analyses were completed indicating that a one percent increase in the discount rate, a one percent decrease in the operating margin, or a one percent decrease in the revenue growth rate assumptions would not result in the carrying value exceeding the fair value.

The changes in the carrying amount of goodwill for the years ended December 31, 2018 and 2017 are as follows:

	2018		2017	
(millions of dollars)	Engine	Drivetrain	Engine	Drivetrain
Gross goodwill balance, January 1	$1,359.6	$1,024.2	$1,324.0	$880.2
Accumulated impairment losses, January 1	(501.8)	(0.2)	(501.8)	(0.2)
Net goodwill balance, January 1	$857.8	$1,024.0	$822.2	$880.0
Goodwill during the year:				
Acquisitions*	—	1.7	—	125.8
Held for sale	—	—	(7.3)	—
Translation adjustment and other	(16.5)	(13.6)	42.9	18.2
Ending balance, December 31	$841.3	$1,012.1	$857.8	$1,024.0

* Acquisitions relate to the Company's 2017 purchase of Sevcon.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company's other intangible assets, primarily from acquisitions, consist of the following:

	December 31, 2018			December 31, 2017		
(millions of dollars)	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Amortized intangible assets:						
Patented and unpatented technology	$151.9	$ 60.7	$91.2	$157.7	$ 52.9	$104.8
Customer relationships	489.7	201.2	288.5	507.6	181.0	326.6
Miscellaneous	8.3	3.9	4.4	8.7	3.2	5.5
Total amortized intangible assets	649.9	265.8	384.1	674.0	237.1	436.9
Unamortized trade names	55.4	—	55.4	55.8	—	55.8
Total other intangible assets	$705.3	$ 265.8	$439.5	$729.8	$ 237.1	$492.7

Amortization of other intangible assets was $40.1 million, $40.0 million and $40.4 million for the years ended December 31, 2018, 2017 and 2016, respectively. The estimated useful lives of the Company's amortized intangible assets range from three to 20 years. The Company utilizes the straight line method of amortization recognized over the estimated useful lives of the assets. The estimated future annual amortization expense, primarily for acquired intangible assets, is as follows: $38.8 million in 2019, $38.5 million in 2020, $38.0 million in 2021, $36.8 million in 2022 and $31.0 million in 2023.

A roll forward of the gross carrying amounts of the Company's other intangible assets is presented below:

(millions of dollars)	2018	2017
Beginning balance, January 1	$729.8	$649.6
Acquisitions*	—	72.6
Held for sale	—	(32.7)
Translation adjustment	(24.5)	40.3
Ending balance, December 31	$705.3	$729.8

* Acquisitions primarily relate to the Company's 2017 purchase of Sevcon.

A roll forward of the accumulated amortization associated with the Company's other intangible assets is presented below:

(millions of dollars)	2018	2017
Beginning balance, January 1	$237.1	$186.1
Amortization	40.1	40.0
Held for sale	—	(11.6)
Translation adjustment	(11.4)	22.6
Ending balance, December 31	$265.8	$237.1

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 8 PRODUCT WARRANTY

The changes in the carrying amount of the Company's total product warranty liability for the years ended December 31, 2018 and 2017 were as follows:

(millions of dollars)	2018	2017
Beginning balance, January 1	$111.5	$95.3
Provisions	69.0	73.1
Acquisitions	0.2	1.0
Held for sale	—	(3.6)
Payments	(73.4)	(60.6)
Translation adjustment	(4.1)	6.3
Ending balance, December 31	$103.2	$111.5

Acquisition activity in 2018 and 2017 of $0.2 million and $1.0 million relates to the warranty liability associated with the Company's purchase of Sevcon.

The product warranty liability is classified in the Consolidated Balance Sheets as follows:

	December 31,	
(millions of dollars)	2018	2017
Accounts payable and accrued expenses	$56.2	$69.0
Other non-current liabilities	47.0	42.5
Total product warranty liability	$103.2	$111.5

NOTE 9 NOTES PAYABLE AND LONG-TERM DEBT

As of December 31, 2018 and 2017, the Company had short-term and long-term debt outstanding as follows:

	December 31,	
(millions of dollars)	2018	2017
Short-term debt		
Short-term borrowings	$32.8	$68.8
Long-term debt		
8.00% Senior notes due 10/01/19 ($134 million par value)	135.4	137.4
4.625% Senior notes due 09/15/20 ($250 million par value)	250.9	251.4
1.80% Senior notes due 11/7/22 (€500 million par value)	570.0	595.7
3.375% Senior notes due 03/15/25 ($500 million par value)	496.6	496.1
7.125% Senior notes due 02/15/29 ($121 million par value)	119.1	118.9
4.375% Senior notes due 03/15/45 ($500 million par value)	493.7	493.5
Term loan facilities and other	14.8	26.5
Total long-term debt	$2,080.5	$2,119.5
Less: current portion	139.8	15.8
Long-term debt, net of current portion	$1,940.7	$2,103.7

In July 2016, the Company terminated interest rate swaps which had the effect of converting $384.0 million of fixed rate notes to variable rates. The gain on the termination is being amortized into interest expense over the remaining terms of the notes. The value related to these swap terminations as of December 31, 2018 was $1.9 million and $0.4 million on the 4.625% and 8.00% notes, respectively, as an increase to

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

the notes. The value of these interest rate swaps as of December 31, 2017 was $2.9 million and $0.8 million on the 4.625% and 8.00% notes, respectively, as a decrease to the notes.

The Company terminated fixed to floating interest rate swaps in 2009. The gain on the termination is being amortized into interest expense over the remaining term of the note. The value related to this swap termination at December 31, 2018 was $1.2 million on the 8.00% note as an increase to the note. The value related to these swap terminations at December 31, 2017 was $2.7 million on the 8.00% note as an increase to the note.

The weighted average interest rate on short-term borrowings outstanding as of December 31, 2018 and 2017 was 4.3% and 3.1%, respectively. The weighted average interest rate on all borrowings outstanding, including the effects of outstanding swaps, as of December 31, 2018 and 2017 was 3.4% and 3.8%, respectively.

Annual principal payments required as of December 31, 2018 are as follows :

(millions of dollars)	
2019	$172.6
2020	257.3
2021	1.3
2022	573.7
2023	0.1
After 2023	1,120.7
Total payments	$2,125.7
Less: unamortized discounts	12.4
Total	$2,113.3

The Company's long-term debt includes various covenants, none of which are expected to restrict future operations.

The Company has a $1.2 billion multi-currency revolving credit facility, which includes a feature that allows the Company's borrowings to be increased to $1.5 billion. The facility provides for borrowings through June 29, 2022. The Company has one key financial covenant as part of the credit agreement which is a debt to EBITDA ("Earnings Before Interest, Taxes, Depreciation and Amortization") ratio. The Company was in compliance with the financial covenant at December 31, 2018. At December 31, 2018 and December 31, 2017, the Company had no outstanding borrowings under this facility.

The Company's commercial paper program allows the Company to issue short-term, unsecured commercial paper notes up to a maximum aggregate principal amount outstanding of $1.2 billion. Under this program, the Company may issue notes from time to time and will use the proceeds for general corporate purposes. The Company had no outstanding borrowings under this program as of December 31, 2018 and December 31, 2017.

The total current combined borrowing capacity under the multi-currency revolving credit facility and commercial paper program cannot exceed $1.2 billion.

As of December 31, 2018 and 2017, the estimated fair values of the Company's senior unsecured notes totaled $2,058.1 million and $2,209.1 million, respectively. The estimated fair values were $7.6 million less than carrying value at December 31, 2018 and $116.1 million higher than their carrying value at December 31, 2017. Fair market values of the senior unsecured notes are developed using observable values for similar debt instruments, which are considered Level 2 inputs as defined by ASC Topic 820. The carrying values of the Company's multi-currency revolving credit facility and commercial paper program approximates

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

fair value. The fair value estimates do not necessarily reflect the values the Company could realize in the current markets.

The Company had outstanding letters of credit of $42.7 million and $31.4 million at December 31, 2018 and 2017, respectively. The letters of credit typically act as guarantees of payment to certain third parties in accordance with specified terms and conditions.

NOTE 10 FAIR VALUE MEASUREMENTS

ASC Topic 820 emphasizes that fair value is a market-based measurement, not an entity specific measurement. Therefore, a fair value measurement should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering market participant assumptions in fair value measurements, ASC Topic 820 establishes a fair value hierarchy, which prioritizes the inputs used in measuring fair values as follows:

Level 1:	Observable inputs such as quoted prices for identical assets or liabilities in active markets;
Level 2:	Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
Level 3:	Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

Assets and liabilities measured at fair value are based on one or more of the following three valuation techniques noted in ASC Topic 820:

A. Market approach: Prices and other relevant information generated by market transactions involving identical or comparable assets, liabilities or a group of assets or liabilities, such as a business.
B. Cost approach: Amount that would be required to replace the service capacity of an asset (replacement cost).
C. Income approach: Techniques to convert future amounts to a single present amount based upon market expectations (including present value techniques, option-pricing and excess earnings models).

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following tables classify assets and liabilities measured at fair value on a recurring basis as of December 31, 2018 and 2017:

(millions of dollars)	Balance at December 31, 2018	Basis of fair value measurements Quoted prices in active markets for identical items (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Valuation technique
Assets:					
Foreign currency contracts	$ 3.0	$ —	$ 3.0	$ —	A
Other long-term receivables (insurance settlement agreement note receivable)	$ 34.0	$ —	$ 34.0	$ —	C
Net investment hedge contracts	$ 11.9	$ —	$ 11.9	$ —	A
Liabilities:					
Foreign currency contracts	$ 1.7	$ —	$ 1.7	$ —	A
Commodity contracts	$ 0.2	$ —	$ 0.2	$ —	A

(millions of dollars)	Balance at December 31, 2017	Basis of fair value measurements Quoted prices in active markets for identical items (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Valuation technique
Assets:					
Foreign currency contracts	$ 1.7	$ —	$ 1.7	$ —	A
Other long-term receivables (insurance settlement agreement note receivable)	$ 42.9	$ —	$ 42.9	$ —	C
Liabilities:					
Foreign currency contracts	$ 5.0	$ —	$ 5.0	$ —	A

The following tables classify the Company's defined benefit plan assets measured at fair value on a recurring basis as of December 31, 2018 and 2017:

(millions of dollars)	Balance at December 31, 2018	Basis of fair value measurements Quoted prices in active	Significant other observable inputs	Significant unobservable inputs (Level 3)	Valuation technique	Assets measured at NAV (a)

		markets for identical items (Level 1)	(Level 2)			
U.S. Plans:						
Fixed income securities	$ 122.1	$1.2	$ —	$ —	A	120.9
Equity securities	71.0	11.1	—	—	A	59.9
Real estate and other	22.7	17.8	0.2	—	A	4.7
	$ 215.8	$30.1	$ 0.2	$ —		$ 185.5
Non-U.S. Plans:						
Fixed income securities	$ 239.4	$—	$ —	$ —	A	239.4
Equity securities	162.7	92.9	—	—	A	69.8
Real estate and other	36.4	—	—	—	A	36.4
	$ 438.5	$92.9	$ —	$ —		$ 345.6

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(millions of dollars)	Balance at December 31, 2017	Basis of fair value measurements Quoted prices in active markets for identical items (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Valuation technique	Assets measured at NAV (a)
U.S. Plans:						
Fixed income securities	$ 127.1	$1.3	$ —	$ —	A	125.8
Equity securities	86.7	13.5	—	—	A	73.2
Real estate and other	26.3	19.9	0.4	—	A	6.0
	$ 240.1	$34.7	$ 0.4	$ —		$ 205.0
Non-U.S. Plans:						
Fixed income securities	$ 212.4	$—	$ —	$ —	A	212.4
Equity securities	233.9	105.4	—	—	A	128.5
Real estate and other	37.1	—	—	—	A	37.1
	$ 483.4	$105.4	$ —	$ —		$ 378.0

(a) Certain assets that are measured at fair value using the NAV per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. These amounts represent investments in commingled and managed funds which have underlying assets in fixed income securities, equity securities, and other assets.

Refer to Note 12, "Retirement Benefit Plans," to the Consolidated Financial Statements for more detail surrounding the defined plan's asset investment policies and strategies, target allocation percentages and expected return on plan asset assumptions.

NOTE 11 FINANCIAL INSTRUMENTS

The Company's financial instruments include cash and marketable securities. Due to the short-term nature of these instruments, their book value approximates their fair value. The Company's financial instruments may include long-term debt, interest rate and cross-currency swaps, commodity derivative contracts and foreign currency derivative contracts. All derivative contracts are placed with counterparties that have an S&P, or equivalent, investment grade credit rating at the time of the contracts' placement. At December 31, 2018 and 2017, the Company had no derivative contracts that contained credit risk related contingent features.

The Company uses certain commodity derivative contracts to protect against commodity price changes related to forecasted raw material and component purchases. The Company primarily utilizes forward and option contracts, which are designated as cash flow hedges. At December 31, 2018, the following commodity derivative contracts were outstanding. At December 31, 2017, there were no commodity derivative contracts outstanding.

	Commodity derivative contracts		
Commodity	Volume hedged December 31,	Units of measure	Duration

	2018		
Copper	256.7	Metric Tons	Dec - 19

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to optimize its interest costs. The Company selectively uses interest rate swaps to reduce market value risk associated with changes in interest rates (fair value hedges). At December 31, 2018 and December 31, 2017, the Company had no outstanding interest rate swaps.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company uses foreign currency forward and option contracts to protect against exchange rate movements for forecasted cash flows, including capital expenditures, purchases, operating expenses or sales transactions designated in currencies other than the functional currency of the operating unit. In addition, the Company uses foreign currency forward contracts to hedge exposure associated with our net investment in certain foreign operations (net investment hedges). The Company has also designated its Euro denominated debt as a net investment hedge of the Company's investment in a European subsidiary. Foreign currency derivative contracts require the Company, at a future date, to either buy or sell foreign currency in exchange for the operating units' local currency. At December 31, 2018 and December 31, 2017, the following foreign currency derivative contracts were outstanding:

Foreign currency derivatives (in millions)

Functional currency	Traded currency	Notional in traded currency December 31, 2018	Notional in traded currency December 31, 2017	Ending Duration
Brazilian real	Euro	3.6	1.1	Jun - 19
Brazilian real	US dollar	5.3	—	Jun - 19
Chinese renminbi	Euro	—	18.6	Jun - 18
Chinese renminbi	US dollar	—	36.0	Sep - 18
Euro	British pound	7.0	3.9	Oct - 19
Euro	Chinese renminbi	—	85.0	Dec - 18
Euro	Japanese yen	—	1,311.3	Dec - 18
Euro	Swedish krona	539.6	267.4	Jun - 19
Euro	US dollar	18.9	56.5	Dec - 19
Japanese yen	Chinese renminbi	88.8	—	Dec - 19
Japanese yen	Korean won	5,785.2	—	Dec - 19
Japanese yen	US dollar	2.8	—	Dec - 19
Korean won	Euro	6.4	3.1	Dec - 19
Korean won	Japanese yen	266.4	619.0	Dec - 19
Korean won	US dollar	7.1	11.2	Dec - 19
Swedish krona	Euro	56.0	109.7	Jan - 20
US dollar	Euro	—	42.0	Dec - 18
US dollar	Mexican peso	574.5	—	Dec - 19

The Company selectively uses cross-currency swaps to hedge the foreign currency exposure associated with our net investment in certain foreign operations (net investment hedges). At December 31, 2018, the following cross-currency swap contracts were outstanding. At December 31, 2017, there were no cross-currency swap derivative contracts outstanding.

	Cross-Currency Swaps		
(in millions)	Notional in USD	Notional in Local Currency	Duration
Fixed $ to fixed €	$250.0	€206.2	Sep - 20
Fixed $ to fixed ¥	$100.0	¥10,977.5	Feb - 23

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

At December 31, 2018 and 2017, the following amounts were recorded in the Consolidated Balance Sheets as being payable to or receivable from counterparties under ASC Topic 815:

(in millions)	Assets			Liabilities		
Derivatives designated as hedging instruments Under Topic 815:	Location	December 31, 2018	December 31, 2017	Location	December 31, 2018	December 31, 2017
Foreign currency	Prepayments and other current assets	$ 1.9	$ 0.9	Accounts payable and accrued expenses	$ 1.6	$ 3.9
	Other non-current assets	$ —	$ 0.8	Other non-current liabilities	$ 0.1	$ —
Commodity	Prepayments and other current assets	$ —	$ —	Accounts payable and accrued expenses	$ 0.2	$ —
Net investment hedges	Prepayments and other current assets	$ —	$ —	Accounts payable and accrued expenses	$ —	$ —
	Other non-current assets	$ 11.9	$ —	Other non-current liabilities	$ —	$ —
Derivatives not designated as hedging instruments						
Foreign currency	Prepayments and other current assets	$ 1.1	$ —	Accounts payable and accrued expenses	$ —	$ 1.1

Effectiveness for cash flow hedges is assessed at the inception of the hedging relationship and quarterly, thereafter. Gains and losses arising from these contracts that are included in the assessment of effectiveness are deferred into accumulated other comprehensive income (loss) ("AOCI") and reclassified into income as the underlying operating transactions are recognized. These realized gains or losses offset the hedged transaction and are recorded on the same line in the statement of operations. The initial value of any component excluded from the assessment of effectiveness will be recognized in income using a systematic and rational method over the life of the hedging instrument. Any difference between the change in fair value of the excluded component and amounts recognized in income under that systematic and rational method will be recognized in AOCI.

Effectiveness for net investment hedges is assessed at the inception of the hedging relationship and quarterly, thereafter. Gains and losses arising from these contracts that are included in the assessment of effectiveness are deferred into foreign currency translation adjustments and only released when the subsidiary being hedged is sold or substantially liquidated. The initial value of any component excluded from the assessment of effectiveness will be recognized in income using a systematic and rational method over the life of the hedging instrument. Any difference between the change in fair value of the excluded component and amounts recognized in income under that systematic and rational method will be recognized in AOCI.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The table below shows deferred gains (losses) reported in AOCI as well as the amount expected to be reclassified to income in one year or less. The amount expected to be reclassified to income in one year or less assumes no change in the current relationship of the hedged item at December 31, 2018 market rates.

(in millions)	Deferred gain (loss) in AOCI at		Gain (loss) expected to be reclassified to income in one year or less
Contract Type	December 31, 2018	December 31, 2017	
Foreign currency	$0.1	$ (2.3)	$ —
Commodity	(0.2)	—	(0.2)
Net investment hedges:	—		
Foreign currency	4.5	2.9	—
Cross-currency swaps	11.9	—	—
Foreign currency denominated debt	(30.4)	(57.1)	—
Total	$(14.1)	$ (56.5)	$ (0.2)

Derivative instruments designated as hedging instruments as defined by ASC Topic 815 held during the period resulted in the following gains and losses recorded in income:

	Year Ended December 31, 2018			
(in millions)	Net sales	Cost of sales	Selling, general and administrative expenses	Other comprehensive income
Total amounts of earnings and other comprehensive income line items in which the effects of cash flow hedges are recorded	$10,529.6	$8,300.2	$ 945.7	$ (170.1)
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ (1.3)
Gain (loss) reclassified from AOCI to income	$(2.3)	$(1.1)	$ (0.3)	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$—	$ —	$ —
Commodity				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ (0.4)
Gain (loss) reclassified from AOCI to income	$—	$(0.2)	$ —	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$—	$ —	$ —

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

	Year Ended December 31, 2017			
(in millions)	Net sales	Cost of sales	Selling, general and administrative expenses	Other comprehensive income
Total amounts of earnings and other comprehensive income line items in which the effects of cash flow hedges are recorded	$9,799.3	$7,683.7	$ 899.1	$ 232.1
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ (4.7)
Gain (loss) reclassified from AOCI to income	$3.4	$(0.1)	$ —	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$—	$ (0.1)	$ —
Commodity				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ 0.6
Gain (loss) reclassified from AOCI to income	$—	$0.5	$ —	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$—	$ —	$ —

	Year Ended December 31, 2016			
(in millions)	Net sales	Cost of sales	Selling, general and administrative expenses	Other comprehensive income
Total amounts of earnings and other comprehensive income line items in which the effects of cash flow hedges are recorded	$9,071.0	$7,142.3	$ 818.0	$ (111.9)
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ 7.0
Gain (loss) reclassified from AOCI to income	$(0.1)	$1.4	$ —	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$—	$ 0.3	$ —
Commodity				
Gain (loss) recognized in other comprehensive income	$—	$—	$ —	$ 0.6
Gain (loss) reclassified from AOCI to income	$—	$(1.4)	$ —	$ —
Gain (loss) reclassified from AOCI to income as a result that a forecasted transaction is no longer probable of occurring	$—	$(0.3)	$ —	$ —

There were no gains and (losses) recorded in income related to components excluded from the assessment of effectiveness for derivative instruments designated as cash flow hedges.

Gains and (losses) on derivative instruments designated as net investment hedges were recognized in other comprehensive income during the periods presented below.

(in millions)	Year Ended December 31,		
Net investment hedges	2018	2017	2016
Foreign currency	$1.6	$(7.9)	$0.4
Cross-currency swaps	$11.9	$—	$—
Foreign currency denominated debt	$26.7	$(83.7)	$16.8

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Derivatives designated as net investment hedge instruments as defined by ASC Topic 815 held during the period resulted in the following gains and (losses) recorded in Interest expense and finance charges on components excluded from the assessment of effectiveness:

(in millions)	Year Ended December 31,		
Net investment hedges	2018	2017	2016
Foreign currency	$0.6	$1.3	$ —
Cross-currency swaps	$8.7	$—	$ —

There were no gains and (losses) recorded in income related to components excluded from the assessment of effectiveness for foreign currency denominated debt designated as net investment hedges. There were no gains and losses reclassified from AOCI for net investment hedges during the periods presented.

(in millions)		Year Ended December 31,					
		2018		2017		2016	
Contract Type	Location	Gain (loss) on swaps	Gain (loss) on borrowings	Gain (loss) on swaps	Gain (loss) on borrowings	Gain (loss) on swaps	Gain (loss) on borrowings
Interest rate swap	Interest expense and finance charges	$—	$—	$—	$—	$8.5	$ (8.5)

Derivatives not designated as hedging instruments are used to hedge remeasurement exposures of monetary assets and liabilities denominated in currencies other than the operating units' functional currency. The gains and (losses) recorded in income from derivative instruments not designated as hedging instruments were immaterial for the periods presented.

NOTE 12 RETIREMENT BENEFIT PLANS

The Company sponsors various defined contribution savings plans, primarily in the U.S., that allow employees to contribute a portion of their pre-tax and/or after-tax income in accordance with plan specified guidelines. Under specified conditions, the Company will make contributions to the plans and/or match a percentage of the employee contributions up to certain limits. Total expense related to the defined contribution plans was $34.9 million, $33.5 million and $28.3 million in the years ended December 31, 2018, 2017 and 2016, respectively.

The Company has a number of defined benefit pension plans and other postretirement employee benefit plans covering eligible salaried and hourly employees and their dependents. The defined pension benefits provided are primarily based on (i) years of service and (ii) average compensation or a monthly retirement benefit amount. The Company provides defined benefit pension plans in France, Germany, Ireland, Italy, Japan, Mexico, Monaco, South Korea, Sweden, U.K. and the U.S. The other postretirement employee benefit plans, which provide medical benefits, are unfunded plans. Our U.S. and U.K. defined benefit plans are frozen and no additional service cost is being accrued. All pension and other postretirement employee benefit plans in the U.S. have been closed to new employees. The measurement date for all plans is December 31.

The following table summarizes the expenses for the Company's defined contribution and defined benefit pension plans and the other postretirement defined employee benefit plans.

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Defined contribution expense	$34.9	$33.5	$28.3

Defined benefit pension expense	8.5	12.5	10.1
Other postretirement employee benefit expense	0.1	0.5	1.4
Total	$43.5	$46.5	$39.8

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The following provides a roll forward of the plans' benefit obligations, plan assets, funded status and recognition in the Consolidated Balance Sheets.

	Pension benefits				Other postretirement employee benefits	
	Year Ended December 31,				Year Ended December 31,	
	2018		2017			
(millions of dollars)	US	Non-US	US	Non-US	2018	2017
Change in projected benefit obligation:						
Projected benefit obligation, January 1	$283.3	$628.8	$282.5	$528.2	$107.0	$119.9
Service cost	—	17.9	—	18.0	0.1	0.1
Interest cost	8.5	12.0	8.9	11.0	2.9	3.2
Plan participants' contributions	—	0.3	—	0.3	—	—
Plan amendments	—	1.7	—	—	—	(0.7)
Settlement and curtailment	—	(4.3)	—	(3.7)	—	—
Actuarial (gain) loss	(18.2)	4.9	8.7	(7.8)	(6.7)	2.2
Currency translation	—	(29.4)	—	63.4	—	—
Acquisition	—	—	4.0	37.0	—	—
Benefits paid	(20.7)	(19.6)	(20.8)	(17.6)	(16.8)	(17.7)
Projected benefit obligation, December 31	$252.9	$612.3	$283.3	$628.8	$86.5	$107.0
Change in plan assets:						
Fair value of plan assets, January 1	$240.1	$483.4	$229.5	$393.8		
Actual return on plan assets	(10.7)	(18.1)	23.5	30.7		
Employer contribution	7.0	18.8	4.0	14.3		
Plan participants' contribution	—	0.3	—	0.3		
Settlements	—	(4.3)	—	(3.6)		
Currency translation	—	(22.0)	—	46.8		
Acquisition	—	—	3.8	18.1		
Other	—	—	—	0.6		
Benefits paid	(20.6)	(19.6)	(20.7)	(17.6)		
Fair value of plan assets, December 31	$215.8	$438.5	$240.1	$483.4		
Funded status	$(37.1)	$(173.8)	$(43.2)	$(145.4)	$(86.5)	$(107.0)
Amounts in the Consolidated Balance Sheets consist of:						
Non-current assets	$—	$16.7	$—	$23.2	$—	$—
Current liabilities	(0.5)	(4.4)	(0.1)	(3.9)	(11.0)	(13.2)
Non-current liabilities	(36.6)	(186.1)	(43.1)	(164.7)	(75.5)	(93.8)
Net amount	$(37.1)	$(173.8)	$(43.2)	$(145.4)	$(86.5)	$(107.0)
Amounts in accumulated other comprehensive loss consist of:						
Net actuarial loss	$113.1	$193.0	$111.0	$159.0	$13.2	$20.8
Net prior service (credit) cost	(5.8)	2.2	(6.6)	0.8	(11.8)	(15.8)
Net amount*	$107.3	$195.2	$104.4	$159.8	$1.4	$5.0
Total accumulated benefit obligation for all plans	$252.9	$583.3	$283.3	$602.0		

* AOCI shown above does not include our equity investee, NSK-Warner. NSK-Warner had an AOCI loss of $9.2 million and $9.7 million at December 31, 2018 and 2017, respectively.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The funded status of pension plans with accumulated benefit obligations in excess of plan assets at December 31 is as follows:

	December 31,	
(millions of dollars)	2018	2017
Accumulated benefit obligation	$(649.9)	$(681.2)
Plan assets	449.9	494.8
Deficiency	$(200.0)	$(186.4)
Pension deficiency by country:		
United States	$(37.1)	$(43.2)
Germany	(95.4)	(75.7)
Other	(67.5)	(67.5)
Total pension deficiency	$(200.0)	$(186.4)

The weighted average asset allocations of the Company’s funded pension plans and target allocations by asset category are as follows:

	December 31,		Target Allocation
	2018	2017	
U.S. Plans:			
Real estate and other	11 %	11 %	0% - 15%
Fixed income securities	56 %	53 %	45% - 65%
Equity securities	33 %	36 %	25% - 45%
	100%	100%	
Non-U.S. Plans:			
Real estate and other	8 %	8 %	0% - 10%
Fixed income securities	55 %	44 %	43% - 65%
Equity securities	37 %	48 %	30% - 56%
	100%	100%	

The Company's investment strategy is to maintain actual asset weightings within a preset range of target allocations. The Company believes these ranges represent an appropriate risk profile for the planned benefit payments of the plans based on the timing of the estimated benefit payments. In each asset category, separate portfolios are maintained for additional diversification. Investment managers are retained in each asset category to manage each portfolio against its benchmark. Each investment manager has appropriate investment guidelines. In addition, the entire portfolio is evaluated against a relevant peer group. The defined benefit pension plans did not hold any Company securities as investments as of December 31, 2018 and 2017. A portion of pension assets is invested in common and commingled trusts.

The Company expects to contribute a total of $15 million to $25 million into its defined benefit pension plans during 2019. Of the $15 million to $25 million in projected 2019 contributions, $4.0 million are contractually obligated, while any remaining payments would be discretionary.

Refer to Note 10, "Fair Value Measurements," to the Consolidated Financial Statements for more detail surrounding the fair value of each major category of plan assets, as well as the inputs and valuation techniques used to develop the fair value measurements of the plans' assets at December 31, 2018 and 2017.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

See the table below for a breakout of net periodic benefit cost between U.S. and non-U.S. pension plans:

	Pension benefits						Other postretirement employee benefits		
	Year Ended December 31,						Year Ended December 31,		
	2018		2017		2016				
(millions of dollars)	US	Non-US	US	Non-US	US	Non-US	2018	2017	2016
Service cost	$—	$ 17.9	$—	$ 18.0	$—	$ 16.2	$0.1	$0.1	$0.2
Interest cost	8.5	12.0	8.9	11.0	9.6	12.5	2.9	3.2	4.0
Expected return on plan assets	(13.6)	(27.0)	(13.2)	(23.8)	(15.0)	(24.3)	—	—	—
Settlements, curtailments and other	—	0.3	—	0.3	—	—	—	—	—
Amortization of unrecognized prior service (credit) cost	(0.8)	0.1	(0.8)	—	(0.8)	0.6	(4.1)	(4.1)	(4.9)
Amortization of unrecognized loss	4.2	6.9	4.2	7.9	5.1	6.2	1.2	1.3	2.1
Net periodic (income) cost	$(1.7)	$ 10.2	$(0.9)	$ 13.4	$(1.1)	$ 11.2	$0.1	$0.5	$1.4

The components of net periodic benefit cost other than the service cost component are included in Other postretirement income in the Condensed Consolidated Statements of Operations.

The estimated net loss for the defined benefit pension plans that will be amortized from accumulated other comprehensive loss into net periodic benefit cost over the next fiscal year is $14.1 million. The estimated net loss and prior service credit for the other postretirement employee benefit plans that will be amortized from accumulated other comprehensive loss into net periodic benefit cost over the next fiscal year are $0.6 million and $3.6 million, respectively.

The Company's weighted-average assumptions used to determine the benefit obligations for its defined benefit pension and other postretirement employee benefit plans as of December 31, 2018 and 2017 were as follows:

	December 31,	
(percent)	2018	2017
U.S. pension plans:		
Discount rate	4.24	3.55
Rate of compensation increase	N/A	N/A
U.S. other postretirement employee benefit plans:		
Discount rate	4.05	3.32
Rate of compensation increase	N/A	N/A
Non-U.S. pension plans:		
Discount rate	2.28	2.25
Rate of compensation increase	2.99	2.98

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company's weighted-average assumptions used to determine the net periodic benefit cost/(income) for its defined benefit pension and other postretirement employee benefit plans for the years ended December 31, 2018 and 2017 were as follows:

(percent)	Year Ended December 31, 2018	2017
U.S. pension plans:		
Discount rate - service cost	3.55	3.94
Effective interest rate on benefit obligation	3.13	3.26
Expected long-term rate of return on assets	6.00	6.01
Average rate of increase in compensation	N/A	N/A
U.S. other postretirement plans:		
Discount rate - service cost	2.65	2.68
Effective interest rate on benefit obligation	2.86	2.85
Expected long-term rate of return on assets	N/A	N/A
Average rate of increase in compensation	N/A	N/A
Non-U.S. pension plans:		
Discount rate - service cost	2.71	2.55
Effective interest rate on benefit obligation	1.98	1.96
Expected long-term rate of return on assets	5.73	5.68
Average rate of increase in compensation	2.98	3.00

The Company's approach to establishing the discount rate is based upon the market yields of high-quality corporate bonds, with appropriate consideration of each plan's defined benefit payment terms and duration of the liabilities. In determining the discount rate, the Company utilizes a full yield approach in the estimation of service and interest components by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

The Company determines its expected return on plan asset assumptions by evaluating estimates of future market returns and the plans' asset allocation. The Company also considers the impact of active management of the plans' invested assets.

The estimated future benefit payments for the pension and other postretirement employee benefits are as follows:

(millions of dollars)	Pension benefits		Other postretirement employee benefits
Year	U.S.	Non-U.S.	
2019	$22.5	$ 19.6	$ 11.0
2020	19.8	21.7	10.3
2021	18.9	21.9	9.5
2022	18.3	22.6	9.1
2023	17.8	23.8	8.0
2024-2028	84.2	134.0	28.9

The weighted-average rate of increase in the per capita cost of covered health care benefits is projected to be 6.50% in 2019 for pre-65 and post-65 participants, decreasing to 5.0% by the year 2025. A one-percentage point change in the

assumed health care cost trend would have the following effects:

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(millions of dollars)	One Percentage Point Increase	One Percentage Point Decrease
Effect on other postretirement employee benefit obligation	$5.5	$ (4.9)
Effect on total service and interest cost components	$0.2	$ (0.2)

NOTE 13 STOCK-BASED COMPENSATION

The Company has granted restricted common stock and restricted stock units (collectively, "restricted stock") and performance share units as long-term incentive awards to employees and non-employee directors under the BorgWarner Inc. 2014 Stock Incentive Plan, as amended ("2014 Plan") and the BorgWarner Inc. 2018 Stock Incentive Plan ("2018 Plan"). The Company's Board of Directors adopted the 2018 Plan as a replacement to the 2014 Plan in February 2018, and the Company's stockholders approved the 2018 Plan at the annual meeting of stockholders on April 25, 2018. After stockholders approved the 2018 Plan, the Company could no longer make grants under the 2014 Plan. The shares that were available for issuance under the 2014 Plan were cancelled upon approval of the 2018 Plan. The 2018 Plan authorizes the issuance of a total of 7 million shares, of which approximately 6.9 million shares were available for future issuance as of December 31, 2018.

Stock Options A summary of the plans' shares under option at December 31, 2018, 2017 and 2016 is as follows:

	Shares (thousands)	Weighted average exercise price	Weighted average remaining contractual life (in years)	Aggregate intrinsic value (in millions)
Outstanding at January 1, 2016	1,267	$ 16.59	0.9	$ 33.7
Exercised	(794)	$ 16.07		$ 14.4
Outstanding at December 31, 2016	473	$ 17.47	0.1	$ 10.4
Exercised	(473)	$ 17.47		$ 10.4
Outstanding at December 31, 2017	—	$ —	0.0	$ —
Exercised	—	$ —		$ —
Outstanding at December 31, 2018	—	$ —	0.0	$ —
Options exercisable at December 31, 2018	—	$ —	0.0	$ —

Proceeds from stock option exercises for the years ended December 31, 2018, 2017 and 2016 were as follows:

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Proceeds from stock options exercised — gross	$—	$8.3	$12.7
Tax benefit	—	8.2	0.3
Proceeds from stock options exercised, net of tax	$—	$16.5	$13.0

Restricted Stock The value of restricted stock is determined by the market value of the Company's common stock at the date of grant. In 2018, restricted stock in the amount of 717,833 shares and 19,656 shares was granted to employees and non-employee directors, respectively. The value of the awards is recognized as compensation expense

ratably over the restriction periods. As of December 31, 2018, there was $29.3 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 2 years.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Restricted stock compensation expense recorded in the Consolidated Statements of Operations is as follows:

	Year Ended December 31,		
(millions of dollars, except per share data)	2018	2017	2016
Restricted stock compensation expense	$25.9	$27.0	$26.7
Restricted stock compensation expense, net of tax	$19.7	$19.7	$19.5

A summary of the status of the Company’s nonvested restricted stock for employees and non-employee directors at December 31, 2018, 2017 and 2016 is as follows:

	Shares subject to restriction (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2016	1,326	$ 53.18
Granted	724	$ 30.07
Vested	(551)	$ 47.55
Forfeited	(70)	$ 43.05
Nonvested at December 31, 2016	1,429	$ 44.12
Granted	804	$ 40.10
Vested	(521)	$ 56.53
Forfeited	(119)	$ 38.97
Nonvested at December 31, 2017	1,593	$ 38.86
Granted	737	$ 51.70
Vested	(556)	$ 42.25
Forfeited	(258)	$ 44.51
Nonvested at December 31, 2018	1,516	$ 42.97

Total Shareholder Return Performance Share Units The 2014 and 2018 Plans provide for awarding of performance shares to members of senior management at the end of successive three-year periods based on the Company's performance in terms of total shareholder return relative to a peer group of automotive companies. Based on the Company’s relative ranking within the performance peer group, it is possible for none of the awards to vest or for a range up to the 200% of the target shares to vest.

The Company recognizes compensation expense relating to its performance share plans ratably over the performance period regardless of whether the market conditions are expected to be achieved. Compensation expense associated with the performance share plans is calculated using a lattice model (Monte Carlo simulation). The amounts expensed under the plan and the common stock issuances for the three-year measurement periods ended December 31, 2018, 2017 and 2016 were as follows:

	Year Ended December 31,		
(millions of dollars, except share data)	2018	2017	2016
Expense	$9.0	$9.9	$9.6
Number of shares	—	—	—

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A summary of the status of the Company's nonvested total shareholder return performance share units at December 31, 2018, 2017 and 2016 is as follows:

	Number of shares (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2016	475	$ 56.55
Granted	171	$ 16.61
Forfeited	(236)	$ 49.37
Nonvested at December 31, 2016	410	$ 43.99
Granted	201	$ 45.57
Forfeited	(256)	$ 61.40
Nonvested at December 31, 2017	355	$ 32.35
Granted	287	$ 68.38
Forfeited	(345)	$ 38.26
Nonvested at December 31, 2018	297	$ 60.35

As of December 31, 2018, there was $7.5 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 1.4 years.

Relative Revenue Growth Performance Share Units In the second quarter of 2016, the Company started a new performance share program to reward members of senior management based on the Company's performance in terms of revenue growth relative to the vehicle market over three-year performance periods. The value of this performance share award is determined by the market value of the Company’s common stock at the date of grant. The Company recognizes compensation expense relating to its performance share plans over the performance period based on the number of shares expected to vest at the end of each reporting period. The actual performance of the Company is evaluated quarterly, and the expense is adjusted according to the new projections. The amounts expensed under the plan and common stock issuance for the year ended December 31, 2018, 2017 and 2016 were as follows:

	Year Ended December 31,		
(millions of dollars, except share data)	2018	2017	2016
Expense	$18.0	$ 15.9	$7.1
Number of shares	249,000	126,000	—

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

A summary of the status of the Company's nonvested relative revenue growth performance shares at December 31, 2018, 2017 and 2016 is as follows:

	Number of shares (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2016	—	$ —
Granted	485	$ 38.62
Vested	(126)	$ 38.62
Forfeited	(39)	$ 38.62
Nonvested at December 31, 2016	320	$ 38.62
Granted	198	$ 40.08
Vested	(156)	$ 38.62
Forfeited	(7)	$ 39.20
Nonvested at December 31, 2017	355	$ 39.42
Granted	287	$ 50.82
Vested	(166)	$ 38.62
Forfeited	(179)	$ 45.82
Nonvested at December 31, 2018	297	$ 47.03

Based on the Company's relative revenue growth in excess of the industry vehicle production, it is possible for none of the awards to vest or for a range up to the 200% of the target shares to vest. As of December 31, 2018, there was $8.6 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 1.4 years. The unrecognized amount of compensation expense is based on projected performance as of December 31, 2018.

In 2018, the Company modified the vesting provisions of restricted stock and performance share unit grants made to retiring executive officers to allow certain of the outstanding awards, that otherwise would have been forfeited, to vest upon retirement. This resulted in net restricted stock and performance share unit compensation expense of $8.3 million in the year ended December 31, 2018. Additional incremental compensation expense of $4.0 million related to these modified awards will be recognized ratably through February 2019.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 14 ACCUMULATED OTHER COMPREHENSIVE LOSS

The following table summarizes the activity within accumulated other comprehensive loss during the years ended December 31, 2018, 2017 and 2016:

(millions of dollars)	Foreign currency translation adjustments	Hedge instruments	Defined benefit postretirement plans	Other	Total
Beginning Balance, January 1, 2016	$ (421.2)	$ (2.0)	$ (189.9)	$2.9	$(610.2)
Comprehensive (loss) income before reclassifications	(109.1)	8.0	(11.4)	(1.6)	(114.1)
Income taxes associated with comprehensive (loss) income before reclassifications	—	(0.7)	(2.6)	—	(3.3)
Reclassification from accumulated other comprehensive (loss) income	—	0.1	8.3	—	8.4
Income taxes reclassified into net earnings	—	(0.4)	(2.5)	—	(2.9)
Ending Balance December 31, 2016	$ (530.3)	$ 5.0	$ (198.1)	$1.3	$(722.1)
Comprehensive (loss) income before reclassifications	236.5	(4.5)	(5.0)	1.4	228.4
Income taxes associated with comprehensive (loss) income before reclassifications	—	1.0	(0.5)	—	0.5
Reclassification from accumulated other comprehensive (loss) income	—	(3.8)	8.5	—	4.7
Income taxes reclassified into net earnings	—	1.0	(2.5)	—	(1.5)
Ending Balance December 31, 2017	$ (293.8)	$ (1.3)	$ (197.6)	$2.7	$(490.0)
Adoption of Accounting Standard	—	—	(14.0)	—	(14.0)
Comprehensive (loss) income before reclassifications	(152.8)	(1.7)	(41.9)	(1.1)	(197.5)
Income taxes associated with comprehensive (loss) income before reclassifications	5.2	0.2	13.5	—	18.9
Reclassification from accumulated other comprehensive (loss) income	—	3.9	7.5	—	11.4
Income taxes reclassified into net earnings	—	(0.8)	(2.1)	—	(2.9)
Ending Balance December 31, 2018	$ (441.4)	$ 0.3	$ (234.6)	$1.6	$(674.1)

NOTE 15 CONTINGENCIES

In the normal course of business, the Company is party to various commercial and legal claims, actions and complaints, including matters involving warranty claims, intellectual property claims, general liability and various other risks. It is not possible to predict with certainty whether or not the Company will ultimately be successful in any of these commercial and legal matters or, if not, what the impact might be. The Company's environmental and product liability contingencies are discussed separately below. The Company's management does not expect that an adverse outcome in any of these commercial and legal claims, actions and complaints will have a material adverse effect on the Company's results of operations, financial position or cash flows, although it could be material to the results of operations in a particular quarter.

Environmental

The Company and certain of its current and former direct and indirect corporate predecessors, subsidiaries and divisions have been identified by the United States Environmental Protection Agency and certain state environmental agencies and private parties as potentially responsible parties (“PRPs”) at various hazardous waste disposal sites under

the Comprehensive Environmental Response, Compensation and Liability Act (“Superfund”) and equivalent state laws. The PRPs may currently be liable for the cost of clean-up and other remedial activities at 28 such sites. Responsibility for clean-up and other remedial activities at a Superfund site is typically shared among PRPs based on an allocation formula.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The Company believes that none of these matters, individually or in the aggregate, will have a material adverse effect on its results of operations, financial position or cash flows. Generally, this is because either the estimates of the maximum potential liability at a site are not material or the liability will be shared with other PRPs, although no assurance can be given with respect to the ultimate outcome of any such matter.

The Company has an accrual for environmental liabilities of $9.0 million and $8.3 million as of December 31, 2018 and December 31, 2017, respectively. This accrual is based on information available to the Company (which in most cases includes: an estimate of allocation of liability among PRPs; the probability that other PRPs, many of whom are large, solvent public companies, will fully pay the cost apportioned to them; currently available information from PRPs and/or federal or state environmental agencies concerning the scope of contamination and estimated remediation and consulting costs; and remediation alternatives).

Asbestos-related Liability

Like many other industrial companies that have historically operated in the United States, the Company, or parties that the Company is obligated to indemnify, continues to be named as one of many defendants in asbestos-related personal injury actions. The Company vigorously defends against these claims, and has been successful in obtaining the dismissal of the majority of the claims asserted against it without any payment. Due to the nature of the fibers used in certain types of automotive products, the encapsulation of the asbestos, and the manner of the products' use, the Company believes that these products were and are highly unlikely to cause harm. Furthermore, the useful life of nearly all of these products expired many years ago. The Company likewise expects that no payment will be made by the Company or its insurance carriers in the vast majority of current and future asbestos-related claims.

The Company's asbestos-related claims activity for the year ended December 31, 2018 and 2017 is as follows:

	2018	2017
Beginning claims January 1	9,225	9,385
New claims received	1,932	2,116
Dismissed claims	(2,189)	(1,866)
Settled claims	(370)	(410)
Ending claims December 31	8,598	9,225

Through December 31, 2018 and December 31, 2017, the Company incurred $574.4 million and $528.7 million, respectively, in asbestos-related claim resolution costs (including settlement payments and judgments) and associated defense costs. During 2018 and 2017, the Company paid $46.0 million and $51.7 million, respectively, in asbestos-related claim resolution costs and associated defense costs. These gross payments are before tax benefits and any insurance receipts. Asbestos-related claim resolution costs and associated defense costs are reflected in the Company's operating cash flows and will continue to be in the future.

The Company reviews, on an ongoing basis, its own experience in handling asbestos-related claims and trends affecting asbestos-related claims in the U.S. tort system generally, for the purposes of assessing the value of pending asbestos-related claims and the number and value of those that may be asserted in the future, as well as potential recoveries from the Company's insurance carriers with respect to such claims and defense costs.

As part of its review and assessment of asbestos-related claims, the Company utilizes a third party actuary to further assist in the analysis of potential future asbestos-related claim resolution costs and associated defense costs. The actuary's work utilizes data and analysis resulting from the Company's claim review process, including input from national coordinating counsel and local counsel, and includes the development of an estimate of the potential value of asbestos-related claims asserted but not yet resolved

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

as well as the number and potential value of asbestos-related claims not yet asserted. In developing the estimate of liability for potential future claims, the actuary projects a potential number of future claims based on the Company's historical claim filings and patterns and compares that to anticipated levels of unique plaintiff asbestos-related claims asserted in the U.S. tort system against all defendants. The actuary also utilizes assumptions based on the Company's historical proportion of claims resolved without payment, historical claim resolution costs for those claims that result in a payment, and historical defense costs. The liabilities are then estimated by multiplying the pending and projected future claim filings by projected payments rates and average claim resolution amounts and then adding an estimate for defense costs.

The Company determined based on the factors described above, including the analysis and input of the actuary, that its best estimate of the aggregate liability both for asbestos-related claims asserted but not yet resolved and potential asbestos-related claims not yet asserted, including estimated defense costs, was $805.3 million and $828.2 million as of December 31, 2018 and December 31, 2017, respectively. This liability reflects the actuarial central estimate, which is intended to represent an expected value of the most probable outcome. As of December 31, 2018 and 2017, the Company estimates that its aggregate liability for such claims, including defense costs, is as follows:

(millions of dollars)	2018	2017
Beginning asbestos liability as of January 1	$828.2	$879.3
Actuarial revaluation	22.8	—
Claim resolution costs and defense related costs	(45.7)	(51.1)
Ending asbestos liability as of December 31	$805.3	$828.2

The Company's estimate is not discounted to present value and includes an estimate of liability for potential future claims not yet asserted through December 31, 2064 with a runoff through 2074. The Company currently believes that December 31, 2074 is a reasonable assumption as to the last date on which it is likely to have resolved all asbestos-related claims, based on the nature and useful life of the Company's products and the likelihood of incidence of asbestos-related disease in the U.S. population generally.

During the year ended December 31, 2018, the Company recorded an increase to its asbestos-related liabilities of $22.8 million as a result of actuarial valuation changes. This increase was the result of higher future defense costs resulting from recent trends in the ratio of defense costs to claim resolution costs. During the year ended December 31, 2017, the Company with the assistance of counsel and its third party actuary reviewed the Company's claims experience against external data sources and concluded no actuarial valuation adjustment to the liability in 2017 was necessary. During the year ended December 31, 2016, the Company recorded a decrease to its asbestos-related liabilities of $45.5 million as a result of actuarial valuation changes. This decrease was the result of lower future claim resolution costs resulting from changes in the Company's defense strategy in recent years and docket control measures which were implemented in a significant jurisdiction in 2016.

The Company's estimate of the claim resolution costs and associated defense costs for asbestos-related claims asserted but not yet resolved and potential claims not yet asserted is its reasonable best estimate of such costs. Such estimate is subject to numerous uncertainties. These include future legislative or judicial changes affecting the U.S. tort system, bankruptcy proceedings involving one or more co-defendants, the impact and timing of payments from bankruptcy trusts that currently exist and those that may exist in the future, disease emergence and associated claim filings, the impact of future settlements or significant judgments, changes in the medical condition of claimants, changes in the treatment of asbestos-related disease, and any changes in settlement or defense strategies. The balances recorded for asbestos-related claims are based on the best available information and assumptions that the Company believes are reasonable, including as to the number of future claims that may be asserted, the percentage of claims that may result in a payment, the average cost to resolve such claims, and potential defense costs. The Company has concluded that it is reasonably possible that it may incur additional losses through 2074 for asbestos-related claims, in addition to

amounts recorded, of up to approximately $100.0 million as of December 31,

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

2018 and 2017. The various assumptions utilized in arriving at the Company's estimate may also change over time, and the Company's actual liability for asbestos-related claims asserted but not yet resolved and those not yet asserted may be higher or lower than the Company's estimate as a result of such changes.

The Company has certain insurance coverage applicable to asbestos-related claims including primary insurance and excess insurance coverage. Prior to June 2004, the claim resolution costs and defense costs associated with all asbestos-related claims were paid by the Company's primary layer insurance carriers under a series of interim funding arrangements. In June 2004, primary layer insurance carriers notified the Company of the alleged exhaustion of their policy limits. A declaratory judgment action was filed in January 2004 in the Circuit Court of Cook County, Illinois by Continental Casualty Company and related companies against the Company and certain of its historical general liability insurance carriers. The Cook County court has issued a number of interim rulings and discovery is continuing in this proceeding. The Company is vigorously pursuing the litigation against all insurance carriers that continue to be parties to it, which currently includes excess insurance carriers, as well as pursuing settlement discussions with its insurance carriers where appropriate. The Company has entered into settlement agreements with certain of its insurance carriers, resolving such insurance carriers' coverage disputes through the insurance carriers' agreement to pay specified amounts to the Company, either immediately or over a specified period. Through December 31, 2018 and December 31, 2017, the Company received $271.1 million and $270.0 million, respectively, in cash and notes from insurance carriers on account of asbestos-related claim resolution costs and associated defense costs.

As of December 31, 2018 and December 31, 2017, the Company estimates that it has $386.4 million in aggregate insurance coverage available with respect to asbestos-related claims, and their associated defense costs. The Company has recorded this insurance coverage as a long-term receivable for asbestos-related claim resolution costs and associated defense costs that have been incurred, less cash and notes received, and remaining limits as a deferred insurance asset with respect to liabilities recorded for potential future costs for asbestos-related claims. The Company has determined the amount of that estimate by taking into account the remaining limits of the insurance coverage, the number and amount of potential claims from co-insured parties, potential remaining recoveries from insolvent insurance carriers, the impact of previous insurance settlements, and coverage available from solvent insurance carriers not party to the coverage litigation. The Company's estimated remaining insurance coverage relating to asbestos-related claims and their associated defense costs is the subject of disputes with its insurance carriers, substantially all of which are being adjudicated in the Cook County insurance litigation. The Company believes that its insurance receivable is probable of collection notwithstanding those disputes based on, among other things, the arguments made by the insurance carriers in the Cook County litigation and evaluation of those arguments by the Company and its counsel, the case law applicable to the issues in dispute, the rulings to date by the Cook County court, the absence of any credible evidence alleged by the insurance carriers that they are not liable to indemnify the Company, and the fact that the Company has recovered a substantial portion of its insurance coverage, $271.1 million through December 31, 2018, from its insurance carriers under similar policies. However, the resolution of the insurance coverage disputes, and the number and amount of claims on our insurance from co-insured parties, may increase or decrease the amount of such insurance coverage available to the Company as compared to the Company's estimate.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The amounts recorded in the Condensed Consolidated Balance Sheets respecting asbestos-related claims are as follows:

	December 31,	
(millions of dollars)	2018	2017
Assets:		
Other long-term asbestos-related insurance receivables	$303.3	$258.7
Deferred asbestos-related insurance asset	83.1	127.7
Total insurance assets	$386.4	$386.4
Liabilities:		
Accounts payable and accrued expenses	$50.0	$52.5
Other non-current liabilities	755.3	775.7
Total accrued liabilities	$805.3	$828.2

On July 31, 2018, the Division of Enforcement of the SEC informed the Company that it is conducting an investigation related to the Company's accounting for asbestos-related claims not yet asserted. The Company is fully cooperating with the SEC in connection with its investigation.

NOTE 16 RESTRUCTURING

In 2017, the Company initiated actions within its emissions business in the Engine segment designed to improve future profitability and competitiveness and started exploring strategic options for the non-core emission product lines. As a result, the Company recorded restructuring expense of $48.2 million within its emissions business in the year ended December 31, 2017, primarily related to professional fees and negotiated commercial costs associated with business divestiture and manufacturing footprint rationalization activities. As a continuation of these actions, the Company recorded restructuring expense of $53.5 million in the year ended December 31, 2018, primarily related to employee termination benefits and professional fees. The largest portion of this was a voluntary termination program in the European emissions business where approximately 140 employees accepted the termination packages. As a result, the Company recorded approximately $28.4 million of employee severance expense during the year ended December 31, 2018. In addition, the Company recorded $6.0 million employee termination benefits in other locations in the Engine segment in the year ended December 31, 2018.

Additionally, the Company recorded restructuring expense of $10.3 million in the year ended December 31, 2018 in the Drivetrain segment primarily related to manufacturing footprint rationalization activities.

The Company will continue to explore improving the future profitability and competitiveness of its Engine and Drivetrain business. These actions may result in the recognition of additional restructuring charges that could be material.

On September 27, 2017, the Company acquired 100% of the equity interests of Sevcon. In connection with this transaction, the Company recorded restructuring expense of $6.8 million during the year ended December 31, 2017, primarily related to contractually required severance associated with Sevcon executive officers and other employee termination benefits.

In the fourth quarter of 2013, the Company initiated actions primarily in the Drivetrain segment designed to improve future profitability and competitiveness. As a continuation of these actions, the Company finalized severance agreements with three labor unions at separate facilities in Western Europe for approximately 450 employees. The Company recorded restructuring expense related to these facilities of $8.2 million in the year ended December 31, 2016. Included in this restructuring expense are employee termination benefits of $3.0 million and other expense of

$5.2 million.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

In the second quarter of 2014, the Company initiated actions to improve the future profitability and competitiveness of Gustav Wahler GmbH u. Co. KG and its general partner ("Wahler"). The Company recorded restructuring expense related to Wahler of $9.6 million in the year ended December 31, 2016. This restructuring expense was primarily related to employee termination benefits.

In the fourth quarter of 2015, the Company acquired 100% of the equity interests in Remy and initiated actions to improve future profitability and competitiveness. The Company recorded restructuring expense of $6.1 million in the year ended December 31, 2016. Included in this restructuring expense was $3.1 million in the year ended December 31, 2016 related to winding down certain operations in North America. Additionally, the Company recorded employee termination benefits of $2.0 million in the year ended December 31, 2016 primarily related to contractually required severance associated with Remy executive officers and other employee termination benefits in Mexico.

Estimates of restructuring expense are based on information available at the time such charges are recorded. Due to the inherent uncertainty involved in estimating restructuring expenses, actual amounts paid for such activities may differ from amounts initially recorded. Accordingly, the Company may record revisions of previous estimates by adjusting previously established accruals.

The following table displays a rollforward of the severance accruals recorded within the Company's Consolidated Balance Sheet and the related cash flow activity for the years ended December 31, 2018 and 2017:

	Severance Accruals		
(millions of dollars)	Driveline	Engine	Total
Balance at January 1, 2017	$3.7	$2.7	$6.4
Provision	4.7	1.4	6.1
Cash payments	(4.6)	(2.9)	(7.5)
Translation adjustment	0.3	0.1	0.4
Balance at December 31, 2017	4.1	1.3	5.4
Provision	7.1	34.4	41.5
Cash payments	(7.3)	(14.5)	(21.8)
Translation adjustment	—	(0.4)	(0.4)
Balance at December 31, 2018	$3.9	$20.8	$24.7

NOTE 17 LEASES AND COMMITMENTS

Certain assets are leased under long-term operating leases including rent for facilities. Most leases contain renewal options for various periods. Leases generally require the Company to pay for insurance, taxes and maintenance of the leased property. The Company leases other equipment such as vehicles and certain office equipment under short-term leases. Total rent expense was $42.0 million, $39.6 million and $38.2 million in the years ended December 31, 2018, 2017 and 2016, respectively. The Company does not have any material capital leases.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Future minimum operating lease payments at December 31, 2018 were as follows:

(millions of dollars)	
2019	$24.3
2020	20.6
2021	15.5
2022	12.6
2023	10.4
After 2023	37.9
Total minimum lease payments	$121.3

NOTE 18 EARNINGS PER SHARE

The Company presents both basic and diluted earnings per share of common stock (“EPS”) amounts. Basic EPS is calculated by dividing net earnings attributable to BorgWarner Inc. by the weighted average shares of common stock outstanding during the reporting period. Diluted EPS is calculated by dividing net earnings attributable to BorgWarner Inc. by the weighted average shares of common stock and common equivalent stock outstanding during the reporting period.

The dilutive impact of stock-based compensation is calculated using the treasury stock method. The treasury stock method assumes that the Company uses the assumed proceeds from the exercise of awards to repurchase common stock at the average market price during the period. The assumed proceeds under the treasury stock method include the purchase price that the grantee will pay in the future, and compensation cost for future service that the Company has not yet recognized. Options are only dilutive when the average market price of the underlying common stock exceeds the exercise price of the options. The dilutive effects of performance-based stock awards described in Note 13, "Stock-Based Compensation," to the Consolidated Financial Statements are included in the computation of diluted earnings per share at the level the related performance criteria are met through the respective balance sheet date.

The following table reconciles the numerators and denominators used to calculate basic and diluted earnings per share of common stock:

	Year Ended December 31,		
(in millions except share and per share amounts)	2018	2017	2016
Basic earnings per share:			
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0
Weighted average shares of common stock outstanding	208.197	210.429	214.374
Basic earnings per share of common stock	$4.47	$2.09	$2.78
Diluted earnings per share:			
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0
Weighted average shares of common stock outstanding	208.197	210.429	214.374
Effect of stock-based compensation	1.299	1.119	0.954
Weighted average shares of common stock outstanding including dilutive shares	209.496	211.548	215.328
Diluted earnings per share of common stock	$4.44	$2.08	$2.76
Antidilutive stock-based awards excluded from the calculation of diluted earnings per share	0.139	—	—

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 19 RECENT TRANSACTIONS

Sevcon, Inc.

On September 27, 2017, the Company acquired 100% of the equity interests in Sevcon for cash of $185.7 million. This amount includes $26.6 million paid to settle outstanding debt and $5.1 million paid for Sevcon stock-based awards attributable to pre-combination services.

Sevcon is a global provider of electrification technologies, serving customers in the U.S., U.K., France, Germany, Italy, China and the Asia Pacific region. Sevcon products complement BorgWarner’s power electronics capabilities utilized to provide electrified propulsion solutions. Sevcon's operating results and assets are reported within the Company's Drivetrain reporting segment.

The following table summarizes the aggregated fair value of the assets acquired and liabilities assumed on September 27, 2017, the date of acquisition:

(millions of dollars)	
Receivables, net	$15.9
Inventories, net	16.7
Other current assets	2.8
Property, plant and equipment, net	7.3
Goodwill	127.6
Other intangible assets	70.7
Deferred tax liabilities	(9.2)
Income taxes payable	(0.7)
Other assets and liabilities	(2.9)
Accounts payable and accrued expenses	(24.5)
Total consideration, net of cash acquired	203.7
Less: Assumed retirement-related liabilities	18.0
Cash paid, net of cash acquired	$185.7

In connection with the acquisition, the Company capitalized $17.7 million for customer relationships, $48.8 million for developed technology and $4.2 million for the Sevcon trade name. These intangible assets, excluding the indefinite-lived trade name, will be amortized over a period of 7 to 20 years. Various valuation techniques were used to determine the fair value of the intangible assets, with the primary techniques being forms of the income approach, specifically, the relief-from-royalty and excess earnings valuation methods, which use significant unobservable inputs, or Level 3 inputs, as defined by the fair value hierarchy. Under these valuation approaches, the Company is required to make estimates and assumptions about sales, operating margins, growth rates, royalty rates and discount rates based on budgets, business plans, economic projections, anticipated future cash flows and marketplace data. Due to the nature of the transaction, goodwill is not deductible for tax purposes.

In the third quarter of 2018, the Company finalized all purchase accounting adjustments related to the acquisition and recorded fair value adjustments based on new information obtained during the measurement period primarily related to intangible assets. These adjustments have resulted in a decrease in goodwill of $6.0 million from the Company's initial estimate.

Due to its insignificant size relative to the Company, supplemental pro forma financial information of the combined entity for the current and prior reporting period is not provided.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Divgi-Warner Private Limited

In August 2016, the Company sold its 60% ownership interest in Divgi-Warner Private Limited ("Divgi-Warner") to the joint venture partner. This former joint venture was formed in 1995 to develop and manufacture transfer cases and synchronizer rings in India. As a result of the sale, the Company received cash proceeds of approximately $5.4 million, net of capital gains tax and cash divested, which is classified as an investing activity within the Condensed Consolidated Statement of Cash Flows. Furthermore, the Company wrote off noncontrolling interest of $4.8 million as result of the sale and recognized a negligible gain in the year ended December 31, 2016.

Remy International, Inc.

On November 10, 2015, the Company acquired 100% of the equity interests in Remy for $29.50 per share in cash. The Company also settled approximately $361.0 million of outstanding debt. Remy was a global market leading producer of rotating electrical components that had key technologies and operations in 10 countries. The cash paid, net of cash acquired, was $1,187.0 million.

In October 2016, the Company entered into a definitive agreement to sell the light vehicle aftermarket business associated with the Company’s acquisition of Remy for approximately $80 million in cash. The Remy light vehicle aftermarket business sells remanufactured and new starters, alternators and multi-line products to aftermarket customers, mainly retailers in North America, and warehouse distributors in North America, South America and Europe. The sale of this business allowed the Company to focus on the rapidly developing original equipment manufacturer powertrain electrification trend. During the third quarter of 2016, the Company determined that assets and liabilities subject to the Remy light vehicle aftermarket business sale met the held for sale criteria and recorded an asset impairment expense of $106.5 million to adjust the net book value of this business to its fair value. During the fourth quarter of 2016, upon the closing of the transaction, the Company recorded an additional loss of $20.6 million related to the finalization of the sale proceeds, changes in working capital from the amounts originally estimated and costs associated with the winding down of an aftermarket related product line, resulting in a total loss on divestiture of $127.1 million in the year ended December 31, 2016. As a result of this transaction, total assets of $284.1 million including $94.7 million of inventory and $72.6 million of accounts receivable and total liabilities of $93.2 million were removed from the Company’s consolidated balance sheet.

NOTE 20 ASSETS AND LIABILITIES HELD FOR SALE

In 2017, the Company started exploring strategic options for non-core emission product lines in the Engine segment and launched an active program to locate a buyer and initiated all other actions required to complete the plan to sell and exit the non-core pipe and thermostat product lines. The Company determined that the assets and liabilities of the non-core emission product lines met the held for sale criteria as of December 31, 2017. The fair value of the assets and liabilities, less costs to sell, was determined to be less than the carrying value, therefore, the Company recorded an asset impairment expense of $71.0 million in Other expense, net to adjust the net book value of this business to its fair value less cost to sell in the year ended December 31, 2017. During 2018, the Company continued its marketing efforts with interested parties and engaged in active discussions with these parties. In December 2018, after finalizing negotiations regarding various aspects of the sale, the Company entered into a definitive agreement to sell its thermostat product lines for approximately $28 million subject to customary adjustments. Completion of the sale is expected in the first quarter of 2019, subject to satisfaction of customary closing conditions. The fair value of the assets and liabilities based on anticipated proceeds upon sale, less costs to sell of $3.5 million, was determined to be less than the carrying value, therefore, the Company recorded an additional asset impairment expense of $25.6 million in the year ended December 31,2018 in Other expense, net to adjust the net book value of this business to its fair value less cost to sell. As of December 31, 2018 and December 31, 2017, assets of $47.0 million and $67.3 million,

including allocated goodwill of $7.0 million and $7.3 million, and liabilities of $23.1 million and $29.5 million, respectively, were reclassified as held for sale on

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

the Consolidated Balance Sheets. The business did not meet the criteria to be classified as a discontinued operation.

The assets and liabilities classified as held for sale are as follows:

(millions of dollars)	December 31, 2018	December 31, 2017
Receivables, net	$ 14.8	$ 21.0
Inventories, net	41.6	30.4
Prepayments and other current assets	11.9	10.3
Property, plant and equipment, net	44.9	47.7
Goodwill	7.0	7.3
Other intangible assets, net	20.2	21.1
Other assets	0.1	0.5
Impairment of carrying value	(93.5)	(71.0)
Total assets held for sale	$ 47.0	$ 67.3
Accounts payable and accrued expenses	$ 18.3	$ 24.6
Other liabilities	4.8	4.9
Total liabilities held for sale	$ 23.1	$ 29.5

NOTE 21 REPORTING SEGMENTS AND RELATED INFORMATION

The Company's business is comprised of two reporting segments: Engine and Drivetrain. These segments are strategic business groups, which are managed separately as each represents a specific grouping of related automotive components and systems.

The Company allocates resources to each segment based upon the projected after-tax return on invested capital ("ROIC") of its business initiatives. ROIC is comprised of Adjusted EBIT after deducting notional taxes compared to the projected average capital investment required. Adjusted EBIT is comprised of earnings before interest, income taxes and noncontrolling interest (“EBIT") adjusted for restructuring, goodwill impairment charges, affiliates' earnings and other items not reflective of on-going operating income or loss.

Adjusted EBIT is the measure of segment income or loss used by the Company. The Company believes Adjusted EBIT is most reflective of the operational profitability or loss of our reporting segments. The following tables show segment information and Adjusted EBIT for the Company's reporting segments.

2018 Segment information

	Net sales					
(millions of dollars)	Customers	Inter-segment	Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$6,389.9	$ 57.5	$6,447.4	$4,730.7	$ 225.7	$ 278.1
Drivetrain	4,139.7	(0.3)	4,139.4	3,919.9	175.6	254.4
Inter-segment eliminations	—	(57.2)	(57.2)	—	—	—
Total	10,529.6	—	10,529.6	8,650.6	401.3	532.5
Corporate (b)	—	—	—	1,444.7	30.0	14.1
Consolidated	$10,529.6	$ —	$10,529.6	$10,095.3	$ 431.3	$ 546.6

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

2017 Segment information

	Net sales					
(millions of dollars)	Customers	Inter-segment	Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$6,009.0	$ 52.5	$6,061.5	$4,732.9	$ 218.8	$ 305.5
Drivetrain	3,790.3	—	3,790.3	3,903.8	160.9	241.6
Inter-segment eliminations	—	(52.5)	(52.5)	—	—	—
Total	9,799.3	—	9,799.3	8,636.7	379.7	547.1
Corporate (b)	—	—	—	1,150.9	28.1	12.9
Consolidated	$9,799.3	$ —	$9,799.3	$9,787.6	$ 407.8	$ 560.0

2016 Segment information

	Net sales					
(millions of dollars)	Customers	Inter-segment	Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$5,547.3	$ 42.8	$5,590.1	$4,134.6	$ 211.9	$ 298.7
Drivetrain	3,523.7	—	3,523.7	3,212.4	154.5	182.8
Inter-segment eliminations	—	(42.8)	(42.8)	—	—	—
Total	9,071.0	—	9,071.0	7,347.0	366.4	481.5
Corporate (b)	—	—	—	1,487.7	25.0	19.1
Consolidated	$9,071.0	$ —	$9,071.0	$8,834.7	$ 391.4	$ 500.6

(a) Long-lived asset expenditures include capital expenditures and tooling outlays.
(b) Corporate assets include investments and other long-term receivables and deferred income taxes.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Adjusted earnings before interest, income taxes and noncontrolling interest ("Adjusted EBIT")

	Year Ended December 31,		
(millions of dollars)	2018	2017	2016
Engine	$1,039.9	$992.1	$943.9
Drivetrain	475.4	448.3	363.0
Adjusted EBIT	1,515.3	1,440.4	1,306.9
Restructuring expense	67.1	58.5	26.9
Asset impairment and loss on divestiture	25.6	71.0	127.1
Asbestos-related adjustments	22.8	—	(48.6)
Gain on sale of building	(19.4)	—	—
Other postretirement income	(9.4)	(5.1)	(4.9)
Officer stock awards modification	8.3	—	—
Merger, acquisition and divestiture expense	5.8	10.0	23.7
Lease termination settlement	—	5.3	—
Intangible asset impairment	—	—	12.6
Contract expiration gain	—	—	(6.2)
Other (income) expense, net	(3.3)	2.1	—
Corporate, including equity in affiliates' earnings and stock-based compensation	169.6	170.3	155.3
Interest income	(6.4)	(5.8)	(6.3)
Interest expense and finance charges	58.7	70.5	84.6
Earnings before income taxes and noncontrolling interest	1,195.9	1,063.6	942.7
Provision for income taxes	211.3	580.3	306.0
Net earnings	984.6	483.3	636.7
Net earnings attributable to the noncontrolling interest, net of tax	53.9	43.4	41.7
Net earnings attributable to BorgWarner Inc.	$930.7	$439.9	$595.0

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Geographic Information

During the year ended December 31, 2018, approximately 77% of the Company's consolidated net sales were outside the United States ("U.S."), attributing sales to the location of production rather than the location of the customer. Outside the U.S., only Germany, China, South Korea, Mexico and Hungary exceeded 5% of consolidated net sales during the year ended December 31, 2018. Also, the Company's 50% equity investment in NSK-Warner (refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements for more information) of $184.1 million, $185.1 million and $172.9 million at December 31, 2018, 2017 and 2016, respectively, is excluded from the definition of long-lived assets, as are goodwill and certain other non-current assets.

	Net sales			Long-lived assets		
(millions of dollars)	2018	2017	2016	2018	2017	2016
United States	$2,393.5	$2,280.0	$2,236.0	$728.9	$719.3	$799.3
Europe:						
Germany	1,665.1	1,652.6	1,735.1	371.1	413.4	370.3
Hungary	687.3	655.7	541.1	153.0	147.5	122.2
Other Europe	1,669.5	1,427.2	1,193.9	452.5	426.1	337.7
Total Europe	4,021.9	3,735.5	3,470.1	976.6	987.0	830.2
China	1,801.1	1,560.1	1,218.0	589.3	554.8	384.6
South Korea	858.8	877.6	948.2	235.1	244.2	208.0
Mexico	978.4	920.2	805.6	223.1	201.2	136.2
Other foreign	475.9	425.9	393.1	150.8	157.3	143.5
Total	$10,529.6	$9,799.3	$9,071.0	$2,903.8	$2,863.8	$2,501.8

Sales to Major Customers

Consolidated net sales to Ford (including its subsidiaries) were approximately 14%, 15%, and 15% for the years ended December 31, 2018, 2017 and 2016, respectively; and to Volkswagen (including its subsidiaries) were approximately 12%, 13% and 13% for the years ended December 31, 2018, 2017 and 2016, respectively. Both of the Company's reporting segments had significant sales to Volkswagen and Ford in 2018, 2017 and 2016. Such sales consisted of a variety of products to a variety of customer locations and regions. No other single customer accounted for more than 10% of consolidated net sales in any of the years presented.

Sales by Product Line

Sales of turbochargers for light vehicles represented approximately 27%, 28% and 28% of total net sales for the years ended December 31, 2018, 2017 and 2016, respectively. The Company currently supplies light vehicle turbochargers to many OEMs including BMW, Daimler, Fiat Chrysler Automobiles, Ford, General Motors, Great Wall, Hyundai, Renault, Volkswagen and Volvo. No other single product line accounted for more than 10% of consolidated net sales in any of the years presented.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

NOTE 22 INTERIM FINANCIAL INFORMATION (Unaudited)

The following table presents summary quarterly financial data:

(millions of dollars, except per share amounts)	2018					2017				
Quarter ended	Mar-31	Jun-30	Sep-30	Dec-31	Year	Mar-31	Jun-30	Sep-30	Dec-31	Year
Net sales	$2,784.3	$2,694.0	$2,478.5	$2,572.8	$10,529.6	$2,407.0	$2,389.7	$2,416.2	$2,586.4	$9,799.3
Cost of sales	2,192.5	2,114.8	1,962.9	2,030.0	8,300.2	1,890.7	1,876.8	1,894.6	2,021.6	7,683.7
Gross profit	591.8	579.2	515.6	542.8	2,229.4	516.3	512.9	521.6	564.8	2,115.6
Selling, general and administrative expenses	253.4	236.0	230.5	225.8	945.7	219.0	215.1	225.0	240.0	899.1
Other expense (income), net	4.9	30.4	7.1	51.4	93.8	5.8	(0.3)	22.0	117.0	144.5
Operating income	333.5	312.8	278.0	265.6	1,189.9	291.5	298.1	274.6	207.8	1,072.0
Equity in affiliates' earnings, net of tax	(10.2)	(13.0)	(15.2)	(10.5)	(48.9)	(9.7)	(14.4)	(14.4)	(12.7)	(51.2)
Interest income	(1.5)	(1.4)	(1.5)	(2.0)	(6.4)	(1.5)	(1.4)	(1.3)	(1.6)	(5.8)
Interest expense and finance charges	16.1	14.9	14.4	13.3	58.7	18.0	18.0	17.6	16.9	70.5
Other postretirement income	(2.6)	(2.4)	(2.4)	(2.0)	(9.4)	(1.2)	(1.4)	(1.3)	(1.2)	(5.1)
Earnings before income taxes and noncontrolling interest	331.7	314.7	282.7	266.8	1,195.9	285.9	297.3	274.0	206.4	1,063.6
Provision for income taxes	94.9	30.4	66.8	19.2	211.3	86.3	76.2	79.4	338.4	580.3
Net earnings (loss)	236.8	284.3	215.9	247.6	984.6	199.6	221.1	194.6	(132.0)	483.3
Net earnings attributable to the noncontrolling interest, net of tax	11.7	12.5	12.1	17.6	53.9	10.4	9.1	9.7	14.2	43.4
	$225.1	$271.8	$203.8	$230.0	$930.7	$189.2	$212.0	$184.9	$(146.2)	$439.9

Net earnings (loss) attributable to BorgWarner Inc. (a)										
Earnings per share — basic	$1.07	$1.30	$0.98	$1.11	$4.47	$0.89	$1.01	$0.88	$(0.70)	$2.09
Earnings per share — diluted	$1.07	$1.30	$0.98	$1.10	$4.44	$0.89	$1.00	$0.88	$(0.70)	$2.08

(a) The Company's results were impacted by the following:

- Quarter ended December 31, 2018: The Company recorded an asset impairment expense of $25.6 million to adjust the net book value of the pipe and thermostat product lines to fair value. The Company recorded asbestos-related adjustments resulting in a net increase to Other Expense of $22.8 million. The Company recorded restructuring expense of $22.7 million primarily related to the Engine and Drivetrain segment actions designed to improve future profitability and competitiveness. The Company recorded a gain of $19.4 million related to the sale of a building at a manufacturing facility located in Europe. The Company also recorded merger and acquisition expense of $1.0 million primarily related to professional fees associated with divestiture activities for the non-core pipes and thermostat product line. The Company recorded reductions of income tax expense of $5.5 million related to restructuring expense, $0.1 million related to merger, acquisition and divestiture expense, $5.5 million related to asbestos-related adjustments, $7.7 million related to asset impairment expense, $0.4 million related to a decrease in our deferred tax liability due to the Company's ability to record a tax benefit for certain foreign tax credits available due to actions the Company took during the year, $9.1 million related to valuation allowance releases, $2.8 million related to tax reserve adjustments, and $18.5 million related to changes in accounting methods and tax filing positions for prior years primarily related to the Tax Act. Additionally, the Company recorded income tax expense of $5.8 million related to a gain on the sale of a building, $7.4 million related to adjustments to measurement period provisional estimates associated with the Tax Act and $0.4 million related to other expense.
- Quarter ended September 30, 2018: The Company recorded restructuring expense of $5.7 million primarily related to the actions within its Engine segment designed to improve future profitability and competitiveness. The Company also recorded merger and acquisition expense of $1.6 million primarily related to professional fees associated with divestiture activities for the non-core pipes and thermostat product line. The Company recorded reductions of income tax expense of $1.3 million related to restructuring expense, $0.4 million related to other expense, $6.6 million related to adjustments to measurement period provisional estimates associated with the Tax Act, $0.5 million related to a decrease in our deferred tax liability due to the Company's ability to record a tax benefit for certain foreign tax credits available due to actions the Company took during the year, and $1.8 million related to other one-time tax adjustments, primarily due to changes in tax filing positions. Additionally, the Company recorded income tax expense of $0.1 million related to merger, acquisition and divestiture expense.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

- Quarter ended June 30, 2018: The Company recorded restructuring expense of $31.2 million primarily related to the initiation of actions within its emissions business in the Engine segment designed to improve future profitability and competitiveness. The Company also recorded merger and acquisition expense of $1.0 million primarily related to professional fees associated with divestiture activities for the non-core pipes and thermostat product line. The Company recorded reductions of income tax expenses of $7.6 million associated with restructuring expense, $13.4 million related to adjustments to measurement period provisional estimates associated with the Tax Act, $21.1 million related to a decrease in our deferred tax liability due to the Company's ability to record a tax benefit for certain foreign tax credits available due to actions the Company took in the second quarter, and $9.9 million related to other one-time tax adjustments.
- Quarter ended March 31, 2018: The Company recorded restructuring expense of $7.5 million primarily related to Engine and Drivetrain segment actions designed to improve future profitability and competitiveness. The Company recorded a gain of approximately $4.0 million related to the settlement of a commercial contract for an entity acquired in the 2015 Remy acquisition. The Company also recorded merger and acquisition expense of $2.2 million primarily related to professional fees associated with divestiture activities for the non-core pipe product line. The Company recorded income tax expenses of $0.9 million and $0.4 million related to a commercial settlement gain and other one-time tax adjustments, and reductions of income tax expense of $0.6 million and $0.3 million which are associated with restructuring expense, and merger and acquisition expense.
- Quarter ended December 31, 2017: The Company recorded an asset impairment expense of $71.0 million to adjust the net book value of the pipe and thermostat product lines to fair value. Additionally, the Company recorded restructuring expense of $45.2 million related to Drivetrain and Engine segment actions designed to improve future profitability and competitiveness. The Company also recorded merger and acquisition expense of $3.6 million. The Company recorded reduction of income tax expenses of $8.9 million, $0.7 million and $18.2 million related to the restructuring expense, merger and acquisition expense and asset impairment expense. The Company also recorded a tax expense of $7.9 million related to other one-time tax adjustments. Additionally, the Company recorded a tax expense of $273.5 million for the change in the tax law related to tax effects of the Tax Act.
- Quarter ended September 30, 2017: The Company recorded restructuring expense of $13.3 million primarily related to the initiation of actions within its emissions business in the Engine segment designed to improve future profitability and competitiveness. The Company also recorded merger and acquisition expense of $6.4 million primarily related to the Sevcon transaction. The Company recorded reduction of income tax expenses of $1.2 million related to restructuring expense, $0.3 million merger and acquisition and $5.1 million related to other one-time tax adjustments.
- Quarter ended June 30, 2017: The Company recorded a reduction of income tax expense of $3.2 million related to one-time tax adjustments, primarily resulting from tax audit settlements.
- Quarter ended March 31, 2017: The Company recorded lease termination settlement of $5.3 million related to the termination of a long-term property lease in Europe. The Company recorded a tax expense of $3.4 million related to one-time tax adjustments.

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

Not applicable.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints and the benefits of controls must be considered relative to costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and

instances of fraud, if any, within the Company have been detected. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected. However, our disclosure controls and procedures are designed to provide reasonable assurance of achieving their objectives.

The Company has adopted and maintains disclosure controls and procedures that are designed to provide reasonable assurance that information required to be disclosed in the reports filed or submitted under the Exchange Act, such as this Form 10-K, is collected, recorded, processed, summarized and reported within the time periods specified in the rules and forms of the Securities and Exchange Commission. The Company's disclosure controls and procedures are also designed to ensure that such information is accumulated and communicated to management to allow timely decisions regarding required disclosure. As required under Exchange Act Rule 13a-15, the Company's management, including the Chief Executive

Officer and Chief Financial Officer, has conducted an evaluation of the effectiveness of disclosure controls and procedures as of the end of the period covered by this report. Based on that evaluation, the Chief Executive Officer and Chief Financial Officer concluded that the disclosure controls and procedures are effective.

Management's Report on Internal Control Over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Exchange Act Rule 13a-15(f). Management conducted an assessment of the Company's internal control over financial reporting based on the framework and criteria established by the Committee of Sponsoring Organizations of the Treadway Commission in Internal Control - Integrated Framework (2013). Based on the assessment, management concluded that, as of December 31, 2018, the Company's internal control over financial reporting is effective based on those criteria.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has audited the Company's consolidated financial statements and the effectiveness of internal control over financial reporting as of December 31, 2018 as stated in its report included herein.

Changes in Internal Control over Financial Reporting

There have been no changes in internal control over the financial reporting that occurred during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect our internal control over financial reporting.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

Information with respect to directors, executive officers and corporate governance that appears in the Company's proxy statement for its 2019 Annual Meeting of Stockholders under the captions “Election of Directors,” “Information on Nominees for Directors,” “Board Committees,” “Section 16(a) Beneficial Ownership Reporting Compliance,” “Code of Ethics,” and “Compensation Committee Report” is incorporated herein by this reference and made a part of this report.

Item 11. Executive Compensation

Information with respect to director and executive compensation that appears in the Company's proxy statement for its 2019 Annual Meeting of Stockholders under the captions “Director Compensation,” “Compensation Committee Interlocks and Insider Participation,” “Compensation Discussion and Analysis,” “Restricted Stock,” “Long Term Equity Incentives,” and “Change of Control Agreements” is incorporated herein by this reference and made a part of this report.

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

Information with respect to security ownership and certain beneficial owners and management and related stockholders matters that appears in the Company's proxy statement for its 2019 Annual Meeting of Stockholders under the caption “Security Ownership of Certain Beneficial Owners and Management” is incorporated herein by this reference and made a part of this report.

For information regarding the Company's equity compensation plans, see Item 5 “Market for the Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities” in this Annual Report on Form 10-K.

Item 13. Certain Relationships and Related Transactions and Director Independence

Information with respect to certain relationships and related transactions and director independence that appears in the Company's proxy statement for its 2019 Annual Meeting of Stockholders under the caption “Certain Relationships and Related Transactions, and Director Independence” is incorporated herein by this reference and made a part of this report.

Item 14. Principal Accountant Fees and Services

Information with respect to principal accountant fees and services that appears in the Company's proxy statement for its 2019 Annual Meeting of Stockholders under the caption “Fees Paid to PwC” is incorporated herein by this reference and made a part of this report.

PART IV

Item 15. Exhibits and Financial Statement Schedules

The information required by this Section (a)(3) of Item 15 is set forth on the Exhibit Index that follows the Signatures page of this Form 10-K. The information required by this Section (a)(1) of Item 15 is set forth above in Item 8, Financial Statements and Supplementary Data. All financial statement schedules have been omitted, since the required information is not applicable or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the consolidated financial statements and notes thereto included in this Form 10-K.

Item 16. Form 10-K Summary

Not applicable.

SIGNATURES

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

BORGWARNER INC.

By: /s/ Frederic B. Lissalde
Frederic B. Lissalde
President and Chief Executive Officer
Date: February 19, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following person on behalf of the registrant and in the capacities indicated on the 19th day of February, 2019.

Signature	Title
/s/ Frederic B. Lissalde Frederic B. Lissalde	President and Chief Executive Officer (Principal Executive Officer) and Director
/s/ Thomas J. McGill Thomas J. McGill	Vice President and Interim Chief Financial Officer (Principal Financial Officer)
/s/ Anthony D. Hensel Anthony D. Hensel	Vice President and Controller (Principal Accounting Officer)
/s/ Jan Carlson Jan Carlson	Director
/s/ Dennis C. Cuneo	

Dennis C. Cuneo Director

/s/ Roger A. Krone Roger A. Krone Director

/s/ Michael S. Hanley Michael S. Hanley Director

/s/ John R. McKernan, Jr. John R. McKernan, Jr. Director

/s/ Deborah D. McWhinney Deborah D. McWhinney Director

/s/ Paul A. Mascarenas Paul A. Mascarenas Director

/s/ Alexis P. Michas Director and Non-Executive Chairman

Alexis
P.
Michas

/s/
Vicki
L.
Sato
Vicki
LDirector
Sato

/s/
Thomas
T.
Stallkamp
Thomas
TDirector
Stallkamp

EXHIBIT INDEX

Exhibit Number	Description
3.1	Restated Certificate of Incorporation of the Company, as amended through April 26, 2018 (incorporated by reference to Exhibit 3.1 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 filed July 26, 2018).
3.2	Amended and Restated By-Laws of the Company, as amended through April 25, 2018 (incorporated by reference to Exhibit 3.2 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 filed July 26, 2018).
4.1	Indenture, dated as of February 15, 1999, between Borg-Warner Automotive, Inc. and The Bank of New York Mellon Trust Company, N.A. (successor in interest to The First National Bank of Chicago), as trustee (incorporated by reference to Exhibit No. 4.5 to the Company's Registration Statement No. 333-172198 filed on February 11, 2011).
4.2	Indenture, dated as of September 23, 1999, between Borg-Warner Automotive, Inc. and The Bank of New York Mellon Trust Company, N.A. (successor in interest to Chase Manhattan Trust Company, National Association), as trustee (incorporated by reference to Exhibit No. 4.6 to the Company's Registration Statement 333-172198 filed on February 11, 2011).
4.3	Third Supplemental Indenture, dated as of September 16, 2010, between the Company and The Bank of New York Mellon Trust Company, N.A., as the indenture trustee (incorporated by reference to Exhibit 4.9 to the Company's Registration Statement 333-172198 filed on February 11, 2011).
4.4	Fourth Supplemental Indenture dated as of March 16, 2015, between the Company and The Bank of New York Mellon Trust Company, N.A., as the indenture trustee (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed March 16, 2015).
4.5	Fifth Supplemental Indenture dated as of November 6, 2015, between the Company and Deutsche Bank Trust Company Americas, as the indenture trustee (incorporated by reference to Exhibit 4.2 to the Company's Current Report on Form 8-K filed November 6, 2015).
10.1	Third Amended and Restated Credit Agreement dated as of June 29, 2017, among the Company, as borrower, the Administrative Agent named therein, and the Lenders that are parties thereto (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed June 30, 2017).
†10.2	BorgWarner Inc. 2018 Stock Incentive Plan (incorporated by reference to Appendix A to the Company’s Definitive Proxy Statement filed March 16, 2018).
†10.3	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Non-Employee Directors*
†10.4	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Stock Units Award Agreement for Non-U.S. Directors*
†10.5	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Employees*

†10.6 BorgWarner Inc. 2014 Stock Incentive Plan (incorporated by reference to Annex A to the Company's Definitive Proxy Statement filed March 21, 2014).

Exhibit Number	Description
†10.7	First Amendment to the BorgWarner Inc. 2014 Stock Incentive Plan (incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed on May 2, 2016).
†10.8	Form of 2017 BorgWarner Inc. 2014 Stock Incentive Plan Performance Share Award Agreement (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 filed April 27, 2017).
†10.9	Form of 2017 BorgWarner Inc. 2014 Stock Incentive Plan Restricted Stock Agreement for Employees (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 filed April 27, 2017).
†10.10	Form of 2017 BorgWarner Inc. 2014 Stock Incentive Plan Stock Units Award Agreement for Non-U.S. Employees (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2017 filed April 27, 2017).
†10.11	Form of February 2016 RRG BorgWarner Inc. 2014 Stock Incentive Plan Performance Share Award Agreement (incorporated by reference to Exhibit 10.1 to the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 filed April 28, 2016).
†10.12	Form of February 2016 BorgWarner Inc. 2014 Stock Incentive Plan Performance Share Award Agreement (incorporated by reference to Exhibit 10.2 to the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2016 filed April 28, 2016).
†10.13	Form of April 2015 BorgWarner Inc. 2014 Stock Incentive Plan Restricted Stock Agreement for Employees (incorporated by reference to Exhibit 10.2 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2015 filed July 30, 2015).
†10.14	Form of April 2015 BorgWarner Inc. 2014 Stock Incentive Plan Stock Units Award Agreement for Non-U.S. Employees (incorporated by reference to Exhibit 10.1 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2015 filed July 30, 2015).
†10.15	Form of BorgWarner Inc. 2014 Stock Incentive Plan Restricted Stock Agreement for Employees (incorporated by reference to Exhibit 10.1 to the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 filed April 30, 2015).
†10.16	Form of BorgWarner Inc. 2014 Stock Incentive Plan Performance Share Award Agreement (incorporated by reference to Exhibit 10.2 to the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 filed April 30, 2015).
†10.17	Form of BorgWarner Inc. 2014 Stock Incentive Plan Stock Units Award Agreement -- Non-U.S. Employees (incorporated by reference to Exhibit 10.3 to the Company’s Quarterly Report on Form 10-Q for the quarter ended March 31, 2015 filed April 30, 2015).
†10.18	Form of 2017 BorgWarner Inc. 2014 Stock Incentive Plan Restricted Stock Agreement for Non-Employee Directors (incorporated by reference to Exhibit 10.1 of the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 filed July 27, 2017).

†10.19	Form of 2017 BorgWarner Inc. 2014 Stock Incentive Plan Stock Units Award Agreement for Non-U.S. Directors (incorporated by reference to Exhibit 10.2 of the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2017 filed July 27, 2017).

Exhibit Number	Description
†10.20	Form of 2018 BorgWarner Inc. 2014 Stock Incentive Plan Performance Share Award Agreement (incorporated by reference to Exhibit 10.1 of the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2018 filed April 26, 2018.
†10.21	Amended and Restated Executive Incentive Plan as amended, restated, and renamed effective April 26, 2015 (incorporated by reference to Appendix A to the Company's Definitive Proxy Statement filed March 20, 2015).
†10.22	Amended and Restated BorgWarner Inc. Management Incentive Bonus Plan, effective as of December 31, 2008.*
†10.23	BorgWarner Inc. Retirement Savings Excess Benefit Plan, as amended and restated, effective January 1, 2009.*
†10.24	BorgWarner Inc. Board of Directors Deferred Compensation Plan, as amended and restated, effective January 1, 2009.*
†10.25	First Amendment, dated as of January 1, 2011, to BorgWarner Inc. Board of Directors Deferred Compensation Plan.*
†10.26	Second Amendment, dated as of August 1, 2016, to BorgWarner Inc. Board of Directors Deferred Compensation Plan. (incorporated by reference to Exhibit 10.31 to the Company's Annual Report on Form 10-K for the year ended December 31, 2016 filed February 9, 2017).
†10.27	Form of Amended and Restated Change of Control Employment Agreement for Executive Officers.*
†10.28	Form of Amended and Restated Change of Control Employment Agreement for Executive Officers (effective 2009).*
†10.29	BorgWarner Inc. 2004 Deferred Compensation Plan, as amended and restated, effective January 1, 2009.*
†10.30	Transition and Retirement Agreement, dated as of June 5, 2018, between BorgWarner Inc. and James R. Verrier (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 filed July 26, 2018).
†10.31	Agreement, dated as of May 9, 2018, between BorgWarner Inc. and John J. Gasparovic (incorporated by reference to Exhibit 10.3 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2018 filed July 26, 2018).
†10.32	Retention Bonus Agreement, dated as of December 7, 2018, between BorgWarner Inc. and Anthony D. Hensel.*
10.33	Distribution and Indemnity Agreement, dated as of January 27, 1993, between Borg-Warner Automotive, Inc. and Borg-Warner Security (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K/A for the year ended December 31, 2017 filed September 28, 2018).
10.34	Assignment of Trademarks and License Agreement, dated as of November 2, 1994, between Borg-Warner Security Corporation and Borg-Warner Automotive, Inc. (incorporated by reference to Exhibit 10.26 to the

Company's Annual Report on Form 10-K/A for the year ended December 31, 2017 filed September 28, 2018).

Exhibit Number	Description
10.35	Amendment to Assignment of Trademarks and License Agreement, dated as of July 31, 1998, between Borg-Warner Security Corporation and Borg-Warner Automotive, Inc. (incorporated by reference to Exhibit 10.27 to the Company's Annual Report on Form 10-K/A for the year ended December 31, 2017 filed September 28, 2018).
21.1	Subsidiaries of the Company.*
23.1	Independent Registered Public Accounting Firm's Consent.*
31.1	Rule 13a-14(a)/15d-14(a) Certification by Principal Executive Officer.*
31.2	Rule 13a-14(a)/15d-14(a) Certification by Principal Financial Officer.*
32.1	Section 1350 Certifications.*
101.INS	XBRL Instance Document.*
101.SCH	XBRL Taxonomy Extension Schema Document.*
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.*
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.*
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.*
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.*

*Filed herewith.
† Indicates a management contract or compensatory plan or arrangement.