UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington D.C. 20549

Form 10-K
ANNUAL REPORT

(Mark One)
☑ Annual Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the fiscal year ended December 31, 2019
OR
☐ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934
For the transition period from______________ to ______________

Commission File Number: 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	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01 per share	BWA	New York Stock Exchange
1.80% Senior Notes due 2022	BWA22	New York Stock Exchange

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

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

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

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

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

Indicate by check mark 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
Yes ☐ No ☑

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," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

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

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

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 28, 2019 (the last business day of the most recently completed second fiscal quarter) was approximately $8.6 billion.

As of February 7, 2020, the registrant had 206,409,586 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

YEAR ENDED DECEMBER 31, 2019

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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, including, by way of example, tariffs, 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.

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” or "BorgWarner") 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.

Proposed Acquisition of Delphi Technologies PLC

On January 28, 2020, the Company entered into a definitive agreement to acquire Delphi Technologies PLC (“Delphi Technologies”) in an all-stock transaction valued at approximately $3.3 billion, based on the closing price of BorgWarner stock on January 27, 2020. Refer to Note 23, “Subsequent Event,” to the Consolidated Financial Statements in Item 8 of this report for more information. The Company believes this acquisition will increase our power electronics products, capabilities and scale, creating a leader in electrified propulsion systems that is well positioned to take advantage of future propulsion migration, enhance our combustion, commercial vehicle and aftermarket businesses and maintain flexibility across combustion, hybrid and electric propulsion, consistent with our evolution towards the propulsion market of the future.

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, 2019, 2018 and 2017 are as follows:

	Year Ended December 31,		
(in millions)	2019	2018	2017
Engine	$ 6,214	$ 6,447	$ 6,062
Drivetrain	4,015	4,140	3,790
Inter-segment eliminations	(61)	(57)	(53)
Net sales	$ 10,168	$ 10,530	$ 9,799

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 $827 million, $947 million, and $844 million for the years ended December 31, 2019, 2018 and 2017, 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.

Sales of turbochargers for light vehicles represented approximately 28%, 27% and 28% of total net sales for the years ended December 31, 2019, 2018 and 2017, respectively. The Engine Segment currently supplies turbochargers to many OEMs including BMW, Daimler, Fiat Chrysler Automobiles ("FCA"), Ford, General Motors, Hyundai, Jaguar Land Rover, Renault, Volkswagen and Volvo. The Engine Segment also supplies turbochargers to several commercial vehicle and off-highway OEMs including Caterpillar, Daimler, Deutz, John Deere, MAN, Navistar International 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 better 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.

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 other actions required to complete the plan to sell and exit the non-core pipes and thermostat product lines. In December 2018, the Company reached an agreement to sell its thermostat product lines, and the sale was closed on April 1, 2019. Additionally, during the year, the Company entered into agreements to transition its pipes product lines to multiple buyers. During the year, the assets and liabilities were removed from 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.

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 meet 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, 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.

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 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. These products complement BorgWarner’s power electronics capabilities utilized to provide electrified propulsion solutions.

Joint Ventures

As of December 31, 2019, the Company had eight joint ventures in which it had a less-than-100% ownership interest. Results from the six 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. In 2019, the Company and Romeo Systems, Inc. formed a new joint venture, BorgWarner Romeo Power LLC (the "Romeo JV"), in which the Company owns a 60% interest. The Romeo JV focuses on producing battery module and pack technology.

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 2019 net sales (in millions) (a)	
Unconsolidated:							
NSK-Warner	Transmission components	1964	50%	Japan/China	NSK Ltd.	$	610
Turbo Energy Private Limited (b)	Turbochargers	1987	32.6%	India	Sundaram Finance Limited; Brakes India Limited	$	217
Consolidated:							
BorgWarner Transmission Systems Korea Ltd. (c)	Transmission components	1987	60%	Korea	NSK-Warner	$	238
Borg-Warner Shenglong (Ningbo) Co. Ltd.	Fans and fan drives	1999	70%	China	Ningbo Shenglong Automotive Powertrain Systems Co., Ltd.	$	79
BorgWarner TorqTransfer Systems Beijing Co. Ltd.	Transfer cases	2000	80%	China	Beijing Hainachuan Automotive Parts Holding Co., Ltd.	$	243
SeohanWarner Turbo Systems Ltd.	Turbochargers	2003	71%	Korea	Korea Flange Company	$	199
BorgWarner United Transmission Systems Co. Ltd.	Transmission components	2009	66%	China	China Automobile Development United Investment Co., Ltd.	$	361
BorgWarner Romeo Power LLC	Battery module and pack technology	2019	60%	US	Romeo Systems, Inc.	$	—

(a) All sales figures are for the year ended December 31, 2019, except NSK-Warner and Turbo Energy Private Limited. NSK-Warner's sales are reported for the 12 months ended November 30, 2019. Turbo Energy Private Limited's sales are reported for the 12 months ended September 30, 2019.

(b) The Company made purchases from Turbo Energy Private Limited totaling $45 million, $42 million and $32 million for the years ended December 31, 2019, 2018 and 2017, respectively. The Company made purchases from NSK-Warner totaling $6 million, $10 million and $12 million for the years ended December 31, 2019, 2018 and 2017, 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, 2019, approximately 83% of the Company's net sales were for light-vehicle applications; approximately 9% 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	2019	2018	2017
Ford	15%	14%	15%
Volkswagen	11%	12%	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, our Engine and Drivetrain segments 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 Company's third quarter.

Research and Development

The Company conducts advanced Engine and Drivetrain research. 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 oversees the Company's investments in certain venture capital funds that provide seed money for start-up businesses developing new technologies pertinent to the automotive industry and the Company's propulsion strategies.

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.

(in millions)	Year Ended December 31, 2019	2018	2017
Gross R&D expenditures	$ 498	$ 512	$ 473
Customer reimbursements	(85)	(72)	(65)
Net R&D expenditures	$ 413	$ 440	$ 408

Net R&D expenditures as a percentage of net sales were 4.1%, 4.2% and 4.2% for the years ended December 31, 2019, 2018 and 2017, 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 6,430 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 methods of competition.

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

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

Product Type: Drivetrain	**Names of Competitors**	
Torque management systems:	GKN Driveline Magna Powertrain	JTEKT
Rotating electrical components:	Denso SEG Automotive Mitsubishi Electric	Valeo Vitesco Technologies Bosch
Transmission systems:	Bosch Dynax Valeo	FCC Schaeffler Group 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, 2019, the Company had a salaried and hourly workforce of approximately 29,000 (as compared with approximately 30,000 at December 31, 2018), of which approximately 6,800 were in the U.S. Approximately 13% 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 2020 and beyond. Refer to Note 11, “Financial Instruments,” to the Consolidated Financial Statements in Item 8 of this report for information related to the Company's hedging activities.

For 2020, 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.

Information About 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 13, 2020.

Name	Age	Position with the Company
Frederic B. Lissalde	52	President and Chief Executive Officer
Kevin A. Nowlan	48	Executive Vice President, Chief Financial Officer
Tonit M. Calaway	51	Executive Vice President, Chief Legal Officer and Secretary
Felecia Pryor	45	Executive Vice President, Chief Human Resources Officer
Craig D. Aaron	42	Vice President and Treasurer
Stefan Demmerle	55	Vice President
Brady D. Ericson	48	Vice President
Joseph F. Fadool	53	Vice President
Thomas J. McGill	53	Vice President and Controller
Volker Weng	49	Vice President
Hakan Yilmaz	41	Vice President, Chief Technology Officer

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, a subsidiary.

Mr. Nowlan has been Executive Vice President and Chief Financial Officer since April 2019. He was Senior Vice President, President, Trailer, Components and Chief Financial Officer of Meritor, Inc., a commercial truck and industrial supplier, from March 2018 to March 2019. He was Senior Vice President and Chief Financial Officer of Meritor, Inc. from May 2013 to March 2018.

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., a motorcycle manufacturer, and President of The Harley-Davidson Foundation from February 2010 to July 2016. Since October 2019, Ms. Calaway has served as a member of the Board of Directors of Astronics Corporation, an aerospace and defense company.

Ms. Pryor has been Executive Vice President and Chief Human Resources Officer since April 2019. She was Vice President of Human Resources of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems), a subsidiary, from October 2018 to March 2019. She was Global Human Resources Director - Global Personnel, Organization & Planning for Ford Motor Company, an automotive manufacturer, from January 2018 to October 2018. She was Vice President of Human Resources for Ford Motor Company - ASEAN Markets from August 2016 to January 2018. She was HR Director for Ford’s Research & Engineer Center located in Nanjing, China from August 2014 to August 2016.

Mr. Aaron has been Vice President and Treasurer since March 2019. He was Vice President of Finance of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems), a subsidiary, from December 2016 to February 2019. He was Director, Financial Reporting from August 2012 to November 2016.

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.), a subsidiary, since September 2012 and President and General Manager of BorgWarner PDS (Indiana) Inc. (formerly known as Remy International, Inc.), a subsidiary, since December 2015.

Mr. Ericson has been Vice President of the Company and President and General Manager of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems), a subsidiary, since June 2019. He was the Executive Vice President and Chief Strategy Officer of the Company from January 2017 until June 2019. He was Vice President of the Company and President and General Manager of BorgWarner Emissions Systems LLC, a subsidiary, from March 2014 until December 2016, during which time BorgWarner BERU Systems GmbH was combined with BorgWarner Emissions Systems Inc.

Mr. Fadool has been Vice President of the Company and President and General Manager of BorgWarner Emissions Systems LLC, BorgWarner Thermal Systems Inc. and Turbo Systems LLC, subsidiaries of the Company, since October 2019. He was Vice President of the Company and President and General Manager of Turbo Systems LLC, a subsidiary, from May 2019 to October 2019. He was Vice President of the Company and President and General Manager of BorgWarner Emissions Systems LLC and BorgWarner Thermal Systems Inc., both subsidiaries, from January 2017 to May 2019. He was Vice President of the Company and President and General Manager of BorgWarner Ithaca LLC (d/b/a BorgWarner Morse Systems), a subsidiary, 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., a subsidiary.

Mr. McGill has been Vice President and Controller since April 2019. He was Vice President and Interim Chief Financial Officer from January 2019 to April 2019. Additionally, he was the Treasurer of the Company from May 2012 to March 2019.

Dr. Weng has been Vice President of the Company and President and General Manager of BorgWarner Transmission Systems LLC since October 2019. He was President and General Manager for BorgWarner Emissions Systems LLC and BorgWarner Thermal Systems Inc., both subsidiaries, from May 2019 to September 2019. He was Vice President and General Manager, Europe for BorgWarner Emissions Systems LLC and BorgWarner Thermal Systems Inc., both subsidiaries, from April 2017 to April 2019. He was Vice President and General Manager, Asia for Turbo Systems Systems LLC, a subsidiary, from July 2015 to April 2017. He was General Manager, China for Turbo Systems LLC, a subsidiary, from January 2013 to July 2015.

Mr. Yilmaz has been Vice President and Chief Technology Officer since January 2018. He was Vice President, Global Head of Powertrain Systems and Advanced Engineering for Robert Bosch, a global supplier of technology and services, from May 2016 to December 2017. He was Vice President, Business Strategy and Strategic Marketing for Robert Bosch from January 2015 to April 2016. He was Vice President of Global Program Management and Engineering, for Robert Bosch from January 2013 to December 2014.

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. Our traditional OEM customers, faced with intense international competition, have continued to expand 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 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 and 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 has resulted and is expected to result in lower demand for current diesel components. This shift is expected to drive further increased demand for gasoline and hybrid propulsion systems. Although we have developed and are currently in production with products for gasoline and hybrid propulsion systems and industry penetration rates for these products are expected to increase over the next several years, 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. OEM customers expect annual price reductions in our business. To maintain our profit margins, we seek price reductions from our suppliers, improved production processes to increase manufacturing efficiency, and streamlined 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.

From time to time, commodity prices may also fall rapidly. If 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. The United States has also implemented tariffs on items imported by us from China or other countries and may implement tariffs on additional products and export controls on additional items. The impact of these tariffs has increased the cost of raw materials and components we purchase and additional tariffs would likely result in additional increases. The imposition of tariffs by the United States has resulted in retaliatory tariffs from a number of countries, including China, which increase the cost of products we sell. A continuing trade war could have a negative impact on the global market and a more significant 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 or disruption in our information technology infrastructure, including a disruption related to cybersecurity, 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. Some cyber attacks depend on human error or manipulation, including phishing attacks or schemes that use social engineering to gain access to systems or carry out disbursement of funds or other frauds, which raise the risks from such events and the costs associated with protecting against such attacks. Although we have implemented security policies, processes, and layers of defense designed to help identify and protect against intentional and unintentional misappropriation or corruption of our systems and information, and disruptions of our operations, we have been, and likely will continue to be, subjected to such attacks or disruptions. Future attacks or disruptions could potentially lead to the inappropriate disclosure of confidential information, including our intellectual property, improper use of our systems and networks, access to and manipulation and destruction of Company or third party data, production downtimes, lost revenues, inappropriate disbursement of funds 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. These consequences 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, 2019, approximately 13% 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, production shutdowns 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 or production shutdown 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 or production shutdown, 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 component due to a work stoppage or production shutdown 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 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 adversely impact 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.

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.

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 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.

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 due to many factors, including any of the risks identified in the paragraph that follows, failure to develop new products that our customers will purchase, technology changes that could render our products obsolete, and a reversal of the trend of supplying systems (which allows us to increase content per vehicle) instead of components, among other things.

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 or realize certain synergies 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.

Our proposed acquisition of Delphi Technologies is subject to conditions, as well as other uncertainties, and there can be no assurances as to whether or when it may be completed. Failure to complete the proposed transaction could adversely affect our business.

The completion of our proposed acquisition of Delphi Technologies is subject to a number of conditions, including, among other things, the approval by Delphi Technologies stockholders and the receipt of certain regulatory approvals, which make the completion and timing of the completion of the proposed transaction uncertain. If the proposed transaction is not completed, our business may be adversely affected and, without realizing any of the benefits of having completed the proposed transaction, we will be subject to a number of risks, including the following:

- a potential decline to the market price of our common stock;
- an inability to find another acquisition, with comparable electronic components, systems and technical capabilities;
- a loss of time and resources that our management redirected to matters relating to the proposed transaction that could otherwise have been devoted to pursuing other beneficial opportunities; and
- potential negative reactions from the financial markets or from our customers, suppliers, or employees.

In addition, we could be subject to litigation related to any failure to complete the proposed transaction. The materialization of any of these risks could adversely impact our ongoing businesses. Similarly, delays in the completion of the proposed transaction could, among other things, result in additional transaction costs, loss of revenue or personnel, or other negative effects associated with uncertainty about completion of the proposed transaction.

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 2019, 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, international terrorism and other factors that may be discrete to a particular country or geography. 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, social 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 the competitiveness of our business and sustain our margin profile, 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 2019 to Ford and Volkswagen constituted approximately 15% and 11% of our 2019 consolidated net sales, respectively.

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 or social 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; low levels of 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 including pandemics and quarantines.

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 2019 fiscal year that remain unresolved.

Item 2. Properties

As of December 31, 2019, the Company had 67 manufacturing, assembly, and technical locations worldwide. 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
Ramos, Mexico	Rzeszow, Poland (d)	Pyongtaek, South Korea (b) (c)
	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

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

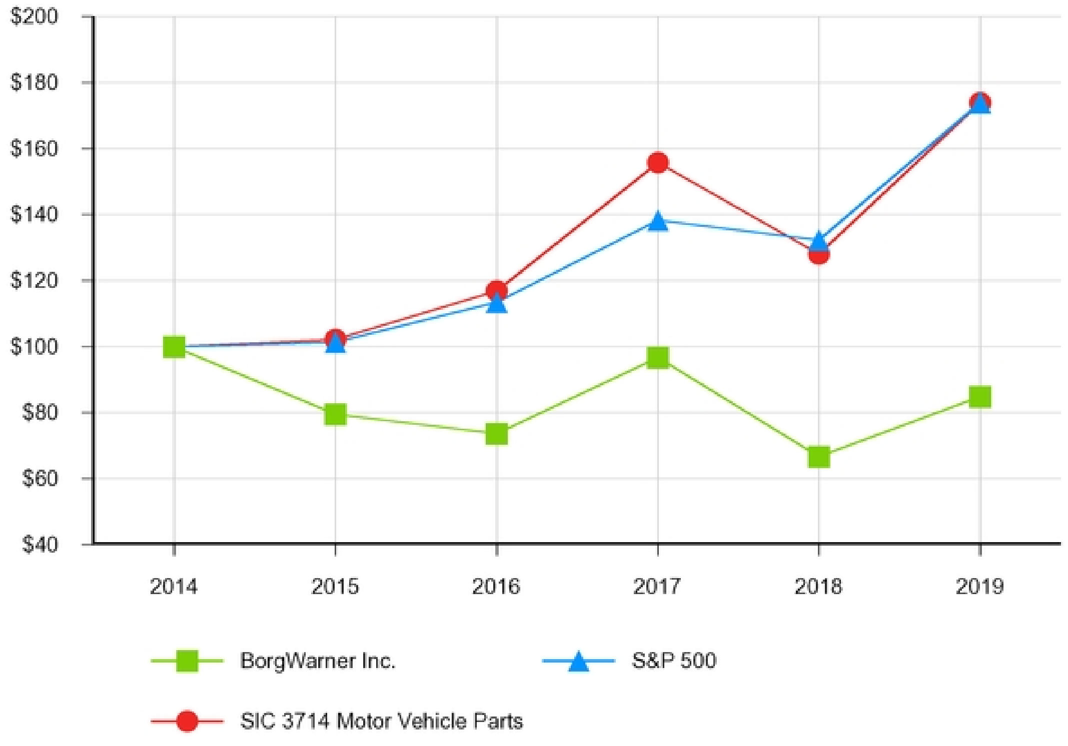
Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

The Company's common stock is listed for trading on the New York Stock Exchange under the symbol BWA. As of February 7, 2020, there were 1,549 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



*$100 invested on 12/31/2014 in stock or index, including reinvestment of dividends. Fiscal year ending December 31.

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

	December 31,					
	2014	2015	2016	2017	2018	2019
BorgWarner Inc.(1)	$ 100.00	$ 79.48	$ 73.65	$ 96.64	$ 66.71	$ 84.83
S&P 500(2)	100.00	101.38	113.51	138.29	132.23	173.86
SIC Code Index(3)	100.00	102.17	116.88	155.78	128.11	173.86

(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 November 13, 2019, the Company's Board of Directors increased the cumulative authorization for the purchase of the Company's common stock up to 89.6 million shares in the aggregate. As of December 31, 2019, the Company had repurchased 75.4 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.

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 Securities Exchange Act of 1934, as amended (the "Exchange Act") during the quarter ended December 31, 2019:

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, 2019				
Common Stock Repurchase Program	—	$ —	—	4,241,311
Employee transactions	4,858	$ 40.31	—	
Month Ended November 30, 2019				
Common Stock Repurchase Program	—	$ —	—	14,241,311
Employee transactions	623	$ 37.59	—	
Month Ended December 31, 2019				
Common Stock Repurchase Program	—	$ —	—	14,241,311
Employee transactions	—	$ —	—	

Equity Compensation Plan Information

As of December 31, 2019, the number of shares of options, restricted common stock, warrants and rights outstanding under our equity compensation plans, the weighted average exercise price of outstanding options, restricted common stock, warrants and rights and the number of securities remaining available for issuance were as follows:

Plan category	Number of securities to be issued upon exercise of outstanding options, restricted common stock, warrants and rights (a)	Weighted average exercise price of outstanding options, restricted common stock, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders	1,663,812	$ 44.26	5,984,977
Equity compensation plans not approved by security holders	—	$ —	—
Total	1,663,812	44.26	5,984,977

Item 6. Selected Financial Data

(in millions)	Year Ended December 31, 2019	2018	2017	2016	2015
Operating results					
Net sales	$ 10,168	$ 10,530	$ 9,799	$ 9,071	$ 8,023
Operating income [(a)]	$ 1,303	$ 1,190	$ 1,072	$ 973	$ 888
Net earnings attributable to BorgWarner Inc.[(a)]	$ 746	$ 931	$ 440	$ 595	$ 577
Earnings per share — basic	$ 3.63	$ 4.47	$ 2.09	$ 2.78	$ 2.57
Earnings per share — diluted	$ 3.61	$ 4.44	$ 2.08	$ 2.76	$ 2.56
Net R&D expenditures	$ 413	$ 440	$ 408	$ 343	$ 307
Capital expenditures, including tooling outlays	$ 481	$ 546	$ 560	$ 501	$ 577
Depreciation and amortization	$ 439	$ 431	$ 408	$ 391	$ 320
Number of employees	29,000	30,000	29,000	27,000	30,000
Financial position					
Cash and cash equivalents	$ 832	$ 739	$ 545	$ 444	$ 578
Total assets	$ 9,702	$ 10,095	$ 9,788	$ 8,835	$ 9,211
Total debt	$ 1,960	$ 2,114	$ 2,188	$ 2,220	$ 2,550
Common share information					
Cash dividend declared and paid per share	$ 0.68	$ 0.68	$ 0.59	$ 0.53	$ 0.52
Weighted average shares outstanding					
Basic	205.7	208.2	210.4	214.4	224.4
Diluted	206.8	209.5	211.5	215.3	225.6

(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, 2019 and 2018.

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 systems, emissions systems and thermal systems. The Drivetrain segment's products include transmission systems, torque transfer systems and rotating electrical components.

Proposed Acquisition of Delphi Technologies PLC

On January 28, 2020, the Company entered into a definitive agreement to acquire Delphi Technologies PLC (“Delphi Technologies”) in an all-stock transaction valued at approximately $3.3 billion, based on the closing price of BorgWarner stock on January 27, 2020. Refer to Note 23, “Subsequent Event,” to the Consolidated Financial Statements in Item 8 of this report for more information. The Company expects to pay fees, costs and expenses associated with the transaction with available cash. The following discussion and analysis of financial condition and results of operations does not address matters associated with the anticipated acquisition.

RESULTS OF OPERATIONS

A detailed comparison of the Company's 2017 operating results to its 2018 operating results can be found in the Management's Discussion and Analysis of Financial Condition and Results of Operations section in the Company's 2018 Annual Report on Form 10-K filed February 19, 2019.

A summary of our operating results for the years ended December 31, 2019 and 2018 is as follows:

	Year Ended December 31,	
(in millions, except per share data)	2019	2018
Net sales	$ 10,168	$ 10,530
Cost of sales	8,067	8,300
Gross profit	2,101	2,230
Selling, general and administrative expenses	873	946
Other (income) expense, net	(75)	94
Operating income	1,303	1,190
Equity in affiliates' earnings, net of tax	(32)	(49)
Interest income	(12)	(6)
Interest expense	55	59
Other postretirement expense (income)	27	(10)
Earnings before income taxes and noncontrolling interest	1,265	1,196
Provision for income taxes	468	211
Net earnings	797	985
Net earnings attributable to the noncontrolling interest, net of tax	51	54
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931
Earnings per share — diluted	$ 3.61	$ 4.44

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

The Company's earnings per diluted share were $3.61 and $4.44 for the years ended December 31, 2019 and 2018, 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:	2019	2018
Restructuring expense	$ (0.26)	$ (0.24)
Pension settlement loss	(0.10)	—
Unfavorable arbitration loss	(0.07)	—
Merger, acquisition and divestiture expense	(0.05)	(0.03)
Asset impairment and loss on divestiture	(0.03)	(0.09)
Officer stock awards modification	(0.01)	(0.04)
Gain on derecognition of subsidiary	0.02	—
Asbestos-related adjustments	—	(0.08)
Gain on sale of building	—	0.07
Gain on commercial settlement	—	0.01
Tax reform adjustments	—	0.06
Tax adjustments	(0.02)	0.30
Total impact of non-comparable items per share — diluted:	$ (0.52)	$ (0.04)

A summary of non-comparable items impacting the Company's net earnings for the years ended December 31, 2019 and 2018 is as follows:

Year ended December 31, 2019:

- The Company recorded restructuring expense of $72 million primarily related to actions to reduce structural costs. Refer to Note 16, "Restructuring," to the Consolidated Financial Statements in Item 8 of this report for more information. Over the course of the next few years, the Company plans to take additional actions to reduce existing structural costs. These actions are expected to result in primarily cash restructuring costs in the $275 million to $300 million range through the end of 2023. The resulting annual cost savings are expected to be in the range of approximately $90 million to $100 million by 2023. The Company plans to utilize these savings to sustain the Company's strong operating margin profile and long-term cost competitiveness.
- During the year ended December 31, 2019, the Company settled approximately $50 million of its U.S. pension projected benefit obligation by liquidating approximately $50 million in plan assets through a lump-sum pension de-risking disbursement made to an insurance company. Pursuant to this agreement, the insurance company unconditionally and irrevocably guarantees all future payments to certain participants that were receiving payments from the U.S. pension plan. The insurance company assumes all investment risk associated with the assets that were delivered as part of this transaction. Additionally, during 2019, the Company discharged certain U.S. pension plan obligations by making lump-sum payments of $15 million to former employees of the Company. As a result, the Company settled $65 million of projected pension obligation by liquidating an equivalent amount of pension plan assets and recorded a non-cash settlement loss of $27 million related to the accelerated recognition of unamortized losses.
- During the year ended December 31, 2019, the Company recorded $14 million of expenses related to the receipt of a final unfavorable arbitration decision associated with the resolution of a matter related to a previous acquisition.

- During the year ended December 31, 2019, the Company recorded $11 million of expenses, primarily professional fees, related to the Company's strategic acquisition and divestiture activities, including the transfer of Morse TEC, the anticipated acquisition of Delphi Technologies, and the 20% equity interest in Romeo Systems, Inc. and the divestiture activities for the non-core pipes and thermostat product lines.
- During the year ended December 31, 2019, the Company recorded an additional loss on sale of $7 million to account for the cash proceeds and finalization of the purchase price adjustments related to the sale of the non-core pipes 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, 2019, the Company recorded a pre-tax gain on the derecognition of BorgWarner Morse TEC LLC ("Morse TEC") of $177 million and removed the asbestos obligations and related insurance assets from the Consolidated Balance Sheet. In addition, the Company recorded tax expense as a result of the reversal of the previously recorded deferred tax assets related to the asbestos liabilities of $173 million, resulting in an after-tax gain of $4 million. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements in Item 8 of this report for more information.
- The Company's provision for income taxes for the year ended December 31, 2019, includes reductions to tax expense of $19 million related to restructuring and merger, acquisition and divestiture expense and $6 million related to pension settlement loss. This rate also includes increases to tax expense of $22 million due to the U.S. Department of the Treasury's issuance of the final regulations in the first quarter of 2019 related to the calculation of the one-time transition tax partially offset by reductions to tax expense of $11 million for a global realignment plan and $8 million related to other one-time adjustments.

Year ended December 31, 2018:

- The Company recorded restructuring expense of $67 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.
- During the year ended December 31, 2018, the Company recorded an asset impairment expense of $26 million to adjust the net book value of the pipes and thermostat product lines to fair value less costs to sell. Additionally, the Company recorded $6 million of merger, acquisition and divestiture expense primarily related to professional fees associated with divestiture activities for the non-core pipes 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.
- The Company recorded net restricted stock and performance share unit compensation expense of $8 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 asbestos-related adjustments resulting in an increase to Other Expense of $23 million. This increase was the result of actuarial valuation changes of $23 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 million related to the sale of a building at a manufacturing facility located in Europe.

- During the year ended December 31, 2018, the Company recorded a gain of approximately $4 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 million related to restructuring expense, $6 million related to the asbestos-related adjustments, and $8 million related to asset impairment expense, offset by increases to tax expense of $1 million and $6 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 $13 million related to final adjustments made to measurement period provisional estimates associated with the Tax Cuts and Jobs Act (the "Tax Act"), $22 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 million related to valuation allowance releases, $3 million related to tax reserve adjustments, and $30 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.

Net Sales

Net sales for the year ended December 31, 2019 totaled $10,168 million, a 3.4% decrease from the year ended December 31, 2018. Excluding the impact of weaker foreign currencies and the net impact of acquisitions and divestitures, net sales increased 0.7%.

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

	Year Ended December 31,	
(percentage of net sales)	2019	2018
Net sales	100.0 %	100.0 %
Cost of sales	79.3	78.8
Gross profit	20.7	21.2
Selling, general and administrative expenses	8.6	9.0
Other (income) expense, net	(0.7)	0.9
Operating income	12.8	11.3
Equity in affiliates’ earnings, net of tax	(0.3)	(0.5)
Interest income	(0.1)	(0.1)
Interest expense	0.5	0.6
Other postretirement expense (income)	0.3	(0.1)
Earnings before income taxes and noncontrolling interest	12.4	11.4
Provision for income taxes	4.6	2.0
Net earnings	7.8	9.4
Net earnings attributable to the noncontrolling interest, net of tax	0.5	0.5
Net earnings attributable to BorgWarner Inc.	7.3 %	8.9 %

Cost of sales as a percentage of net sales was 79.3% and 78.8% in the years ended December 31, 2019 and 2018, respectively. The Company's material cost of sales was approximately 55% of net sales in the years ended December 31, 2019 and 2018. Gross profit as a percentage of net sales was 20.7% and 21.2% in the years ended December 31, 2019 and 2018, respectively. The reduction of gross margin in 2019 compared to 2018 was primarily due to the impact of lower revenue, the increased cost from tariffs and supplier cost reductions not keeping pace with normal customer price deflation.

Selling, general and administrative expenses (“SG&A”) was $873 million and $946 million, or 8.6% and 9.0% of net sales for the years ended December 31, 2019 and 2018, respectively. The decrease in SG&A expenses was primarily due to stock-based compensation expense and cost control measures.

Research and development ("R&D") costs, net of customer reimbursements, were $413 million, or 4.1% of net sales, in the year ended December 31, 2019, compared to $440 million, or 4.2% of net sales, in the year ended December 31, 2018. The decrease of R&D costs, net of customer reimbursements, in the year ended December 31, 2019 compared with the year ended December 31, 2018 was primarily due to cost control measures and an increase in customer reimbursements. 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 in the range of 4% to 4.5% of net sales.

Other (income) expense, net was $(75) million and $94 million for the years ended December 31, 2019 and 2018, 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 $32 million and $49 million in the years ended December 31, 2019 and 2018, respectively. This line item is driven by the results of our 50%-owned Japanese joint venture, NSK-Warner KK, and our 32.6%-owned Indian joint venture, Turbo Energy Private Limited (“TEL”). The decrease in equity in affiliates' earnings in the year ended December 31, 2019 was due to lower industry volumes and cost pressures in a reduced market.

Interest expense and finance charges were $55 million and $59 million in the years ended December 31, 2019 and 2018, respectively. The decrease in interest expense for the year ended December 31, 2019 compared with the year ended December 31, 2018 was primarily due to lower debt levels.

Provision for income taxes the provision for income taxes resulted in an effective tax rate of 37% for the year ended December 31, 2019, compared with the rate of 17.7% for the year ended December 31, 2018. 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 37% for the year ended December 31, 2019 includes an increase in income tax expense of $173 million related to the derecognition of the Morse TEC asbestos-related deferred tax assets and $22 million due to the U.S. Department of the Treasury’s issuance of the final regulations in the first quarter of 2019 related to the calculation of the one-time transition tax. This rate also includes reductions of income tax expense of $19 million related to restructuring expense, $11 million for a global realignment plan, $8 million related to other one-time adjustments and $6 million related to pension settlement loss. Excluding the impact of these non-comparable items, the Company's annual effective tax rate associated with ongoing operations is 26% for the year ended December 31, 2019.

The effective tax rate of 17.7% for the year ended December 31, 2018 includes reductions of income tax expense of $15 million related to restructuring expense, $6 million related to the asbestos-related adjustments, and $8 million related to asset impairment expense, offset by increases to tax expense of $1 million and $6 million related to a gain on commercial settlement and a gain on the sale of a building, respectively, discussed in Note 4, "Other (Income) Expense, Net," to the Consolidated Financial Statements. The provision for income taxes also includes reductions of income tax expense of $13 million related to final adjustments made to measurement period provisional estimates associated with the Tax Act, $22 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 million related to valuation allowance releases, $3 million related to tax reserve adjustments, and $30 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%.

Net earnings attributable to the noncontrolling interest, net of tax of $51 million for the year ended December 31, 2019 decreased by $3 million compared to the year ended December 31, 2018. The decrease was due to lower industry volumes resulting in lower 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,	
(in millions)	2019	2018
Engine	$ 6,214	$ 6,447
Drivetrain	4,015	4,140
Inter-segment eliminations	(61)	(57)
Net sales	$ 10,168	$ 10,530

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

	Year Ended December 31,	
(in millions)	2019	2018
Engine	$ 995	$ 1,040
Drivetrain	443	475
Adjusted EBIT	1,438	1,515
Gain on derecognition of subsidiary	(177)	—
Restructuring expense	72	67
Unfavorable arbitration loss	14	—
Merger, acquisition and divestiture expense	11	6
Asset impairment and loss on divestiture	7	25
Officer stock awards modification	2	8
Asbestos-related adjustments	—	23
Gain on sale of building	—	(19)
Lease termination settlement	—	—
Other income	—	(4)
Corporate, including stock-based compensation	206	219
Equity in affiliates' earnings, net of tax	(32)	(49)
Interest income	(12)	(6)
Interest expense	55	59
Other postretirement expense (income)	27	(10)
Earnings before income taxes and noncontrolling interest	1,265	1,196
Provision for income taxes	468	211
Net earnings	797	985
Net earnings attributable to the noncontrolling interest, net of tax	51	54
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931

The **Engine** segment's net sales for the year ended December 31, 2019 decreased $233 million, or 3.6%, and segment Adjusted EBIT decreased $45 million, or 4.3%, from the year ended December 31, 2018. Excluding the impact of weakening foreign currencies, primarily the Euro, Chinese Renminbi, and Korean Won, and the net impact of acquisitions and divestitures, net sales increased 1.3% from the year ended December 31, 2018. The increase in sales was due to higher sales of light vehicle turbochargers and engine timing systems, which was partially offset by weaker commercial vehicle markets around the world. The segment Adjusted EBIT margin was 16.0% for the year ended December 31, 2019, compared to 16.1% in the year ended December 31, 2018.

The **Drivetrain** segment's net sales for the year ended December 31, 2019 decreased $125 million, or 3.0%, and segment Adjusted EBIT decreased $32 million, or 6.7%, from the year ended December 31, 2018. Excluding the impact of weakening foreign currencies, primarily the Euro, Chinese Renminbi, and Korean Won, net sales were flat from the year ended December 31, 2018. The segment Adjusted EBIT margin was 11.0% in the year ended December 31, 2019, compared to 11.5% in the year ended December 31, 2018. The Adjusted EBIT margin decrease was primarily due to startup costs for launches.

Corporate represents headquarters' expenses not directly attributable to the individual segments. This net expense was $206 million and $219 million for the years ended December 31, 2019 and 2018, respectively. The decrease in Corporate expenses in 2019 compared to 2018 is primarily due to lower costs associated with stock-based compensation and cost control initiatives.

Outlook

Our overall outlook for 2020 is cautious. Net new business-related sales growth, due to increased penetration of BorgWarner products around the world, is expected to be partially offset by declining global industry production expected in 2020. The Company expects flat to modestly declining revenue in 2020, excluding the impact of foreign currencies and the net impact of acquisitions and divestitures.

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 the Company's long-term growth are expected to continue, including the increased turbocharger adoption in North America and Asia, the increased adoption of automated transmissions in Asia-Pacific, and increased global penetration of all-wheel drive. The Company's 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, 2019, the Company had $832 million of cash and cash equivalents, of which $562 million of cash and cash equivalents was held by our subsidiaries outside of the United States. Cash and cash equivalents held by these subsidiaries is used to fund foreign operational activities and future investments, including acquisitions.

The vast majority of cash and cash equivalents 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 are generally no longer 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, acquisitions and divestitures 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 facility to be increased to $1.5 billion with bank approval. 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, 2019 and expects to remain compliant in future periods. At December 31, 2019 and December 31, 2018, 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 use the proceeds for general corporate purposes. The Company had no outstanding borrowings under this program as of December 31, 2019 and December 31, 2018.

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 subject to market conditions.

On February 6, 2019, April 25, 2019, July 25, 2019 and November 13, 2019, 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, 2019, June 17, 2019, September 16, 2019 and December 16, 2019.

From a credit quality perspective, the Company had a credit rating of BBB+ from both Standard & Poor's and Fitch Ratings and Baa1 from Moody's as of December 31, 2019 with a stable outlook from all rating agencies. On January 28, 2020, the Company entered into a definitive agreement to acquire Delphi Technologies. Due to uncertainties surrounding this anticipated transaction, Moody's adjusted their outlook to negative and Standard & Poor's placed the Company on CreditWatch with negative implications. The Company's current outlook from Fitch Ratings remained stable. None of the Company's debt agreements require accelerated repayment in the event of a downgrade in credit ratings.

Capitalization

Total equity increased by $499 million in the year ended December 31, 2019 as follows:

(in millions)		
Balance, January 1, 2019	$	4,345
Net earnings		797
Purchase of treasury stock		(100)
Stock-based compensation		27
Other comprehensive loss		(55)
Noncontrolling interest contributions		4
Dividends declared to BorgWarner stockholders		(140)
Dividends declared to noncontrolling stockholders		(34)
Balance, December 31, 2019	$	4,844

Operating Activities

Net cash provided by operating activities was $1,008 million and $1,126 million in the years ended December 31, 2019 and 2018, respectively. The decrease for the year ended December 31, 2019 compared with the year ended December 31, 2018 primarily reflected the cash outflow related to the derecognition of a subsidiary, partially offset by changes in working capital.

Investing Activities

Net cash used in investing activities was $489 million and $514 million in the years ended December 31, 2019 and 2018, respectively. The decrease in the year ended December 31, 2019 compared with the year ended December 31, 2018 was primarily due to lower capital expenditures, including tooling outlays in 2019. Year-over-year capital spending decrease of $65 million during the year ended December 31, 2019 was primarily due to timing of the investment activity in the Engine segment.

Financing Activities

Net cash used in financing activities was $420 million and $383 million in the years ended December 31, 2019 and 2018, respectively. The increase in the year ended December 31, 2019 compared with the year ended December 31, 2018 was primarily driven by higher debt repayments, partially offset by lower share repurchases.

The Company's significant contractual obligations at December 31, 2019 are as follows:

(in millions)	Total	2020	2021-2022	2023-2024	After 2024
Other postretirement employee benefits, excluding pensions (a)	$ 68	$ 10	$ 18	$ 15	$ 25
Defined benefit pension plans (b)	55	4	11	10	30
Notes payable and long-term debt	1,973	286	565	1	1,121
Projected interest payments	757	66	113	95	483
Non-cancelable operating leases	97	20	28	16	33
Capital spending obligations	102	102	—	—	—
Total	$ 3,052	$ 488	$ 735	$ 137	$ 1,692

(a) Other postretirement employee benefits, excluding pensions, include anticipated future payments to cover retiree medical and life insurance benefits. Amount contained in “After 2024” column includes estimated payments through 2029. 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 2024” column is for unfunded plans and includes estimated payments through 2029. 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.

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, 2019, all legal funding requirements had been met. The Company contributed $26 million, $26 million and $18 million to its defined benefit pension plans in the years ended December 31, 2019, 2018 and 2017, respectively. The Company expects to contribute a total of $10 million to $20 million into its defined benefit pension plans during 2020. Of the $10 million to $20 million in projected 2020 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 $212 million and $211 million at December 31, 2019 and 2018, respectively. Of these amounts, $107 million and $95 million at December 31, 2019 and 2018, 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 $81 million and $87 million at December 31, 2019 and 2018, 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 14 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.

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 Accounting Standards Codification ("ASC") Topic 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 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. 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.

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 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 or to refresh the fair values, 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. The Company estimates the fair value of indefinite-lived intangibles using the relief-from-royalty method, which it believes 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 2019, the Company performed an analysis on each reporting unit. Based on the factors above, the Company elected to perform quantitative, "step one," goodwill impairment analyses, on three reporting units. This 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, 2019 goodwill quantitative, "step one," impairment review are as follows:

- **Discount rate:** the Company used a 10.7% 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 2019 indicated the Company's goodwill assigned to the reporting units that were quantitatively assessed were not impaired and contained fair values substantially higher than the reporting units' carrying values. Additionally, for the reporting units quantitatively assessed, sensitivity analyses were completed indicating that a one percentage point increase in the discount rate, a one percentage point decrease in the operating margin, or a one percentage point 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,	
(in millions)	2019	2018
Net sales	$ 10,168	$ 10,530
Warranty provision	$ 72	$ 68
Warranty provision as a percentage of net sales	0.7%	0.6%

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,	
(in millions)	2019	2018
25 basis point decrease (income)/expense	$ (25)	$ (26)
25 basis point increase (income)/expense	$ 25	$ 26

At December 31, 2019, the total accrued warranty liability was $116 million. The accrual is represented as $63 million in current liabilities and $53 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, has been named as one of many defendants in asbestos-related personal injury actions. Morse TEC, a former wholly-owned subsidiary of the Company, was the obligor for the Company's recorded asbestos-related liabilities and the policyholder of the related insurance assets. On October 30, 2019, the Company transferred 100% of its equity interests to Enstar Holdings (US) LLC. In the fourth quarter of 2019, the Company derecognized Morse TEC and removed asbestos obligations, related insurance assets and associated deferred tax assets from the Consolidated Balance Sheet.

With the assistance of a third-party actuary, the Company estimated 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 was 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 was not discounted to present value. The Company believed that December 31, 2074 was a reasonable assumption as to the last date on which it was 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 assessed the sufficiency of its estimated liability for pending and future claims not yet asserted and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in claim resolution costs. In addition to claims experience, the Company considered additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company continued to have additional excess insurance coverage available for potential future asbestos-related claims. In connection with the Company’s 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 the Company's 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, 2019 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, 2019, the Company used long-term rates of return on plan assets ranging from 1.75% to 5.9% outside of the U.S. and 6.0% in the U.S.

  Actual returns on U.S. pension assets were 18.0% and -4.1% for the years ended December 31, 2019 and 2018, 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 9.5% and -3.1% for the years ended December 31, 2019 and 2018, respectively, compared to the expected rate of return assumption of 5% for the year ended December 31, 2019 and 6% for the year ended in 2018.

  Actual returns on German pension assets were 21.0% and -4.2% for the years ended December 31, 2019 and 2018, 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 (“OPEB”) obligations. 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 0.74% to 9.0% to determine its pension and other benefit obligations as of December 31, 2019, including weighted average discount rates of 3.17% in the U.S., 1.61% outside of the U.S., and 2.95% 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, 2019, the Company used health care cost trend rates of 6.25%, 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 2020 pre-tax pension expense:

(in millions)	Impact on U.S. 2020 pre-tax pension (expense)/income	Impact on Non-U.S. 2020 pre-tax pension (expense)/income
One percentage point decrease in discount rate	$ — *	$ (7)
One percentage point increase in discount rate	$ — *	$ 7
One percentage point decrease in expected return on assets	$ (2)	$ (5)
One percentage point increase in expected return on assets	$ 2	$ 5

* A one percentage point increase or decrease in the discount rate would have a negligible impact on the Company's U.S. 2020 pre-tax pension expense.

The sensitivity to a change in the discount rate assumption related to the Company's total 2020 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:

	One Percentage Point	
(in millions)	Increase	Decrease
Effect on other postretirement employee benefit obligation	$ 5	$ (5)
Effect on total service and interest cost components	$ —	$ —

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.

The Company generally records costs associated with voluntary separations at the time of employee acceptance. Costs for involuntary separation programs are recorded when management has approved the plan for separation, the employees are identified and aware of the benefits they are entitled to and it is unlikely that the plan will change significantly. When a plan of separation requires approval by or consultation with the relevant labor organization or government, the costs are recorded upon agreement. Costs associated with benefits that are contingent on the employee continuing to provide service are accrued over the required service period.

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.

Accounting for income taxes is complex, in part because the Company conducts business globally and therefore files income tax returns in numerous tax jurisdictions. Management judgment is required in determining the Company’s worldwide provision for income taxes and recording the related assets and liabilities, including accruals for unrecognized tax benefits. 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. The determination of accruals for unrecognized tax benefits includes the application of complex tax laws in a multitude of jurisdictions across the Company's global operations. Management judgment is required in determining the accruals for unrecognized tax benefits. In the ordinary course of the Company's business, there are many transactions and calculations where the ultimate tax determination is less than certain. Accruals for unrecognized tax benefits are established when, despite the belief that tax positions are supportable, there remain certain positions that do not meet the minimum probability threshold, which is a tax position that is more-likely-than-not to be sustained upon examination by the applicable taxing authority. The Company has certain U.S. state income tax returns and certain non-U.S. income tax returns which are currently under various stages of audit by applicable tax authorities. At December 31, 2019, the Company has a liability for 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 U.S. 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 the Tax 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, 2019, all of the Company's debt had fixed interest rates.

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 $41 million and $47 million as of December 31, 2019 and 2018, 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 has not and 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 2019. In addition, the Company periodically enters into forward currency contracts to reduce exposure to exchange rate risk related to transactions denominated in currencies other than the functional currency. As of December 31, 2018, the Company recorded a deferred gain of $2 million and a deferred loss of $2 million related to foreign currency derivatives. As of December 31, 2019, deferred gains and losses related to foreign currency derivatives were immaterial.

The foreign currency translation adjustment loss of $55 million and foreign currency translation adjustment loss of $148 million for the year ended December 31, 2019 and 2018, 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) and the related gains and losses arising from our net investment hedges. The 2019 foreign currency translation adjustment loss was primarily due to the impact of a strengthening U.S. dollar against the Euro, Chinese Renminbi and Swedish Krona, which which increased approximately 2%, 1% and 6% and increased other comprehensive loss by approximately $18 million, $17 million and $15 million, respectively. 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 $58 million and $48 million, respectively. In addition, the Company periodically enters into foreign currency contracts, cross-currency swaps, and foreign currency denominated debt designated as net investment hedges to reduce exposure to translational exchange rate risk. As of December 31, 2019 and 2018, the Company recorded a deferred gain of $4 million and a deferred loss of $14 million, respectively, for net investment hedges.

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, 2019 and 2018, the Company had outstanding commodity swap contracts with total notional values of $1 million and $2 million, respectively. The related fair value of these swaps were immaterial.

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

Index to Financial Statements and Supplementary Data	Page No.

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, 2019 and 2018, and the related consolidated statements of operations, of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2019, 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, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 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, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

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

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

Critical Audit Matters

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

Income Taxes - Worldwide Provision for Income Taxes

As described in Notes 1 and 5 to the consolidated financial statements, the Company has recorded income taxes from continuing operations of $468 million for the year ended December 31, 2019. Management judgment is required in determining the Company’s worldwide provision for income taxes and recording the related assets and liabilities, including accruals for unrecognized tax benefits. As disclosed by management, accounting for income taxes is complex, in part because the Company conducts business globally and therefore files income tax returns in numerous tax jurisdictions. The Company is subject to income taxes in the U.S. at the federal and state level and numerous non-U.S. jurisdictions. In the ordinary course of the Company’s business, there are many transactions and calculations where the ultimate tax determination is less than certain. Accruals for unrecognized tax benefits are established when, despite the belief that tax positions are supportable, there remain certain positions that do not meet the minimum probability threshold, which is a tax position that is more-likely-than-not to be sustained upon examination by the applicable taxing authority. The determination of accruals for unrecognized tax benefits includes the application of complex tax laws in a multitude of jurisdictions across the Company’s global operations.

The principal considerations for our determination that performing procedures relating to management’s worldwide provision for income taxes is a critical audit matter are there was significant judgment by management when developing the worldwide provision for income taxes, including the accruals for unrecognized tax benefits. This in turn led to a high degree of auditor judgment, subjectivity and effort in performing our audit procedures relating to management’s worldwide provision for income taxes. Also, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management’s worldwide provision for income taxes and accruals for unrecognized tax benefits. These procedures also included, among others, testing the accuracy of the worldwide provision for income taxes, including the rate reconciliation and permanent and temporary differences, evaluating the completeness of management’s identification of uncertain tax positions, and evaluating the reasonableness of management’s more-likely-than-not determination in consideration of the tax laws in relevant jurisdictions. Professionals with specialized skill and knowledge were used to assist in testing the accuracy of the worldwide provision for income taxes and evaluating the completeness of management’s identification of accruals for unrecognized tax benefits.

/s/ PricewaterhouseCoopers LLP
Detroit, Michigan
February 13, 2020

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, 2019	December 31, 2018
ASSETS		
Cash and cash equivalents	$ 832	$ 739
Receivables, net	1,921	1,988
Inventories, net	807	781
Prepayments and other current assets	276	250
Assets held for sale	—	47
Total current assets	3,836	3,805
Property, plant and equipment, net	2,925	2,904
Investments and other long-term receivables	318	592
Goodwill	1,842	1,853
Other intangible assets, net	402	439
Other non-current assets	379	502
Total assets	$ 9,702	$ 10,095
LIABILITIES AND EQUITY		
Notes payable and other short-term debt	$ 286	$ 173
Accounts payable and accrued expenses	1,977	2,144
Income taxes payable	66	59
Liabilities held for sale	—	23
Total current liabilities	2,329	2,399
Long-term debt	1,674	1,941
Other non-current liabilities:		
Asbestos-related liabilities	—	755
Retirement-related liabilities	306	298
Other	549	357
Total other non-current liabilities	855	1,410
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: (2019 - 246,387,057; 2018 - 246,387,057); outstanding shares: (2019 - 206,407,543; 2018 - 208,214,934)	3	3
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	1,146
Retained earnings	5,942	5,336
Accumulated other comprehensive loss	(727)	(674)
Common stock held in treasury, at cost: (2019 - 39,979,514 shares; 2018 - 38,172,123 shares)	(1,657)	(1,585)
Total BorgWarner Inc. stockholders' equity	4,706	4,226
Noncontrolling interest	138	119
Total equity	4,844	4,345
Total liabilities and equity	$ 9,702	$ 10,095

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

(in millions)	Year Ended December 31, 2019	2018	2017
Net sales	$ 10,168	$ 10,530	$ 9,799
Cost of sales	8,067	8,300	7,684
Gross profit	2,101	2,230	2,115
Selling, general and administrative expenses	873	946	899
Other (income) expense, net	(75)	94	144
Operating income	1,303	1,190	1,072
Equity in affiliates' earnings, net of tax	(32)	(49)	(51)
Interest income	(12)	(6)	(6)
Interest expense	55	59	71
Other postretirement expense (income)	27	(10)	(5)
Earnings before income taxes and noncontrolling interest	1,265	1,196	1,063
Provision for income taxes	468	211	580
Net earnings	797	985	483
Net earnings attributable to the noncontrolling interest, net of tax	51	54	43
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931	$ 440
Earnings per share — basic	$ 3.63	$ 4.47	$ 2.09
Earnings per share — diluted	$ 3.61	$ 4.44	$ 2.08
Weighted average shares outstanding:			
Basic	205.7	208.2	210.4
Diluted	206.8	209.5	211.5

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	Year Ended December 31,		
(in millions)	2019	2018	2017
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931	$ 440
Other comprehensive (loss) income			
Foreign currency translation adjustments	(55)	(148)	237
Hedge instruments*	—	2	(6)
Defined benefit postretirement plans*	4	(23)	—
Other*	(2)	(1)	1
Total other comprehensive (loss) income attributable to BorgWarner Inc.	(53)	(170)	232
Comprehensive income attributable to BorgWarner Inc.*	693	761	672
Net earnings attributable to noncontrolling interest, net of tax*	51	54	43
Other comprehensive (loss) income attributable to the noncontrolling interest*	(2)	(8)	11
Comprehensive income	$ 742	$ 807	$ 726

* Net of income taxes.

See Accompanying Notes to Consolidated Financial Statements.

BORGWARNER INC. AND CONSOLIDATED SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

(in millions)	Year Ended December 31, 2019	2018	2017
OPERATING			
Net earnings	$ 797	$ 985	$ 483
Adjustments to reconcile net earnings to net cash flows from operations:			
Non-cash charges (credits) to operations:			
Depreciation and amortization	439	431	408
Deferred income tax provision (benefit)	186	(57)	42
Stock-based compensation expense	42	53	52
Restructuring expense, net of cash paid	30	33	27
Pension settlement loss	27	—	—
Tax reform adjustments to provision for income taxes	16	(13)	274
Asset impairment and loss on divestiture	7	26	71
Gain on derecognition of subsidiary	(177)	—	—
Equity in affiliates' earnings, net of dividends received, and other	—	(12)	(32)
Net earnings adjusted for non-cash charges to operations	1,367	1,446	1,325
Derecognition of a subsidiary	(172)	—	—
Changes in assets and liabilities:			
Receivables	19	(43)	(168)
Inventories	(36)	(53)	(85)
Prepayments and other current assets	(18)	(19)	1
Accounts payable and accrued expenses	(123)	(76)	233
Prepaid taxes and income taxes payable	(8)	(85)	(43)
Other assets and liabilities	(21)	(44)	(83)
Net cash provided by operating activities	1,008	1,126	1,180
INVESTING			
Capital expenditures, including tooling outlays	(481)	(546)	(560)
Payments for investments in equity securities	(53)	(6)	(3)
Payments for businesses acquired, including restricted cash, net of cash acquired	(10)	—	(186)
Proceeds from sale of businesses, net of cash divested	24	—	—
Proceeds from (payments for) settlement of net investment hedges	22	2	(8)
Proceeds from asset disposals and other	9	36	5
Net cash used in investing activities	(489)	(514)	(752)
FINANCING			
Net decrease in notes payable	—	(34)	(88)
Additions to debt, net of debt issuance costs	63	59	3
Repayments of long term debt, including current portion	(204)	(66)	(20)
Payments for debt issuance cost	—	—	(2)
Payments for purchase of treasury stock	(100)	(150)	(100)
Payments for stock-based compensation items	(15)	(15)	(2)
Capital contribution from noncontrolling interest	4	—	—
Dividends paid to BorgWarner stockholders	(140)	(142)	(124)
Dividends paid to noncontrolling stockholders	(28)	(35)	(30)
Net cash used in financing activities	(420)	(383)	(363)
Effect of exchange rate changes on cash	(6)	(35)	36
Net increase in cash and cash equivalents	93	194	101
Cash and cash equivalents at beginning of year	739	545	444
Cash and cash equivalents at end of year	$ 832	$ 739	$ 545
SUPPLEMENTAL CASH FLOW INFORMATION			
Cash paid during the year for:			
Interest	$ 72	$ 84	$ 92
Income taxes, net of refunds	$ 243	$ 316	$ 280
Non-cash investing transactions			
Liabilities assumed from business acquired	$ —	$ —	$ 18

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, 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, 2017	246,387,057	(34,124,092)	$ 3	$ 1,104	$ (1,382)	$ 4,215	$ (722)	$ 84
Dividends declared ($0.59 per share) *	—	—	—	—	—	(124)	—	(29)
Stock incentive plans	—	473,419	—	(11)	19	—	—	—
Net issuance for executive stock plan	—	73,935	—	21	3	—	—	—
Net issuance of restricted stock	—	402,184	—	4	15	—	—	—
Purchase of treasury stock	—	(2,399,710)	—	—	(100)	—	—	—
Business divestiture	—	—	—	—	—	—	—	—
Net earnings	—	—	—	—	—	440	—	43
Other comprehensive loss	—	—	—	—	—	—	232	11
Balance, December 31, 2017	246,387,057	(35,574,264)	$ 3	$ 1,118	$ (1,445)	$ 4,531	$ (490)	$ 109
Adoption of accounting standards	—	—	—	—	—	16	(14)	—
Dividends declared ($0.68 per share) *	—	—	—	—	—	(142)	—	(36)
Net issuance for executive stock plan	—	154,642	—	18	4	—	—	—
Net issuance of restricted stock	—	284,946	—	10	6	—	—	—
Purchase of treasury stock	—	(3,037,447)	—	—	(150)	—	—	—
Business divestiture	—	—	—	—	—	—	—	—
Net earnings	—	—	—	—	—	931	—	54
Other comprehensive income	—	—	—	—	—	—	(170)	(8)
Balance, December 31, 2018	246,387,057	(38,172,123)	$ 3	$ 1,146	$ (1,585)	$ 5,336	$ (674)	$ 119
Dividends declared ($0.68 per share) *	—	—	—	—	—	(140)	—	(34)
Noncontrolling interest contributions	—	—	—	—	—	—	—	4
Net issuance for executive stock plan	—	199,135	—	—	7	—	—	—
Net issuance of restricted stock	—	571,996	—	(1)	21	—	—	—
Purchase of treasury stock	—	(2,578,522)	—	—	(100)	—	—	—
Net earnings	—	—	—	—	—	746	—	51
Other comprehensive loss	—	—	—	—	—	—	(53)	(2)
Balance, December 31, 2019	246,387,057	(39,979,514)	$ 3	$ 1,145	$ (1,657)	$ 5,942	$ (727)	$ 138

* The dividends declared relate to BorgWarner common stock.

See Accompanying 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. The Company has investments in two joint ventures of which it owns 32.6% and 50%, that are accounted for under the equity method as the Company does not have a controlling financial interest. Interests in privately-held companies that do not have readily determinable fair values are measured at cost less impairments, adjusted for observable price changes in orderly transactions for the identical or similar investment of the same issuer. There were no impairments or upward adjustments recorded during the years ended December 31, 2019, 2018 or 2017.

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 Accounting Standards Codification ("ASC") Topic 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.

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 and cash equivalents Cash and cash equivalents are 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 and cash equivalents. Cash and cash equivalents are 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 $193 million and $138 million at December 31, 2019 and 2018, respectively. Such inventories, if valued at current cost instead of LIFO, would have been greater by $15 million and $17 million at December 31, 2019 and 2018, respectively.

Refer to Note 6, "Balance Sheet Information," to the Consolidated Financial Statements 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 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 or to refresh the fair values, 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. The Company estimates the fair value of indefinite-lived intangibles using the relief-from-royalty method, which it believes 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, has been named as one of many defendants in asbestos-related personal injury actions. BorgWarner Morse TEC LLC ("Morse TEC"), a former wholly-owned subsidiary of the Company, was the obligor for the Company's recorded asbestos-related liabilities and the policyholder of the related insurance assets. On October 30, 2019, the

Company transferred 100% of its equity interests to Enstar Holdings (US) LLC (“Enstar”). In the fourth quarter of 2019, the Company derecognized Morse TEC and removed asbestos obligations, related insurance assets and associated deferred tax assets from the Consolidated Balance Sheet.

With the assistance of a third-party actuary, the Company estimated 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 was 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 was not discounted to present value. The Company believed that December 31, 2074 was a reasonable assumption as to the last date on which it was 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 assessed the sufficiency of its estimated liability for pending and future claims not yet asserted and defense costs by evaluating actual experience regarding claims filed, settled and dismissed, and amounts paid in claim resolution costs. In addition to claims experience, the Company considered additional quantitative and qualitative factors such as changes in legislation, the legal environment, and the Company's defense strategy. The Company continued to have additional excess insurance coverage available for potential future asbestos-related claims. In connection with the Company’s 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 the Company's 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 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. Hedge instruments are generally reported gross, with no right to offset, on the Consolidated Balance Sheets 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 Loss," 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.

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.

The Company generally records costs associated with voluntary separations at the time of employee acceptance. Costs for involuntary separation programs are recorded when management has approved the plan for separation, the employees are identified and aware of the benefits they are entitled to and it is unlikely that the plan will change significantly. When a plan of separation requires approval by or consultation with the relevant labor organization or government, the costs are recorded upon agreement. Costs associated with benefits that are contingent on the employee continuing to provide service are accrued over the required service period.

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. Accounting for income taxes is complex, in part because the Company conducts business globally and therefore files income tax returns in numerous tax jurisdictions. Management judgment is required in determining the Company’s worldwide provision for income taxes and recording the related assets and liabilities, including accruals for unrecognized tax benefits.

The determination of accruals for unrecognized tax benefits includes the application of complex tax laws in a multitude of jurisdictions across the Company's global operations. Management judgment is required in determining the gross unrecognized tax benefits related liabilities. In the ordinary course of the Company's business, there are many transactions and calculations where the ultimate tax determination is less than certain. Accruals for unrecognized tax benefits are established when, despite the belief that tax positions are supportable, there remain certain positions that do not meet the minimum probability threshold, which is a tax position that is more-likely-than-not to be sustained upon examination by the applicable taxing authority.

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

New Accounting Pronouncements

Recently Adopted Accounting Standards

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, "Leases (Topic 842)." Under this guidance, a lease is a contract, or part of a contract, that conveys the right to control the use of an identified asset for a period of time in exchange for consideration. Lessees are required to recognize a right-of-use asset and a lease liability for leases with a term of more than 12 months, including operating leases defined under previous GAAP. This guidance was effective for interim and annual reporting periods beginning after December 15, 2018.

The Company adopted ASC Topic 842 as of January 1, 2019, using the optional transition method provided in ASU No. 2018-11, "Leases (Topic 842): Targeted Improvements." Under this method, the Company recorded an adjustment as of the effective date and did not include any retrospective adjustments to comparative periods to reflect the adoption of ASC Topic 842. In addition, the Company elected the package of practical expedients permitted under the transition guidance within ASC Topic 842, which among other things, 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 Topic 840. The Company also elected the practical expedients to combine the lease and non-lease components. The Company did not elect the practical expedient to apply hindsight as part of the leases evaluation. Additionally, the Company elected the practical expedient under ASU No. 2018-01, "Leases (Topic 842): Land Easement Practical Expedient for Transition to Topic 842", which allows an entity to not reassess whether any existing land easements are or contain leases.

The Company's lease agreements primarily consist of real estate property, such as manufacturing facilities, warehouses, and office buildings, in addition to personal property, such as vehicles, manufacturing and information technology equipment. The Company determines whether a contract is or contains a lease at contract inception. The majority of the Company's lease arrangements are comprised of fixed payments and a limited number of these arrangements include a variable payment component based on certain index fluctuations.

Adoption of ASC Topic 842 resulted in the recording of lease right-of-use assets ("lease assets") and lease liabilities of approximately $104 million and $103 million, respectively, as of January 1, 2019. The adoption did not impact consolidated net earnings and had no impact on cash flows. Refer to Note 17, "Leases and Commitments," to the Consolidated Financial Statements for more information.

Accounting Standards Not Yet Adopted

In December 2019, the FASB issued ASU No. 2019-12, "*Income Taxes (Topic 740) - Simplifying the Accounting for Income Taxes.*" The amendments in the standard remove certain exceptions to the general principles in Topic 740 and improve consistent application of and simplify GAAP for other areas of Topic 740 by clarifying and amending existing guidance. This guidance is effective for interim and annual reporting periods beginning after December 15, 2020. The Company is currently evaluating the impact of this guidance on its consolidated financial statements.

In August 2018, the FASB issued 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 and early adoption is permitted. The Company does not expect this guidance to have a material impact on its consolidated financial statements.

In August 2018, the FASB issued 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 does not expect this guidance to have a material impact on its consolidated financial statements 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 does not expect this guidance to have a material impact on its consolidated financial statements.

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 does not expect this guidance to have a material impact on its consolidated financial statements.

NOTE 2 REVENUE FROM CONTRACTS WITH CUSTOMERS

The Company manufactures and sells products, primarily to OEMs of light vehicles, and to a lesser extent, to other OEMs of commercial vehicles and off-highway vehicles, to 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 Topic 606, *"Revenue from Contracts with Customers"*, 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 $10 million and $11 million at December 31, 2019 and December 31, 2018, respectively, for these arrangements. These amounts are reflected in Prepayments and other current assets in the Company's Consolidated Balance Sheets.

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 $2 million and $6 million at December 31, 2019 and December 31, 2018. These amounts are reflected in Accounts payable and accrued expenses in the Company's Consolidated Balance Sheets.

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 Topic 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 in Accounts payable and accrued expenses and Other non-current liabilities in the Company's Consolidated Balance Sheets and were $10 million and $12 million at December 31, 2019 and $13 million and $17 million at December 31, 2018, 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 $37 million and $29 million recorded in Prepayments and other current assets, and $180 million and $187 million recorded in Other non-current assets in the Consolidated Balance Sheets at December 31, 2019 and December 31, 2018.

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

	Year Ended December 31, 2019		
(In millions)	Engine	Drivetrain	Total
North America	$ 1,584	$ 1,791	$ 3,375
Europe	2,980	830	3,810
Asia	1,468	1,365	2,833
Other	121	29	150
Total	$ 6,153	$ 4,015	$ 10,168

	Year Ended December 31, 2018		
(In millions)	Engine	Drivetrain	Total
North America	$ 1,573	$ 1,799	$ 3,372
Europe	3,074	948	4,022
Asia	1,621	1,362	2,983
Other	122	31	153
Total	$ 6,390	$ 4,140	$ 10,530

	Year Ended December 31, 2017		
(In millions)	Engine	Drivetrain	Total
North America	$ 1,509	$ 1,691	$ 3,200
Europe	2,783	952	3,735
Asia	1,615	1,116	2,731
Other	102	31	133
Total	$ 6,009	$ 3,790	$ 9,799

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,		
(in millions)	2019	2018	2017
Gross R&D expenditures	$ 498	$ 512	$ 473
Customer reimbursements	(85)	(72)	(65)
Net R&D expenditures	$ 413	$ 440	$ 408

Net R&D expenditures as a percentage of net sales were 4.1%, 4.2% and 4.2% for the years ended December 31, 2019, 2018 and 2017, respectively. The Company has contracts with several customers at the Company's various R&D locations. None of the Company's R&D-related customer reimbursements under these contracts exceeded 5% of net R&D expenditures in any of the periods presented.

NOTE 4 OTHER (INCOME) EXPENSE, NET

Items included in Other (income) expense, net consist of:

	Year Ended December 31,		
(in millions)	2019	2018	2017
Gain on derecognition of subsidiary	$ (177)	$ —	$ —
Restructuring expense	72	67	58
Unfavorable arbitration loss	14	—	—
Merger, acquisition and divestiture expense	11	6	10
Asset impairment and loss on divestiture	7	25	71
Asbestos-related adjustments	—	23	—
Gain on sale of building	—	(19)	—
Gain on commercial settlement	—	(4)	—
Lease termination settlement	—	—	5
Other income	(2)	(4)	—
Other (income) expense, net	$ (75)	$ 94	$ 144

On October 30, 2019, the Company entered into a definitive agreement with Enstar, a subsidiary of Enstar Group Limited, pursuant to which Enstar acquired 100% of the equity interests of Morse TEC, a consolidated wholly-owned subsidiary of the Company that holds asbestos and certain other liabilities. In connection with the closing, the Company recorded a pre-tax gain of $177 million. Refer to Note 19 “Recent Transactions,” to the Consolidated Financial Statements for more information.

During the year ended December 31, 2019 the Company recorded $72 million of restructuring expense, primarily related to actions to reduce structural costs. During the years ended December 31, 2018 and 2017, the Company recorded restructuring expense of $67 million and $58 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.

During the year ended December 31, 2019, the Company recorded $14 million of expense related to the receipt of a final unfavorable arbitration decision associated with the resolution of a matter related to a previous acquisition.

During the years ended December 31, 2019, 2018 and 2017, the Company recorded $11 million, $6 million and $10 million of merger, acquisition and divestiture expenses. The merger, acquisition and divestiture expense in the year ended December 31, 2019 was primarily professional fees, related to the Company's review of strategic acquisition and divestiture targets, including the transfer of Morse TEC, the anticipated acquisition of Delphi Technologies PLC, and the 20% equity interest in Romeo Systems, Inc. and the divestiture activities for the non-core pipes and thermostat product lines. 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 pipes 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 year ended December 31, 2017 primarily related to the acquisition of Sevcon. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements for more information.

In the third quarter of 2017, the Company started exploring strategic options for non-core emission product lines. In the fourth quarter of 2017, the Company launched an active program to locate a buyer for these non-core pipes and thermostat product lines and initiated all other actions required to complete the plan to sell these 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 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. As a result, the Company recorded an additional asset impairment expense of $25 million in the year ended December 31, 2018 to adjust the net book value of this business to fair value less costs to sell. All closing conditions were satisfied, and the sale was closed on April 1, 2019. Based on the agreement reached in the fourth quarter of 2019 regarding the finalization of the purchase price adjustments related to the sale of the thermostat product lines, the Company determined that $7 million of additional loss on sale was required during the year ended December 31, 2019.

During the year ended December 31, 2018, the Company recorded asbestos-related adjustments resulting in an increase to Other (income) expense, net, of $23 million. This increase was the result of actuarial valuation changes of $23 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 for more information.

During the fourth quarter of 2018, the Company recorded a gain of $19 million related to the sale of a building at a manufacturing facility located in Europe.

During the year ended December 31, 2018, the Company recorded a gain of approximately $4 million related to the settlement of a commercial contract for an entity acquired in the 2015 Remy acquisition.

During the first quarter of 2017, the Company recorded a loss of $5 million related to the termination of a long-term property lease for a manufacturing facility located in Europe.

NOTE 5 INCOME TAXES

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

	Year Ended December 31,		
(in millions)	2019	2018	2017
Earnings before income taxes:			
U.S.	$ 310	$ 220	$ 203
Non-U.S.	955	976	860
Total	$ 1,265	$ 1,196	$ 1,063
Provision for income taxes:			
Current:			
Federal	$ 32	$ 17	$ 36
State	4	5	5
Foreign	245	259	247
Total current	281	281	288
Deferred:			
Federal	150	(40)	324
State	23	(8)	2
Foreign	14	(22)	(34)
Total deferred	187	(70)	292
Total provision for income taxes	$ 468	$ 211	$ 580

The provision for income taxes resulted in an effective tax rate of 37%, 17.7% and 54.7% for the years ended December 31, 2019, 2018 and 2017, respectively. An analysis of the differences between the effective tax rate and the U.S. statutory rate for the years ended December 31, 2019, 2018 and 2017 is presented below.

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 (“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, the Company had not completed its accounting for the tax effects of the Tax Act and had recorded provisional estimates for significant items including the following: (i) the effects on existing deferred balances, including executive compensation, (ii) the one-time transition tax, and (iii) its indefinite reinvestment assertion. In light of the treatment of foreign earnings under the Tax Act, the Company reconsidered its indefinite reinvestment position and concluded it would no longer assert indefinite reinvestment with respect to the Company's foreign unremitted earnings as of December 31, 2017. The Company recognized income tax expense of $274 million for the year ended December 31, 2017 for the significant items it could reasonably estimate associated with the Tax Act. This amount was comprised of (i) a revaluation of U.S. deferred tax assets and liabilities at December 31, 2017, resulting in a tax charge of $75 million, including $11 million for executive compensation (ii) a one-time transition tax resulting in a tax charge of $105 million and (iii) a tax charge of $94 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 $13 million, including $9 million for executive compensation (ii) a tax charge of $8 million for the one-time transition tax, and (iii) a decrease in the deferred tax liability associated with its indefinite reinvestment assertion of $7 million. The total impact to tax expense from these adjustments was a net tax benefit of $13 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.

In 2018, the Company 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.

As discussed above, in light of the treatment of foreign earnings under the Tax Act, the Company reconsidered its indefinite reinvestment position with respect to its foreign unremitted earnings in 2017, and the Company is no longer asserting indefinite reinvestment with respect to its foreign unremitted earnings. The Company recorded a deferred tax liability of $56 million with respect to its foreign unremitted earnings at December 31, 2019. With respect to certain book versus tax basis differences not represented by undistributed earnings of approximately $400 million as of December 31, 2019, the Company continues to assert indefinite reinvestment of these basis differences. These basis differences would become taxable upon the sale or liquidation of the foreign subsidiaries. The Company's best estimate of the unrecognized deferred tax liability on these basis differences is approximately $20 million as of December 31, 2019.

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,		
(in millions)	2019	2018	2017
Income taxes at U.S. statutory rate of 21% for 2019 and 2018 (35% for 2017)	$ 266	$ 251	$ 372
Increases (decreases) resulting from:			
Impact of transactions	124	(1)	4
Reserve adjustments, settlements and claims	46	32	8
Foreign rate differentials	35	28	(100)
Net tax on remittance of foreign earnings	22	(22)	80
U.S. tax on non-U.S. earnings	15	37	171
Other foreign taxes	10	8	8
State taxes, net of federal benefit	3	6	2
Non-deductible transaction costs	3	3	11
Impact of foreign derived intangible income	(1)	(15)	—
Valuation allowance adjustments	(2)	(11)	12
Affiliates' earnings	(7)	(10)	(18)
Changes in accounting methods and filing positions	(7)	(30)	(2)
Tax credits	(17)	(26)	(24)
Tax holidays	(26)	(28)	(31)
Revaluation of U.S. deferred taxes	—	(4)	64
Other	4	(7)	23
Provision for income taxes, as reported	$ 468	$ 211	$ 580

The change in the effective tax rate for 2019, as compared to 2018, was primarily due to the derecognition of Morse TEC and items related to the Tax Act. The derecognition of Morse TEC resulted in an increase in income tax expense of $173 million for the reversal of the asbestos-related deferred tax assets. This amount is offset in the rate reconciliation above by a benefit of $37 million representing the impact of the nontaxable pre-tax gain of $177 million.The items related to the Tax Act include an increase in tax expense of $22 million due to the U.S. Department of the Treasury’s issuance of the final regulations in the first quarter of 2019 related to the calculation of the one-time transition tax. Additionally, the Company recorded a tax expense of $22 million on net remittance of foreign earnings in 2019 compared to a tax benefit recorded in 2018. The tax benefit in 2018 is related to the refinement in the Company’s change in the indefinite reinvestment assertion.

The Company's provision for income taxes for the year ended December 31, 2019 includes an increase in income tax expense for the items mentioned above. In addition, the provision for income taxes also includes reductions of income tax expense of $19 million related to restructuring and merger, acquisition and divestiture expense, $11 million for a global realignment plan, $8 million related to other one-time adjustments and $6 million related to pension settlement loss.

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 $29 million, net of foreign tax credits and a tax benefit for FDII of $15 million that was not applicable in 2017. The one-time transition tax that resulted in a tax charge of $105 million in 2017 was not applicable in 2018. There was also a tax charge of $75 million related to a revaluation of U.S. deferred tax assets and liabilities, including $11 million for executive compensation in 2017 and the initial tax charge of $94 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 million related to restructuring expense, $6 million related to the asbestos-related adjustments, and $8 million related to asset impairment expense, offset by increases to tax expense of $1 million and $6 million related to a gain on commercial settlement and a gain on the sale of a building, respectively, discussed in Note 4, "Other (Income) Expense, Net," to the Consolidated Financial Statements. The provision for income taxes also includes reductions of income tax expense of $13 million related to final adjustments made to measurement period provisional estimates associated with the Tax Act, $22 million related to a decrease in the Company's 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 million related to valuation allowance releases, $3 million related to tax reserve adjustments, and $30 million related to changes in accounting methods and tax filing positions for prior years primarily related to the Tax Act.

The Company's provision for income taxes for the year ended December 31, 2017 includes reductions of income tax expense of $10 million, $1 million, $18 million and $4 million related to the restructuring expense, merger and acquisition expense, asset impairment expense and other one-time adjustments, respectively, discussed in Note 4, "Other (Income) Expense, Net," to the Consolidated Financial Statements.

A roll forward of the Company's total gross unrecognized tax benefits for the years ended December 31, 2019 and 2018, respectively, is presented below:

(in millions)	2019	2018	2017
Balance, January 1	$ 120	$ 92	$ 91
Additions based on tax positions related to current year	7	24	17
Additions/(reductions) for tax positions of prior years	26	18	(2)
Reductions for closure of tax audits and settlements	—	(8)	(20)
Reductions for lapse in statute of limitations	(6)	—	(1)
Translation adjustment	(1)	(6)	7
Balance, December 31	$ 146	$ 120	$ 92

The Company recognizes interest and penalties related to unrecognized tax benefits in income tax expense. The amounts recognized in income tax expense for 2019 and 2018 are $15 million and $10 million, respectively. The Company has an accrual of approximately $46 million and $32 million for the payment of interest and penalties at December 31, 2019 and 2018, respectively. As of December 31, 2019, approximately $144 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 that would occur upon recognition of the state tax benefits and U.S. foreign tax credits included therein. The Company estimates that approximately $5 million will be released in the next 12 months for the closure of an audit and the lapse in statute of limitations subsequent to the reporting period from certain taxing jurisdictions.

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	2018 and prior
China	2012 and prior	Mexico	2013 and prior
France	2015 and prior	Poland	2013 and prior
Germany	2011 and prior	South Korea	2013 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.

The components of deferred tax assets and liabilities as of December 31, 2019 and 2018 consist of the following:

(in millions)	December 31, 2019	December 31, 2018
Deferred tax assets:		
Research and development capitalization	$ 74	$ 92
Net operating loss and capital loss carryforwards	70	84
Other comprehensive loss	53	64
Unrecognized tax benefits	49	41
Employee compensation	32	24
Pension and other postretirement benefits	25	19
State tax credits	21	20
Warranty	15	14
Foreign tax credits	13	—
Asbestos-related	—	172
Other	67	80
Total deferred tax assets	$ 419	$ 610
Valuation allowance	(71)	(86)
Net deferred tax asset	$ 348	$ 524
Deferred tax liabilities:		
Goodwill and intangible assets	(174)	(183)
Fixed assets	(144)	(118)
Unremitted foreign earnings	(56)	(57)
Other	(20)	(19)
Total deferred tax liabilities	$ (394)	$ (377)
Net deferred taxes	$ (46)	$ 147

At December 31, 2019, certain non-U.S. subsidiaries have net operating loss carryforwards totaling $212 million available to offset future taxable income. Of the total $212 million, $147 million expire at various dates from 2020 through 2039 and the remaining $65 million have no expiration date. The Company has a valuation allowance recorded against $134 million of the $212 million of non-U.S. net operating loss carryforwards. The Company has a U.S. foreign tax credit carryover of $13 million, which is partially offset by a valuation allowance of $2 million. Certain U.S. subsidiaries have state net operating loss carryforwards totaling $571 million, which are largely offset by a valuation allowance of $504 million. The state net operating loss carryforwards expire at various dates from 2020 to 2039. Certain U.S. subsidiaries also have state tax credit carryforwards of $21 million which are partially offset by a valuation allowance of $19 million. Certain non-U.S. subsidiaries located in China had tax exemptions or tax holidays, which reduced local tax expense approximately $26 million and $28 million in 2019 and 2018, respectively. The tax holidays for these subsidiaries are issued in three-year terms with expirations for certain subsidiaries ranging from 2019 to 2021.

NOTE 6 BALANCE SHEET INFORMATION

Detailed balance sheet data is as follows:

	December 31,	
(in millions)	2019	2018
Receivables, net:		
Customers	$ 1,713	$ 1,728
Indirect taxes	106	114
Other	108	153
Gross receivables	1,927	1,995
Bad debt allowance (a)	(6)	(7)
Total receivables, net	$ 1,921	$ 1,988
Inventories, net:		
Raw material and supplies	$ 502	$ 485
Work in progress	113	114
Finished goods	207	199
FIFO inventories	822	798
LIFO reserve	(15)	(17)
Total inventories, net	$ 807	$ 781
Prepayments and other current assets:		
Prepaid taxes	$ 95	$ 84
Prepaid tooling	83	83
Other	98	83
Total prepayments and other current assets	$ 276	$ 250
Property, plant and equipment, net:		
Land and land use rights	$ 105	$ 108
Buildings	755	763
Machinery and equipment	2,971	2,851
Capital leases	1	3
Construction in progress	360	426
Property, plant and equipment, gross	4,192	4,151
Accumulated depreciation	(1,513)	(1,474)
Property, plant and equipment, net, excluding tooling	2,679	2,677
Tooling, net of amortization	246	227
Property, plant and equipment, net	$ 2,925	$ 2,904
Investments and other long-term receivables:		
Investment in equity affiliates	$ 256	$ 244
Cost method investments	60	8
Other long-term asbestos-related insurance receivables*	—	303
Other long-term receivables*	2	37
Total investments and other long-term receivables	$ 318	$ 592
Other non-current assets:		
Operating leases	$ 85	$ —
Deferred income taxes*	79	198
Deferred asbestos-related insurance asset*	—	83
Other	215	221
Total other non-current assets	$ 379	$ 502

(in millions)	December 31, 2019	December 31, 2018
Accounts payable and accrued expenses:		
Trade payables	$ 1,325	$ 1,485
Payroll and employee related	233	233
Customer related	71	49
Product warranties	63	56
Indirect taxes	61	73
Severance	34	25
Operating leases	18	—
Interest	18	19
Insurance	17	12
Retirement related	15	16
Dividends payable to noncontrolling shareholders	14	17
Asbestos-related*	—	50
Other	108	109
Total accounts payable and accrued expenses	$ 1,977	$ 2,144
Other non-current liabilities:		
Deferred income taxes	$ 125	$ 51
Operating leases	67	—
Product warranties	53	47
Deferred revenue	49	51
Other	255	208
Total other non-current liabilities	$ 549	$ 357

* Relates to the derecognition of Morse TEC, refer to Note 19, "Recent Transactions" to the Consolidated Financial Statements for more information.

(a) Bad debt allowance:	2019	2018	2017
Beginning balance, January 1	$ (7)	$ (6)	$ (3)
Provision	(1)	(5)	(3)
Write-offs	2	4	—
Ending balance, December 31	$ (6)	$ (7)	$ (6)

As of December 31, 2019 and December 31, 2018, accounts payable of $102 million and $104 million, respectively, were related to property, plant and equipment purchases.

Interest costs capitalized for the years ended December 31, 2019, 2018 and 2017 were $16 million, $22 million and $20 million, 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 or to refresh the fair values, 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 2019, the Company performed an analysis on each reporting unit. Based on the factors above, the Company elected to perform quantitative, "step one," goodwill impairment analyses, on three reporting units. This 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, 2019 goodwill quantitative, "step one," impairment review are as follows:

- **Discount rate:** the Company used a 10.7% 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 2019 indicated the Company's goodwill assigned to the reporting units that were quantitatively assessed were not impaired and contained fair values substantially higher than the reporting units' carrying values. Additionally, for the reporting units quantitatively assessed, sensitivity analyses were completed indicating that a one percentage point increase in the discount rate, a one percentage point decrease in the operating margin, or a one percentage point 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, 2019 and 2018 are as follows:

(in millions)	2019 Engine	2019 Drivetrain	2018 Engine	2018 Drivetrain
Gross goodwill balance, January 1	$ 1,343	$ 1,012	$ 1,360	$ 1,024
Accumulated impairment losses, January 1	(502)	—	(502)	—
Net goodwill balance, January 1	$ 841	$ 1,012	$ 858	$ 1,024
Goodwill during the year:				
Acquisitions*	—	7	—	2
Translation adjustment and other	(6)	(12)	(17)	(14)
Ending balance, December 31	$ 835	$ 1,007	$ 841	$ 1,012

* Acquisitions relate to the Company's 2019 purchase of Rinehart Motion Systems LLC and AM Racing LLC and the 2017 purchase of Sevcon.

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

	December 31, 2019			December 31, 2018		
(in millions)	Gross carrying amount	Accumulated amortization	Net carrying amount	Gross carrying amount	Accumulated amortization	Net carrying amount
Amortized intangible assets:						
Patented and unpatented technology	$ 154	$ 70	$ 84	$ 152	$ 61	$ 91
Customer relationships	481	224	257	490	201	289
Miscellaneous	10	4	6	8	4	4
Total amortized intangible assets	645	298	347	650	266	384
Unamortized trade names	55	—	55	55	—	55
Total other intangible assets	$ 700	$ 298	$ 402	$ 705	$ 266	$ 439

Amortization of other intangible assets was $39 million, $40 million and $40 million for the years ended December 31, 2019, 2018 and 2017, respectively. The estimated useful lives of the Company's amortized intangible assets range from 3 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: $39 million in 2020, $38 million in 2021, $37 million in 2022, $31 million in 2023, and $31 million in 2024.

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

(in millions)	2019	2018
Beginning balance, January 1	$ 705	$ 730
Acquisitions*	5	—
Translation adjustment	(10)	(25)
Ending balance, December 31	$ 700	$ 705

* Acquisitions relate to the Company's 2019 purchase of Rinehart Motion Systems LLC and AM Racing LLC and the 2017 purchase of Sevcon.

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

(in millions)	2019	2018
Beginning balance, January 1	$ 266	$ 237
Amortization	39	40
Translation adjustment	(7)	(11)
Ending balance, December 31	$ 298	$ 266

NOTE 8 PRODUCT WARRANTY

The changes in the carrying amount of the Company’s total product warranty liability for the years ended December 31, 2019 and 2018 were as follows:

(in millions)	2019	2018
Beginning balance, January 1	$ 103	$ 112
Provisions for current period sales	63	56
Adjustments of prior estimates	9	12
Payments	(57)	(73)
Translation adjustment	(2)	(4)
Ending balance, December 31	$ 116	$ 103

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

	December 31,	
(in millions)	2019	2018
Accounts payable and accrued expenses	$ 63	$ 56
Other non-current liabilities	53	47
Total product warranty liability	$ 116	$ 103

NOTE 9 NOTES PAYABLE AND LONG-TERM DEBT

As of December 31, 2019 and 2018, the Company had short-term and long-term debt outstanding as follows:

	December 31,	
(in millions)	2019	2018
Short-term debt		
Short-term borrowings	$ 34	$ 33
Long-term debt		
8.00% Senior notes due 10/01/19 ($134 million par value)	—	135
4.625% Senior notes due 09/15/20 ($250 million par value)	251	251
1.80% Senior notes due 11/7/22 (€500 million par value)	558	570
3.375% Senior notes due 03/15/25 ($500 million par value)	497	497
7.125% Senior notes due 02/15/29 ($121 million par value)	119	119
4.375% Senior notes due 03/15/45 ($500 million par value)	494	494
Term loan facilities and other	7	15
Total long-term debt	$ 1,926	$ 2,081
Less: current portion	252	140
Long-term debt, net of current portion	$ 1,674	$ 1,941

In July 2016, the Company terminated interest rate swaps which had the effect of converting $384 million of fixed rate notes to variable rates. The gain on the termination was recorded as an increase to the notes and is being amortized as a reduction to interest expense over the remaining terms of the notes. The unamortized gain related to these swap terminations was $1 million and $2 million as of December 31, 2019 and December 31, 2018, respectively, on the 4.625% notes.

The Company may utilize uncommitted lines of credit for short-term working capital requirements. As of December 31, 2019 and 2018, the Company had $34 million and $33 million, respectively, in borrowings under these facilities, which are reported in Notes payable and short-term debt on the Consolidated Balance Sheets.

The weighted average interest rate on short-term borrowings outstanding as of December 31, 2019 and 2018 was 2.5% and 4.3%, respectively. The weighted average interest rate on all borrowings outstanding, including the effects of outstanding swaps, as of December 31, 2019 and 2018 was 2.8% and 3.4%, respectively.

Annual principal payments required as of December 31, 2019 are as follows:

(in millions)	
2020	$ 286
2021	3
2022	562
2023	1
2024	—
After 2024	1,121
Total payments	$ 1,973
Less: unamortized discounts	13
Total	$ 1,960

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 facility to be increased to $1.5 billion with bank approval. 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, 2019. At December 31, 2019 and December 31, 2018, 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 use the proceeds for general corporate purposes. The Company had no outstanding borrowings under this program as of December 31, 2019 and December 31, 2018.

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, 2019 and 2018, the estimated fair values of the Company's senior unsecured notes totaled $2,025 million and $2,058 million, respectively. The estimated fair values were $106 million higher than carrying value at December 31, 2019 and $8 million less than their carrying value at December 31, 2018. 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 approximate 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 $28 million and $43 million at December 31, 2019 and 2018, 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).

The following tables classify assets and liabilities measured at fair value on a recurring basis as of December 31, 2019 and 2018:

		Basis of fair value measurements			
(in millions)	Balance at December 31, 2019	Quoted prices in active markets for identical items (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Valuation technique
Assets:					
Net investment hedge contracts	$ 3	$ —	$ 3	$ —	A
Liabilities:					
Foreign currency contracts	$ 1	$ —	$ 1	$ —	A
Net investment hedge contracts	$ 8	$ —	$ 8	$ —	A

		Basis of fair value measurements			
(in millions)	Balance at December 31, 2018	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	$ —	$ 3	$ —	A
Other long-term receivables (insurance settlement agreement note receivable)	$ 34	$ —	$ 34	$ —	C
Net investment hedge contracts	$ 12	$ —	$ 12	$ —	A
Liabilities:					
Foreign currency contracts	$ 2	$ —	$ 2	$ —	A

The following tables classify the Company's defined benefit plan assets measured at fair value on a recurring basis as of December 31, 2019 and 2018:

		Basis of fair value measurements				
(in millions)	Balance at December 31, 2019	Quoted prices in active markets for identical items (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3) (a)	Valuation technique	Assets measured at NAV (b)
U.S. Plans:						
Fixed income securities	$ 88	$ —	$ —	$ —	—	88
Equity securities	59	8	—	—	A	51
Real estate and other	29	15	—	—	A	14
	$ 176	$ 23	$ —	$ —		$ 153
Non-U.S. Plans:						
Fixed income securities	$ 168	$ —	$ —	$ —	—	168
Equity securities	185	111	—	—	A	74
Insurance contract and other	152	—	—	110	C	42
	$ 505	$ 111	$ —	$ 110		$ 284

(in millions)	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 measured at NAV (b)
U.S. Plans:						
Fixed income securities	$ 122	$ 1	$ —	$ —	A	121
Equity securities	71	11	—	—	A	60
Real estate and other	23	18	—	—	A	5
	$ 216	$ 30	$ —	$ —		$ 186
Non-U.S. Plans:						
Fixed income securities	$ 239	$ —	$ —	$ —	—	239
Equity securities	163	93	—	—	A	70
Other	36	—	—	—	—	36
	$ 438	$ 93	$ —	$ —		$ 345

(a) In 2019, the BW Plan, a defined benefit plan in the United Kingdom, purchased an insurance contract that guarantees payment of specified pension liabilities. The Company measures the fair value of the insurance asset by projecting expected future cash flows from the contract and discounting them to present value based on current market rates, including an assessment for non-performance risk of the insurance company. The assumptions used to project expected future cash flows are based on actuarial estimates and are unobservable; therefore, the contract is categorized within Level 3 of the hierarchy.

(b) 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.

The reconciliation of Level 3 defined benefit plans assets was as follows:

(in millions)	Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
Balance at December 31, 2018	$ —
Purchase of insurance contract	106
Unrealized gains on assets still held at the reporting date	2
Translation adjustment	2
Balance at December 31, 2019	$ 110

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 cash equivalents, marketable securities and accounts receivable. 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, 2019 and 2018, 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, 2019 and December 31, 2018, the following commodity derivative contracts were outstanding.

	Commodity derivative contracts			
Commodity	Volume hedged December 31, 2019	Volume hedged December 31, 2018	Units of measure	Duration
Copper	203	257	Metric Tons	Dec - 20

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, 2019 and December 31, 2018, the Company had no outstanding interest rate swaps.

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, 2019 and December 31, 2018, the following foreign currency derivative contracts were outstanding:

Foreign currency derivatives (in millions)				
Functional currency	Traded currency	Notional in traded currency December 31, 2019	Notional in traded currency December 31, 2018	Ending duration
Brazilian real	Euro	1	4	Mar - 20
Brazilian real	US dollar	—	5	Jun - 19
British pound	Euro	9	—	Mar - 20
British pound	US dollar	4	—	Mar - 20
Chinese renminbi	US dollar	2	—	Aug - 20
Euro	British pound	—	7	Oct - 19
Euro	Japanese yen	383	—	Dec - 20
Euro	Swedish krona	—	540	Jun - 19
Euro	US dollar	18	19	Dec - 20
Japanese yen	Chinese renminbi	—	89	Dec - 19
Japanese yen	Korean won	—	5,785	Dec - 19
Japanese yen	US dollar	—	3	Dec - 19
Korean won	Euro	13	6	Dec - 20
Korean won	Japanese yen	409	266	Dec - 20
Korean won	US dollar	4	7	Dec - 20
Swedish krona	Euro	3	56	Jan - 20
US dollar	Euro	14	—	Dec - 20
US dollar	Mexican peso	—	575	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). In December 2019, the Company terminated its $250 million cross-currency swap contract originally maturing in September 2020, and executed a $500 million cross-currency swap contract to mature in March 2025, resulting in cash proceeds of $23 million and a deferred gain of $21 million that is expected to remain in accumulated other comprehensive loss. At December 31, 2019 and December 31, 2018, the following cross-currency swap contracts were outstanding:

(in millions)	Cross-currency swaps December 31, 2019		December 31, 2018		Ending duration
US dollar to Euro:					
Fixed receiving notional	$	500	$	250	Mar - 25
Fixed paying notional	€	450	€	206	Mar - 25
US dollar to Japanese yen:					
Fixed receiving notional	$	100	$	100	Feb - 23
Fixed paying notional	¥	10,978	¥	10,978	Feb - 23

At December 31, 2019 and 2018, 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, 2019		December 31, 2018		Location	December 31, 2019		December 31, 2018	
Foreign currency	Prepayments and other current assets	$	—	$	2	Accounts payable and accrued expenses	$	1	$	2
Net investment hedges	Other non-current assets	$	3	$	12	Other non-current liabilities	$	8	$	—
Derivatives not designated as hedging instruments										
Foreign currency	Prepayments and other current assets	$	—	$	1	Accounts payable and accrued expenses	$	—	$	—

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.

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, 2019 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, 2019	December 31, 2018	
Net investment hedges:			
Foreign currency	5	4	—
Cross-currency swaps	16	12	—
Foreign currency denominated debt	(17)	(30)	—
Total	$ 4	$ (14)	$ —

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, 2019			
(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	$ 10,168	$ 8,067	$ 873	$ (53)
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income				$ (1)
Gain (loss) reclassified from AOCI to income	$ (5)	$ 1	$ 3	$ —

	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	$ 10,530	$ 8,300	$ 946	$ (170)
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income				$ (1)
Gain (loss) reclassified from AOCI to income	$ (2)	$ (1)	$ —	$ —

	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	$ 7,684	$ 899	$ 232
Gain (loss) on cash flow hedging relationships:				
Foreign currency				
Gain (loss) recognized in other comprehensive income				$ (5)
Gain (loss) reclassified from AOCI to income	$ 3	$ —	$ —	$ —
Commodity				
Gain (loss) recognized in other comprehensive income	$ —	$ —	$ —	$ 1
Gain (loss) reclassified from AOCI to income	$ —	$ 1	$ —	$ —

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	2019	2018	2017
Foreign currency	$ 1	$ 2	$ (8)
Cross-currency swaps	$ 4	$ 12	$ —
Foreign currency denominated debt	$ 13	$ 27	$ (84)

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	2019	2018	2017
Foreign currency	$ —	$ 1	$ 1
Cross-currency swaps	$ 11	$ 9	$ —

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.

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. These derivatives resulted in the following gains and (losses) recorded to income:

(in millions)		Year Ended December 31,		
Contract Type	Location	2019	2018	2017
Foreign Currency	Selling, general and administrative expenses	$ (3)	$ 1	$ (1)

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 $37 million, $35 million and $34 million in the years ended December 31, 2019, 2018 and 2017, 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, 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.

During the year ended December 31, 2019, the Company settled approximately $50 million of its U.S. pension projected benefit obligation by liquidating approximately $50 million in plan assets through a lump-sum disbursement made to an insurance company. Pursuant to this agreement, the insurance company unconditionally and irrevocably guarantees all future payments to certain participants that were receiving payments from the U.S. pension plan. The insurance company assumes all investment risk associated with the assets that were delivered as part of this transaction. Additionally, during the year ended December 31, 2019, the Company discharged certain U.S. pension plan obligations by making lump-sum payments of $15 million to former employees of the Company. As a result, the Company settled $65 million of projected benefit obligation by liquidating pension plan assets and recorded a non-cash settlement loss of $27 million related to the accelerated recognition of unamortized losses.

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,		
(in millions)	2019	2018	2017
Defined contribution expense	$ 37	$ 35	$ 34
Defined benefit pension expense	45	8	12
Other postretirement employee benefit expense	—	—	1
Total	$ 82	$ 43	$ 47

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

	Pension benefits Year Ended December 31,				Other postretirement employee benefits Year Ended December 31,	
	2019		2018			
(in millions)	US	Non-US	US	Non-US	2019	2018
Change in projected benefit obligation:						
Projected benefit obligation, January 1	$ 253	$ 612	$ 283	$ 629	$ 87	$ 107
Service cost	—	18	—	18	—	—
Interest cost	8	12	9	12	3	3
Plan amendments	—	—	—	2	—	—
Settlement and curtailment	(65)	(5)	—	(4)	—	—
Actuarial (gain) loss	17	75	(18)	5	3	(6)
Currency translation	—	(1)	—	(30)	—	—
Benefits paid	(15)	(16)	(21)	(20)	(12)	(17)
Projected benefit obligation, December 31	$ 198	$ 695	$ 253	$ 612	$ 81	$ 87
Change in plan assets:						
Fair value of plan assets, January 1	$ 216	$ 438	$ 240	$ 483		
Actual return on plan assets	29	68	(11)	(18)		
Employer contribution	10	16	7	19		
Settlements	(65)	(5)	—	(4)		
Currency translation	—	4	—	(22)		
Benefits paid	(14)	(16)	(20)	(20)		
Fair value of plan assets, December 31	$ 176	$ 505	$ 216	$ 438		
Funded status	$ (22)	$ (190)	$ (37)	$ (174)	$ (81)	$ (87)
Amounts in the Consolidated Balance Sheets consist of:						
Non-current assets	$ —	$ 28	$ —	$ 17	$ —	$ —
Current liabilities	(1)	(4)	—	(5)	(10)	(11)
Non-current liabilities	(21)	(214)	(37)	(186)	(71)	(76)
Net amount	$ (22)	$ (190)	$ (37)	$ (174)	$ (81)	$ (87)
Amounts in accumulated other comprehensive loss consist of:						
Net actuarial loss	$ 82	$ 211	$ 113	$ 193	$ 16	$ 13
Net prior service (credit) cost	(5)	2	(6)	2	(8)	(12)
Net amount	$ 77	$ 213	$ 107	$ 195	$ 8	$ 1
Total accumulated benefit obligation for all plans	$ 198	$ 660	$ 253	$ 583		

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

	December 31,	
(in millions)	2019	2018
Accumulated benefit obligation	$ (633)	$ (650)
Plan assets	425	450
Deficiency	$ (208)	$ (200)
Pension deficiency by country:		
United States	$ (22)	$ (37)
Germany	(107)	(95)
Other	(79)	(68)
Total pension deficiency	$ (208)	$ (200)

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

	December 31,		
	2019	2018	Target Allocation
U.S. Plans:			
Real estate and other	16%	11%	0% - 15%
Fixed income securities	50%	56%	45% - 65%
Equity securities	34%	33%	25% - 45%
	100%	100%	
Non-U.S. Plans:			
Insurance contract, real estate and other	30%	8%	0% - 36%
Fixed income securities	33%	55%	29% - 62%
Equity securities	37%	37%	30% - 43%
	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, 2019 and 2018. A portion of pension assets is invested in common and commingled trusts.

The Company expects to contribute a total of $10 million to $20 million into its defined benefit pension plans during 2020. Of the $10 million to $20 million in projected 2020 contributions, $4 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, 2019 and 2018.

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,		
	2019		2018		2017				
(in millions)	US	Non-US	US	Non-US	US	Non-US	2019	2018	2017
Service cost	$ —	$ 18	$ —	$ 18	$ —	$ 18	$ —	$ —	$ —
Interest cost	8	12	9	12	9	11	3	3	3
Expected return on plan assets	(11)	(22)	(14)	(27)	(13)	(24)	—	—	—
Settlements, curtailments and other	27	1	—	—	—	—	—	—	—
Amortization of unrecognized prior service (credit) cost	(1)	—	(1)	—	(1)	—	(4)	(4)	(4)
Amortization of unrecognized loss	4	9	4	7	4	8	1	1	2
Net periodic cost (income)	$ 27	$ 18	$ (2)	$ 10	$ (1)	$ 13	$ —	$ —	$ 1

The components of net periodic benefit cost other than the service cost component are included in Other postretirement income in the 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 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 $1 million and $3 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, 2019 and 2018 were as follows:

	December 31,	
(percent)	2019	2018
U.S. pension plans:		
Discount rate	3.17	4.24
Rate of compensation increase	N/A	N/A
U.S. other postretirement employee benefit plans:		
Discount rate	2.95	4.05
Rate of compensation increase	N/A	N/A
Non-U.S. pension plans:		
Discount rate	1.61	2.28
Rate of compensation increase	3.05	2.99

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, 2019 and 2018 were as follows:

	Year Ended December 31,	
(percent)	2019	2018
U.S. pension plans:		
Discount rate - service cost	4.24	3.55
Effective interest rate on benefit obligation	3.88	3.13
Expected long-term rate of return on assets	6.00	6.00
Average rate of increase in compensation	N/A	N/A
U.S. other postretirement plans:		
Discount rate - service cost	3.43	2.65
Effective interest rate on benefit obligation	3.68	2.86
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	2.55	2.71
Effective interest rate on benefit obligation	2.06	1.98
Expected long-term rate of return on assets	5.23	5.73
Average rate of increase in compensation	3.03	2.98

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:

(in millions)	Pension benefits		
Year	U.S.	Non-U.S.	Other postretirement employee benefits
2020	$ 20	$ 20	$ 10
2021	15	23	9
2022	14	23	9
2023	14	24	8
2024	14	24	7
2025-2029	62	137	25

The weighted-average rate of increase in the per capita cost of covered health care benefits is projected to be 6.25% in 2019 for pre-65 and post-65 participants, decreasing to 5% by the year 2025. A one-percentage point change in the assumed health care cost trend would have the following effects:

	One Percentage Point	
(in millions)	Increase	Decrease
Effect on other postretirement employee benefit obligation	$ 5	$ (5)
Effect on total service and interest cost components	$ —	$ —

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 million shares were available for future issuance as of December 31, 2019.

Stock Options A summary of the plans' shares under option at December 31, 2019, 2018 and 2017 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, 2017	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	$ —
Exercised	—	$ —		$ —
Outstanding at December 31, 2019	—	$ —	0.0	$ —
Options exercisable at December 31, 2019	—	$ —	0.0	$ —

Proceeds from stock option exercises for the years ended December 31, 2019, 2018 and 2017 were as follows:

	Year Ended December 31,		
(in millions)	2019	2018	2017
Proceeds from stock options exercised — gross	$ —	$ —	$ 8
Tax benefit	—	—	8
Proceeds from stock options exercised, net of tax	$ —	$ —	$ 16

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 2019, restricted stock in the amount of 1,058,180 shares and 23,880 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, 2019, there was $37 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 1.8 years.

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

	Year Ended December 31,		
(in millions, except per share data)	2019	2018	2017
Restricted stock compensation expense	$ 30	$ 26	$ 27
Restricted stock compensation expense, net of tax	$ 23	$ 20	$ 20

A summary of the status of the Company's nonvested restricted stock for employees and non-employee directors at December 31, 2019, 2018 and 2017 is as follows:

	Shares subject to restriction (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2017	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
Granted	1,082	$ 41.66
Vested	(724)	$ 36.81
Forfeited	(210)	$ 44.82
Nonvested at December 31, 2019	1,664	$ 44.26

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 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, 2019, 2018 and 2017 were as follows:

	Year Ended December 31,		
(in millions, except share data)	2019	2018	2017
Expense	$ 5	$ 9	$ 10
Number of shares	—	—	—

A summary of the status of the Company's nonvested total shareholder return performance share units at December 31, 2019, 2018 and 2017 is as follows:

	Number of shares (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2017	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
Granted	196	$ 51.52
Vested	(160)	$ 45.78
Forfeited	(93)	$ 55.82
Nonvested at December 31, 2019	240	$ 64.61

As of December 31, 2019, there was $7 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 1.7 years.

Relative Revenue Growth Performance Share Units The 2014 and 2018 Plans provide for awarding of performance shares 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 years ended December 31, 2019, 2018 and 2017 were as follows:

	Year Ended December 31,		
(in millions, except share data)	2019	2018	2017
Expense	$ 7	$ 18	$ 16
Number of shares	315,000	249,000	126,000

A summary of the status of the Company's nonvested relative revenue growth performance shares at December 31, 2019, 2018 and 2017 is as follows:

	Number of shares (thousands)	Weighted average grant date fair value
Nonvested at January 1, 2017	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
Granted	196	$ 41.90
Vested	(160)	$ 40.10
Forfeited	(93)	$ 44.30
Nonvested at December 31, 2019	240	$ 48.52

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 200% of the target shares to vest. As of December 31, 2019, there was $8 million of unrecognized compensation expense that will be recognized over a weighted average period of approximately 1.7 years. The unrecognized amount of compensation expense is based on projected performance as of December 31, 2019.

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 $2 million and $8 million for the years ended December 31, 2019 and 2018, respectively.

NOTE 14 ACCUMULATED OTHER COMPREHENSIVE LOSS

The following table summarizes the activity within accumulated other comprehensive loss during the years ended December 31, 2019, 2018 and 2017:

(in millions)	Foreign currency translation adjustments	Hedge instruments	Defined benefit postretirement plans	Other	Total
Beginning Balance, January 1, 2017	$ (530)	$ 5	$ (198)	$ 1	$ (722)
Comprehensive (loss) income before reclassifications	236	(4)	(5)	2	229
Income taxes associated with comprehensive (loss) income before reclassifications	—	1	(1)	—	—
Reclassification from accumulated other comprehensive (loss) income	—	(4)	9	—	5
Income taxes reclassified into net earnings	—	1	(3)	—	(2)
Ending Balance December 31, 2017	$ (294)	$ (1)	$ (198)	$ 3	$ (490)
Adoption of accounting standard	—	—	(14)	—	(14)
Comprehensive (loss) income before reclassifications	(153)	(2)	(42)	(1)	(198)
Income taxes associated with comprehensive (loss) income before reclassifications	5	—	14	—	19
Reclassification from accumulated other comprehensive (loss) income	—	4	8	—	12
Income taxes reclassified into net earnings	—	(1)	(2)	—	(3)
Ending Balance December 31, 2018	$ (442)	$ —	$ (234)	$ 2	$ (674)
Comprehensive (loss) income before reclassifications	(51)	(1)	(29)	(2)	(83)
Income taxes associated with comprehensive (loss) income before reclassifications	(4)	—	4	—	—
Reclassification from accumulated other comprehensive (loss) income	—	1	37	—	38
Income taxes reclassified into net earnings	—	—	(8)	—	(8)
Ending Balance December 31, 2019	$ (497)	$ —	$ (230)	$ —	$ (727)

NOTE 15 CONTINGENCIES

The Company's environmental and product liability contingencies are discussed separately below. In the normal course of business, the Company is also party to various other 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 other commercial and legal matters or, if not, what the impact might be. The Company's management does not expect that an adverse outcome in any of these other 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 14 and 28 such sites as of December 31, 2019 and 2018, respectively. 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.

The Company has an accrual for environmental liabilities of $3 million and $9 million as of December 31, 2019 and December 31, 2018, 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). The decrease in both the number of sites and accrual was primarily the result of divestitures completed during 2019 including Morse TEC and non-core pipes and thermostat product lines. Refer to Note 19, "Recent Transactions," to the Consolidated Financial Statements for more information.

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, has been named as one of many defendants in asbestos-related personal injury actions. Morse TEC, a former wholly-owned subsidiary of the Company, was the obligor for the Company's recorded asbestos-related liabilities and the policyholder of the related insurance assets. On October 30, 2019, the Company transferred 100% of its equity interests to Enstar. As a result of the transaction, the Company removed Morse TEC's asbestos-related liabilities, related insurance assets and associated deferred tax assets from the Consolidated Balance Sheet. Refer to Note 19 "Recent Transactions," to the Consolidated Financial Statements for more information.

The Company’s asbestos-related claims activity during the years ended December 31, 2019 and 2018 is as follows:

	2019	2018
Beginning claims January 1	8,598	9,225
New claims received	1,667	1,932
Dismissed claims	(967)	(2,189)
Settled claims	(237)	(370)
Derecognized claims	(9,061)	—
Ending claims December 31	—	8,598

During the years ended December 31, 2019 and 2018, the Company paid $38 million and $46 million, respectively, in asbestos-related claim resolution costs and associated defense costs. Asbestos-related claim resolution costs and associated defense costs are reflected in the Company's operating cash flows.

Prior to the derecognition of Morse TEC, the Company reviewed 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 utilized 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 utilized data and analysis resulting from the Company’s claim review process, including input from national coordinating counsel and local counsel, and included the development of an estimate of the potential value of asbestos-related claims asserted but not yet resolved 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 projected a potential number of future claims based on the Company’s historical claim filings and patterns and compared that to anticipated levels of unique plaintiff asbestos-related claims asserted in the U.S. tort system against all defendants. The actuary also utilized 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 were 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, 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. This liability reflected the actuarial central estimate, which was intended to represent an expected value of the most probable outcome. As of December 31, 2019 and 2018, the Company estimates that its aggregate liability for such claims, including defense costs, is as follows:

(in millions)	2019	2018
Beginning asbestos liability as of January 1	$ 805	$ 828
Actuarial revaluation	—	23
Claim resolution costs and defense related costs	(37)	(46)
Derecognized liability	(768)	—
Ending asbestos liability as of December 31	$ —	$ 805

The Company's estimate of asbestos-related claim resolution costs and associated defense costs was not discounted to present value and included an estimate of liability for potential future claims not yet asserted through December 31, 2064 with a runoff through 2074. The Company believed that December 31, 2074 was a reasonable assumption as to the last date on which it was 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 $23 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.

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 was its reasonable best estimate of such costs. Such estimate was subject to numerous uncertainties. The balances recorded for asbestos-related claims were based on the best available information and assumptions that the Company believed to be reasonable, but those assumptions may change over time. The Company concluded that it was reasonably possible that it may incur additional losses through 2074 for asbestos-related claims, in addition to amounts recorded, of up to approximately $100 million as of December 31, 2018.

The Company had certain insurance coverage applicable to asbestos-related claims. The rights to this insurance were transferred with Morse TEC upon the sale of its membership interests. Prior to the derecognition, the coverage was the subject of litigation that remained pending at the time of the derecognition.

As of December 31, 2018, the Company estimated that it had $386 million in aggregate insurance coverage available with respect to asbestos-related claims, and their associated defense costs. The Company had 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 had determined the amount of that estimate by taking into account the remaining limits of the insurance coverage, the number and amounts 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 was the subject of disputes with its insurance carriers. The Company believed that its insurance receivable was probable of collection when recorded notwithstanding those disputes based on, among other things, the arguments made by the insurance carriers in litigation proceedings 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 court, the absence of any credible evidence alleged by the insurance carriers that they were not liable to indemnify the Company, and the fact that the Company had recovered a substantial portion of its insurance coverage, $271 million through December 31, 2018, from its insurance carriers under similar policies. However, the resolution of the insurance coverage disputes, and the number and amounts of claims on our insurance from co-insured parties, could have increased or decreased the amount of such insurance coverage available to the Company as compared to the Company’s estimate.

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

	December 31,	
(in millions)	2019	2018
Assets:		
Other long-term asbestos-related insurance receivables	$ —	$ 303
Deferred asbestos-related insurance asset	—	83
Total insurance assets	$ —	$ 386
Liabilities:		
Accounts payable and accrued expenses	$ —	$ 50
Other non-current liabilities	—	755
Total accrued liabilities	$ —	$ 805

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

NOTE 16 RESTRUCTURING

The Company has initiated several actions to reduce existing structural costs. The Company recorded $5 million in the Engine segment and $6 million in the Drivetrain segment in the year ended December 31, 2019 related to these actions. Additionally, the Company initiated a voluntary termination program in the Engine segment where approximately 350 employees accepted termination packages and recorded restructuring expense of $37 million in the year ended December 31, 2019.

In 2017, the Company initiated actions within its Engine segment designed to improve future profitability and competitiveness and started exploring strategic options for the non-core product lines. As a continuation of these actions, the Company recorded restructuring expense of $18 million and $54 million in the years ended December 31, 2019 and 2018, respectively, primarily related to professional fees, employee termination benefits and relocation costs. 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 million of employee severance expense during the year ended December 31, 2018. In addition, the Company recorded $6 million in employee termination benefits in other locations in the Engine segment in the year ended December 31, 2018. The Company recorded restructuring expense of $48 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.

The Company also recorded restructuring expense of $6 million in the year ended December 31, 2019, related to Corporate restructuring activities.

Additionally, the Company recorded restructuring expense of $10 million in the year ended December 31, 2018 in the Drivetrain segment primarily related to manufacturing footprint rationalization activities.

On September 27, 2017, the Company acquired 100% of the equity interests of Sevcon Inc ("Sevcon"). In connection with this transaction, the Company recorded restructuring expense of $7 million during the year ended December 31, 2017, primarily related to contractually required severance associated with Sevcon executive officers and other employee termination benefits.

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 Company is evaluating numerous options across its operations and plans to take additional restructuring actions to reduce existing structural costs over the next few years. These actions are expected to result in significant restructuring expense.

The following table displays a rollforward of the severance accruals recorded within the Company's Consolidated Balance Sheets and the related cash flow activity for the years ended December 31, 2019 and 2018:

	Severance Accruals		
(in millions)	Drivetrain	Engine	Total
Balance at January 1, 2018	$ 4	$ 1	$ 5
Provision	7	35	42
Cash payments	(7)	(15)	(22)
Balance at December 31, 2018	4	21	25
Provision	1	43	44
Cash payments	(1)	(34)	(35)
Balance at December 31, 2019	$ 4	$ 30	$ 34

NOTE 17 LEASES AND COMMITMENTS

The Company's lease agreements primarily consist of real estate property, such as manufacturing facilities, warehouses, and office buildings, in addition to personal property, such as vehicles, manufacturing and information technology equipment. A significant portion of leases are classified as operating leases, and as of December 31, 2019, finance leases were immaterial.

Generally, the Company's operating leases have renewal options that extend lease terms an additional 1 to 5 years, and some include options to terminate the agreement or purchase the leased asset. The amortizable life of these assets is the lesser of its useful life or the lease term, including renewal periods reasonably assured of being exercised at lease inception. The Company's lease arrangements with renewal periods reasonably assured of being exercised at lease inception are immaterial.

For the year ended December 31, 2019, leased assets obtained in exchange for lease obligations were $4 million.

All leases with an initial term of 12 months or less without an option to extend or purchase the underlying asset that the Company is reasonably certain to exercise ("short-term leases") are not recorded on the Consolidated Balance Sheet, and lease expense is recognized on a straight-line basis over the lease term.

The following table presents the operating lease assets and lease liabilities:

(in millions)		December 31, 2019	
Assets	Location		
Operating leases	Other non-current assets	$	85
Total operating leases		$	85
Liabilities			
Operating leases	Accounts payable and accrued expenses	$	18
Operating leases	Other non-current liabilities		67
Total operating lease liabilities		$	85

The following table presents the maturity of lease liabilities as of December 31, 2019:

(in millions)	Operating leases	
2020	$	20
2021		15
2022		13
2023		9
2024		7
After 2024		33
Total (undiscounted) lease payments	$	97
Less: Imputed interest		12
Present value of lease liabilities	$	85

In the year ended December 31, 2019, the Company recorded operating lease costs of $24 million and short-term lease costs of $18 million, primarily in Cost of sales in the Consolidated Statement of

Operations. Under the previous lease accounting standard, total rent expense was $42 million and $40 million in the years ended December 31, 2018 and 2017, respectively. The operating cash flows for operating leases were $24 million for the year ended December 31, 2019.

ASC Topic 842 requires that the rate implicit in the lease be used if readily determinable. Generally, implicit rates are not readily determinable in the Company's agreements and the incremental borrowing rate is used for each lease arrangement. The incremental borrowing rates are determined using rates specific to the term of the lease, economic environments where lease activity is concentrated, value of lease portfolio, and assuming full collateralization of the loans. The following table presents the terms and discount rates:

Operating leases	As of December 31, 2019
Weighted-average remaining lease term (years)	8
Weighted-average discount rate	2.8%

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:

(in millions except share and per share amounts)	Year Ended December 31, 2019	2018	2017
Basic earnings per share:			
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931	$ 440
Weighted average shares of common stock outstanding	205.7	208.2	210.4
Basic earnings per share of common stock	$ 3.63	$ 4.47	$ 2.09
Diluted earnings per share:			
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931	$ 440
Weighted average shares of common stock outstanding	205.7	208.2	210.4
Effect of stock-based compensation	1.1	1.3	1.1
Weighted average shares of common stock outstanding including dilutive shares	206.8	209.5	211.5
Diluted earnings per share of common stock	$ 3.61	$ 4.44	$ 2.08
Antidilutive stock-based awards excluded from the calculation of diluted earnings per share	0.1	0.1	—

NOTE 19 RECENT TRANSACTIONS

BorgWarner Morse TEC LLC

On October 30, 2019, the Company entered into a Membership Interest Purchase Agreement (the "Purchase Agreement") with Enstar. Pursuant to the Purchase Agreement, the Company transferred 100% of the equity interests of Morse TEC to Enstar. In connection with this transfer, the Company contributed approximately $172 million in cash to Morse TEC. As Morse TEC was the obligor for the Company's asbestos-related liabilities and policyholder of the related insurance assets, the rights and obligations related to these items transferred upon the sale, and pursuant to the Purchase Agreement, Morse TEC indemnifies the Company and its affiliates for asbestos-related liabilities as more specifically described in the Purchase Agreement. This indemnification obligation with respect to Asbestos-Related Liabilities (as such terms are defined in the Purchase Agreement) are not subject to any cap or time limitation. Following the completion of this transfer, the Company has no obligation with respect to previously recorded asbestos-related liabilities. In accordance with ASC Topic 810 this subsidiary was derecognized as the Company ceased to control the entity, and the Company removed the associated assets and liabilities from the Consolidated Balance Sheet, resulting in a pre-tax gain of $177 million. In addition, the Company recorded tax expense as a result of the reversal of the previously recorded deferred tax assets related to the asbestos liabilities of $173 million, resulting in an after-tax gain of $4 million.

The following is a summary of the impacts to the Consolidated Balance Sheet:

(in millions)		
Cash and cash equivalents	$	(172)
Receivables, net		(9)
Investments and other long-term receivables		(371)
Other non-current assets		(223)
Accounts payable and accrued expenses		7
Asbestos-related and environmental liabilities		772
Gain on derecognition of subsidiary, net	$	4

Romeo Systems, Inc.

In May 2019, the Company invested $50 million in exchange for a 20% equity interest in Romeo Systems, Inc. ("Romeo"), a technology-leading battery module and pack supplier. The Company accounts for this investment in Series A-1 Preferred Stock of Romeo under the measurement alternative in ASC Topic 321, *"Investments - Equity Securities"* for equity investments without a readily determinable fair value. Such investments are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for an identical or similar investment of the same issuer. In September 2019, the Company and Romeo contributed total equity of $10 million and formed a new joint venture, BorgWarner Romeo Power LLC (the "Romeo JV"), in which the Company owns 60% interest. The Romeo JV is a variable interest entity focusing on producing battery module and pack technology. The Company is the primary beneficiary of the Romeo JV and consolidates the Romeo JV in its consolidated financial statements.

Rinehart Motion Systems LLC and AM Racing LLC

On January 2, 2019, the Company acquired Rinehart Motion Systems LLC and AM Racing LLC, two established companies in the specialty electric and hybrid propulsion market, for approximately $15 million, of which $10 million was paid in the first quarter of 2019, and the remaining $5 million will be paid upon satisfaction of certain conditions.

The Company created Cascadia Motion LLC ("Cascadia Motion") to combine assets and operations of these two acquired companies. Based in Oregon, Cascadia Motion specializes in design, development and production of hybrid and electric propulsion solutions for prototype and low-volume production applications. It allows the Company to offer design, development and production of full electric and hybrid propulsion systems for niche and low-volume manufacturing applications.

In connection with the acquisition, the Company recognized intangible assets of $5 million, goodwill of $7 million within the Drivetrain reporting segment, and other assets and liabilities of $2 million to reflect the preliminary fair value of the assets acquired and liabilities assumed. The intangible assets will be amortized over a period of 2 to 15 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, 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.

Sevcon, Inc.

On September 27, 2017, the Company acquired 100% of the equity interests in Sevcon for cash of $186 million. This amount includes $27 million paid to settle outstanding debt and $5 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:

(in millions)	
Receivables, net	$ 16
Inventories, net	17
Other current assets	3
Property, plant and equipment, net	7
Goodwill	128
Other intangible assets	71
Deferred tax liabilities	(9)
Income taxes payable	(1)
Other assets and liabilities	(3)
Accounts payable and accrued expenses	(25)
Total consideration, net of cash acquired	204
Less: Assumed retirement-related liabilities	18
Cash paid, net of cash acquired	$ 186

In connection with the acquisition, the Company capitalized $18 million for customer relationships, $49 million for developed technology and $4 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 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.

NOTE 20 ASSETS AND LIABILITIES HELD FOR SALE

In 2017, the Company started exploring strategic options for non-core emission product lines. In the fourth quarter of 2017, the Company launched an active program to locate a buyer for these non-core pipes and thermostat product lines and initiated all other actions required to complete the plan to sell these 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 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. As a result, the Company recorded an additional asset impairment expense of $25 million in the year ended December 31, 2018 to adjust the net book value of this business to fair value less costs to sell. All closing conditions were satisfied, and the sale was closed on April 1, 2019. Based on the agreement reached in the fourth quarter of 2019 regarding the finalization of the purchase price adjustments related to the sale of the thermostat product lines, the Company determined that $7 million of additional loss on sale was required during the year ended December 31, 2019. During the year ended December 31, 2019, the assets and liabilities were removed from the Consolidated Balance Sheet. The business did not meet the criteria to be classified as a discontinued operation.

The assets and liabilities classified as held for sale at December 31, 2018 were as follows:

(in millions)	December 31, 2018
Receivables, net	$ 15
Inventories, net	42
Prepayments and other current assets	12
Property, plant and equipment, net	45
Goodwill	7
Other intangible assets, net	20
Other assets	—
Impairment of carrying value	(94)
Total assets held for sale	$ 47
Accounts payable and accrued expenses	$ 18
Other liabilities	5
Total liabilities held for sale	$ 23

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:

2019 Segment information

(in millions)	Net sales: Customers	Net sales: Inter-segment	Net sales: Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$ 6,153	$ 61	$ 6,214	$ 4,536	$ 227	$ 219
Drivetrain	4,015	—	4,015	4,075	183	254
Inter-segment eliminations	—	(61)	(61)	—	—	—
Total	10,168	—	10,168	8,611	410	473
Corporate (b)	—	—	—	1,091	29	8
Consolidated	$ 10,168	$ —	$ 10,168	$ 9,702	$ 439	$ 481

2018 Segment information

(in millions)	Net sales: Customers	Net sales: Inter-segment	Net sales: Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$ 6,390	$ 57	$ 6,447	$ 4,731	$ 226	$ 278
Drivetrain	4,140	—	4,140	3,920	175	254
Inter-segment eliminations	—	(57)	(57)	—	—	—
Total	10,530	—	10,530	8,651	401	532
Corporate (b)	—	—	—	1,444	30	14
Consolidated	$ 10,530	$ —	$ 10,530	$ 10,095	$ 431	$ 546

2017 Segment information

(in millions)	Net sales: Customers	Net sales: Inter-segment	Net sales: Net	Year-end assets	Depreciation/ amortization	Long-lived asset expenditures (a)
Engine	$ 6,009	$ 53	$ 6,062	$ 4,733	$ 219	$ 305
Drivetrain	3,790	—	3,790	3,904	161	242
Inter-segment eliminations	—	(53)	(53)	—	—	—
Total	9,799	—	9,799	8,637	380	547
Corporate (b)	—	—	—	1,151	28	13
Consolidated	$ 9,799	$ —	$ 9,799	$ 9,788	$ 408	$ 560

(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.

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

	Year Ended December 31,		
(in millions)	2019	2018	2017
Engine	$ 995	$ 1,040	$ 992
Drivetrain	443	475	448
Adjusted EBIT	1,438	1,515	1,440
Gain on derecognition of subsidiary	(177)	—	—
Restructuring expense	72	67	58
Unfavorable arbitration loss	14	—	—
Merger, acquisition and divestiture expense	11	6	10
Asset impairment and loss on divestiture	7	25	71
Officer stock awards modification	2	8	—
Asbestos-related adjustments	—	23	—
Gain on sale of building	—	(19)	—
Lease termination settlement	—	—	5
Other (income) expense	—	(4)	2
Corporate, including stock-based compensation	206	219	222
Equity in affiliates' earnings, net of tax	(32)	(49)	(51)
Interest income	(12)	(6)	(6)
Interest expense	55	59	71
Other postretirement expense (income)	27	(10)	(5)
Earnings before income taxes and noncontrolling interest	1,265	1,196	1,063
Provision for income taxes	468	211	580
Net earnings	797	985	483
Net earnings attributable to the noncontrolling interest, net of tax	51	54	43
Net earnings attributable to BorgWarner Inc.	$ 746	$ 931	$ 440

Geographic Information

During the year ended December 31, 2019, 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, Poland and Hungary exceeded 5% of consolidated net sales during the year ended December 31, 2019. Also, the Company's equity investments are excluded from the definition of long-lived assets, as are goodwill and certain other non-current assets.

	Net sales			Long-lived assets		
(in millions)	2019	2018	2017	2019	2018	2017
United States	$ 2,335	$ 2,394	$ 2,280	$ 752	$ 729	$ 719
Europe:						
Germany	1,507	1,665	1,653	328	371	413
Poland	627	519	522	180	171	152
Hungary	589	687	656	164	153	148
Other Europe	1,087	1,151	904	285	282	274
Total Europe	3,810	4,022	3,735	957	977	987
China	1,711	1,801	1,560	605	589	555
Mexico	1,040	978	920	247	223	201
South Korea	786	859	877	221	235	244
Other foreign	486	476	427	152	151	158
Total	$ 10,168	$ 10,530	$ 9,799	$ 2,934	$ 2,904	$ 2,864

Sales to Major Customers

Consolidated net sales to Ford (including its subsidiaries) were approximately 15%, 14%, and 15% for the years ended December 31, 2019, 2018 and 2017, respectively, and to Volkswagen (including its subsidiaries) were approximately 11%, 12% and 13% for the years ended December 31, 2019, 2018 and 2017, respectively. Both of the Company's reporting segments had significant sales to Ford and Volkswagen in 2019, 2018 and 2017. 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 28%, 27% and 28% of total net sales for the years ended December 31, 2019, 2018 and 2017, 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.

NOTE 22 INTERIM FINANCIAL INFORMATION (Unaudited)

The following table presents summary quarterly financial data:

(in millions, except per share amounts)	2019					2018				
Quarter ended	Mar-31	Jun-30	Sep-30	Dec-31	Year	Mar-31	Jun-30	Sep-30	Dec-31	Year
Net sales	$ 2,566	$ 2,551	$ 2,492	$ 2,559	$ 10,168	$ 2,784	$ 2,694	$ 2,478	$ 2,574	$ 10,530
Cost of sales	2,047	2,038	1,968	2,014	8,067	2,193	2,114	1,963	2,030	8,300
Gross profit	519	513	524	545	2,101	591	580	515	544	2,230
Selling, general and administrative expenses	226	212	230	205	873	253	237	230	226	946
Other expense (income), net	29	16	18	(138)	(75)	5	30	7	52	94
Operating income	264	285	276	478	1,303	333	313	278	266	1,190
Equity in affiliates' earnings, net of tax	(9)	(9)	(7)	(7)	(32)	(10)	(13)	(15)	(11)	(49)
Interest income	(3)	(2)	(4)	(3)	(12)	(2)	(1)	(1)	(2)	(6)
Interest expense	14	14	15	12	55	16	15	14	14	59
Other postretirement expense (income)	—	27	(1)	1	27	(3)	(2)	(3)	(2)	(10)
Earnings before income taxes and noncontrolling interest	262	255	273	475	1,265	332	314	283	267	1,196
Provision for income taxes	91	73	66	238	468	95	30	67	19	211
Net earnings	171	182	207	237	797	237	284	216	248	985
Net earnings attributable to the noncontrolling interest, net of tax	11	10	13	17	51	12	12	12	18	54
Net earnings attributable to BorgWarner Inc. (a)	$ 160	$ 172	$ 194	$ 220	$ 746	$ 225	$ 272	$ 204	$ 230	$ 931
Earnings per share — basic	$ 0.77	$ 0.84	$ 0.94	$ 1.07	$ 3.63	$ 1.07	$ 1.30	$ 0.98	$ 1.11	$ 4.47
Earnings per share — diluted	$ 0.77	$ 0.83	$ 0.94	$ 1.06	$ 3.61	$ 1.07	$ 1.30	$ 0.98	$ 1.10	$ 4.44

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

- **Quarter ended December 31, 2019:** The Company recorded a pre-tax gain on the derecognition of Morse TEC of $177 million. In addition, the Company recorded tax expense as a result of the reversal of the previously recorded deferred tax assets related to the asbestos liabilities of $173 million, resulting in an after-tax gain of $4 million. The Company recorded restructuring expense of $31 million primarily related to actions to reduce structural costs. The Company recorded $7 million of additional loss on sale related to the finalization of the purchase price adjustments related to the sale of the non-core pipes and thermostat product lines. The Company recorded reductions of income tax expense of $11 million related to a global realignment plan and $8 million related to restructuring expense, partially offset by an increase in income tax of $5 million related to other one-time adjustments.
- **Quarter ended September 30, 2019:** The Company recorded restructuring expense of $14 million primarily related to Drivetrain and Engine segment actions designed to improve future profitability and competitiveness. The Company recorded expenses, primarily professional fees, related to the Company's review of strategic acquisition and divestiture targets, including the 20% equity interest in Romeo, and the divestiture activities for the non-core pipes and thermostat product lines of $4 million. The Company recorded reductions of income tax expense of $4 million related to restructuring expense and $9 million related to other one-time adjustments.
- **Quarter ended June 30, 2019:** The Company recorded restructuring expense of $13 million primarily related to Drivetrain and Engine segment actions designed to improve future profitability and competitiveness. The Company recorded expenses, primarily professional fees, related to the Company's review of strategic acquisition and divestiture targets, including the 20% equity interest in Romeo, and the divestiture activities for the non-core pipes and thermostat product lines of $5 million. The Company recorded reductions of income tax expense of $4 million related to restructuring expense, $6 million related to pension settlement loss, partially offset by an increase in income tax of $1 million related to other one-time adjustments.

- **Quarter ended March 31, 2019:** The Company recorded restructuring expense of $14 million primarily related to Drivetrain and Engine segment actions designed to improve future profitability and competitiveness. The Company recorded expenses, primarily professional fees, associated with divestiture activities for the non-core pipes and thermostat product lines of $1 million. The Company recorded $14 million of expense related to the receipt of a final unfavorable arbitration decision associated with the resolution of a matter related to a previous acquisition. The Company recorded reductions of income tax expense of $3 million related to restructuring expense and $5 million related to other one-time adjustments. The Company recorded an increase in income tax expense of $22 million due to the U.S. Department of the Treasury's issuance of the final regulations in the first quarter of 2019 related to the calculation of the one-time transition tax.
- **Quarter ended December 31, 2018:** The Company recorded an asset impairment expense of $26 million to adjust the net book value of the pipes and thermostat product lines to fair value. The Company recorded asbestos-related adjustments resulting in a net increase to Other Expense of $23 million. The Company recorded restructuring expense of $23 million primarily related to the Engine and Drivetrain segment actions designed to improve future profitability and competitiveness. The Company recorded a gain of $19 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 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 $6 million related to restructuring expense, $6 million related to asbestos-related adjustments, $8 million related to asset impairment expense, $9 million related to valuation allowance releases, $3 million related to tax reserve adjustments, and $19 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 $6 million related to a gain on the sale of a building, and $7 million related to adjustments to measurement period provisional estimates associated with the Tax Act.
- **Quarter ended September 30, 2018:** The Company recorded restructuring expense of $6 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 $2 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 million related to restructuring expense, $7 million related to adjustments to measurement period provisional estimates associated with the Tax Act, $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 during the year, and $2 million related to other one-time tax adjustments, primarily due to changes in tax filing positions.
- **Quarter ended June 30, 2018:** The Company recorded restructuring expense of $31 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 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 $8 million associated with restructuring expense, $13 million related to adjustments to measurement period provisional estimates associated with the Tax Act, $21 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 $10 million related to other one-time tax adjustments.
- **Quarter ended March 31, 2018:** The Company recorded restructuring expense of $8 million primarily related to Engine and Drivetrain segment actions designed to improve future profitability and competitiveness. The Company recorded a gain of approximately $4 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 million primarily related to professional fees associated with divestiture activities for the non-core pipes product line. The Company recorded income tax expenses of $1 million, and reductions of income tax expense of $1 million which is associated with restructuring expense.

Note 23. Subsequent Event

On January 28, 2020, the Company entered into a definitive agreement to acquire Delphi Technologies PLC (“Delphi Technologies”) in an all-stock transaction valued at approximately $3.3 billion, based on the closing price of BorgWarner stock on January 27, 2020. The transaction, which is expected to close in the second half of 2020, is subject to approval by Delphi Technologies' stockholders, the satisfaction of customary closing conditions and receipt of regulatory approvals.

Under the terms of the agreement, Delphi Technologies stockholders would receive a fixed exchange ratio of 0.4534 shares of BorgWarner common stock for each share of Delphi Technologies stock. Upon closing of the transaction, current BorgWarner stockholders are expected to own approximately 84% of the combined company, while current Delphi Technologies stockholders are expected to own approximately 16%.

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, 2019, 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, 2019 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 2020 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.

Code of Ethics

The Company has long maintained a Code of Ethical Conduct, updated from time to time, which is applicable to all directors, officers, and employees of the Company. In addition, the Company has adopted a Code of Ethics for CEO and Senior Financial Officers, which applies to the Company’s CEO, CFO, Treasurer, and Controller. Each of these codes is posted on the Company’s website at www.borgwarner.com. We intend to disclose any amendments to, or waivers from, a provision of our Code of Ethical Conduct or Code of Ethics for CEO and Senior Financial Officers on our website within four business days following the date of any amendment or waiver.

Delinquent Section 16(a) Reports

Section 16(a) of the Securities Exchange Act of 1934 requires the Company’s executive officers, directors, and persons who beneficially own more than 10% of a registered class of the Company’s equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of the Company’s common stock. Such officers, directors and persons are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms that they file with the SEC.

One Form 4 was filed eight business days late on behalf of each of Directors Lissalde, Michas, Carlson, Cuneo, Hanley, Mascarenas, McKernan, McWhinney, and Sato due to miscommunication of stock grant information. Otherwise, based on information provided to the Company by each director and executive officer, the Company believes all beneficial ownership reports required to be filed in 2019 were timely.

Item 11. Executive Compensation

Information with respect to director and executive compensation that will appear in the Company's proxy statement for its 2020 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 will appear in the Company's proxy statement for its 2020 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 will appear in the Company's proxy statement for its 2020 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 will appear in the Company's proxy statement for its 2020 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 precedes 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.

EXHIBIT INDEX

Exhibit Number	Description
2.1	Membership Interest Purchase Agreement, dated as of October 30, 2019, among BorgWarner Inc., BorgWarner Morse TEC LLC, and Enstar Holdings (US) LLC (incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K filed October 30, 2019).
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).
4.6	Description of Securities*
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	Form of 2019 BorgWarner Inc. 2018 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 June 30, 2019 filed on July 25, 2019).
†10.3	Form of 2019 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Non-U.S. Employees (incorporated by reference to Exhibit 10.2 to the Company's Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 filed on July 25, 2019).

Exhibit Number	Description
†10.4	Form of 2019 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock 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 June 30, 2019 filed on July 25, 2019).
†10.5	Form of 2019 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Non-U.S. Directors (incorporated by reference to Exhibit 10.5 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 filed on July 25, 2019).
†10.6	Form of 2019 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Non-U.S. Directors (incorporated by reference to Exhibit 10.5 to the Company’s Quarterly Report on Form 10-Q for the quarter ended June 30, 2019 filed on July 25, 2019).
†10.7	BorgWarner Inc. 2018 Stock Incentive Plan (incorporated by reference to Appendix A to the Company’s Definitive Proxy Statement filed March 16, 2018).
†10.8	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Non-Employee Directors (incorporated by reference to Exhibit 10.3 to the Company’s Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.9	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Stock Units Award Agreement for Non-U.S. Directors (incorporated by reference to Exhibit 10.4 to the Company’s Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.10	Form of 2018 BorgWarner Inc. 2018 Stock Incentive Plan Restricted Stock Agreement for Employees (incorporated by reference to Exhibit 10.5 to the Company’s Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.11	BorgWarner Inc. 2014 Stock Incentive Plan (incorporated by reference to Annex A to the Company’s Definitive Proxy Statement filed March 21, 2014).*
†10.12	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).
†10.13	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).
†10.14	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).
†10.15	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).
†10.16	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).
†10.17	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).

Exhibit Number	Description
†10.18	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).
†10.19	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).
†10.20	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).
†10.21	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).
†10.22	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).
†10.23	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).
†10.24	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).
†10.25	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.
†10.26	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).
†10.27	Amended and Restated BorgWarner Inc. Management Incentive Bonus Plan, effective as of December 31, 2008(incorporated by reference to Exhibit 10.22 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.28	BorgWarner Inc. Retirement Savings Excess Benefit Plan, as amended and restated, effective January 1, 2009 (incorporated by reference to Exhibit 10.23 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.29	BorgWarner Inc. Board of Directors Deferred Compensation Plan, as amended and restated, effective January 1, 2009 (incorporated by reference to Exhibit 10.24 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.30	First Amendment, dated as of January 1, 2011, to BorgWarner Inc. Board of Directors Deferred Compensation Plan (incorporated by reference to Exhibit 10.25 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).

Exhibit Number	Description
†10.31	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).
†10.32	Form of Amended and Restated Change of Control Employment Agreement for Executive Officers (incorporated by reference to Exhibit 10.27 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.33	Form of Amended and Restated Change of Control Employment Agreement for Executive Officers (effective 2009) (incorporated by reference to Exhibit 10.28 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.34	BorgWarner Inc. 2004 Deferred Compensation Plan, as amended and restated, effective January 1, 2009 (incorporated by reference to Exhibit 10.29 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
†10.35	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).
†10.36	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).
†10.37	Retention Bonus Agreement, dated as of December 7, 2018, between BorgWarner Inc. and Anthony D. Hensel (incorporated by reference to Exhibit 10.32 to the Company's Annual Report on Form 10-K for the year ended December 31, 2018 filed on February 19, 2019).
10.38	Offer Letter, dated as of March 8, 2019, between BorgWarner Inc. and Kevin A. Nowlan (incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019 filed on April 25, 2019).
10.39	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).
10.40	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).
10.41	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.*

Exhibit Number	Description
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.*
104.1	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).*

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

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 13, 2020

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 13th day of February, 2020.

Signature	Title
/s/ Frederic B. Lissalde Frederic B. Lissalde	President and Chief Executive Officer (Principal Executive Officer) and Director
/s/ Kevin A. Nowlan Kevin A. Nowlan	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Thomas J. McGill Thomas J. McGill	Vice President and Controller (Principal Accounting Officer)
/s/ Jan Carlson Jan Carlson	Director
/s/ Dennis C. Cuneo Dennis C. Cuneo	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 Alexis P. Michas	Director and Non-Executive Chairman
/s/ Vicki L. Sato Vicki L. Sato	Director

Exhibit 4.6

DESCRIPTION OF THE REGISTRANT'S SECURITIES

REGISTERED PURSUANT TO SECTION 12 OF THE

SECURITIES EXCHANGE ACT OF 1934

As of February 13, 2020, BorgWarner Inc. (the "Company") had two classes of securities registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"): (i) common stock, $0.01 par value per share ("Common Stock"), and (ii) 1.800% Notes due 2022 (the "Senior Notes").

DESCRIPTION OF COMMON STOCK

The following description of the common stock of the Company is a summary and does not purport to be complete. The description is subject to and qualified in its entirety by reference to our Restated Certificate of Incorporation, as amended through April 26, 2018 (our "Certificate of Incorporation"), our Amended and Restated By-laws (our "By-laws"), and applicable Delaware law.

Authorized Shares

The Company's authorized shares are 420,000,000 shares of capital stock, $0.01 par value per share, consisting of 390,000,000 shares of Common Stock, 25,000,000 shares of non-voting common stock ("Non-Voting Common Stock" and, together with Common Stock, "Junior Stock"), and 5,000,000 shares of preferred stock ("Preferred Stock"). Preferred Stock is issuable in one or more classes and series, with preferences, rights, restrictions, and qualifications as established by the Board of Directors of the Company without shareholder approval, including voting, dividend, redemption, liquidation, sinking fund, conversion and other rights. No shares of Non-Voting Common Stock or Preferred Stock are outstanding.

Dividends

Holders of our Junior Stock are entitled to receive dividends, if any, as may be declared from time to time by our Board of Directors in its discretion out of funds available.

Voting Rights

Each holder of Common Stock is entitled to one vote per share and is entitled to vote on all matters presented to a vote of stockholders, including the election of directors. Holders of Common Stock have no cumulative voting rights. As a result, under the Delaware General Corporation Law (the "DGCL"), the holders of more than one-half of the outstanding shares of Common Stock generally will be able to elect all of our directors then standing for election and holders of the remaining shares will not be able to elect any director, subject to any voting rights held by holders of our Preferred Stock.

The holders of Non-Voting Common Stock do not have any voting rights except as provided by applicable law and except that the holders of Non-Voting Common Stock are entitled to vote as a separate class on any amendment to Article IV, Section 2(3)(ii) of our Certificate of Incorporation, which sets forth the voting rights of the holders of Non-Voting Common Stock, and on any amendment, repeal or modification of any provision of our Certificate of Incorporation that adversely affects the powers, preferences or special rights of holders of Non-Voting Common Stock.

Liquidation Rights

Upon liquidation of the Company, holders of Junior Stock are entitled to share equally in any distribution of the Company's assets after provision for the Company's liabilities and the liquidation preference of any outstanding Preferred Stock.

Other Rights

Holders of Common Stock have no preemptive rights to purchase or subscribe for any stock or other securities. In addition, there are no redemption or sinking fund provisions for holders of Common Stock. Any "Regulated Stockholder," as that term is defined in Article IV, Section 2(4)(i) of our Certificate of Incorporation, may convert any or all of the shares held by such stockholder into the same number of shares of Non-Voting Common Stock so long as each such stockholder complies with the procedural requirements for conversion in Article IV, Section 2(4)(iii) of our Certificate of Incorporation. Our outstanding Common Stock is fully paid and non-assessable.

Upon the occurrence (or the expected occurrence) of any Conversion Event (as described in Article IV, Section 2(4)(ii)(B) of our Certificate of Incorporation) and compliance with the provisions of Article IV, Section 2(4)(iii) of our Certificate of Incorporation, each holder of shares of Non-Voting Common Stock is entitled to convert into the same number of shares of Common Stock any or all of such holder's shares of Non-Voting Common Stock being (or expected to be) distributed, disposed of or sold by such holder in connection with such Conversion Event.

Exchange Listing

Our Common Stock is traded on the New York Stock Exchange under the symbol "BWA."

Anti-Takeover Effects of Certain Provisions of our Certificate of Incorporation and By-laws

Our Certificate of Incorporation and By-laws contain provisions that may delay, defer, discourage, or prevent a change in control of the Company, the removal of our existing management or directors, or an offer by a potential acquirer to our stockholders. These provisions include:

- *No cumulative voting.* Under the DGCL and our Certificate of Incorporation, stockholders are not entitled to cumulate votes in the election of directors.

- *Requirements for removal of directors.* Our Certificate of Incorporation provides that any director may be removed from office at any time, with or without cause, but only by the affirmative vote of the holders of a majority of the voting power of the then outstanding shares of capital stock of the Company entitled to vote generally in the election of directors.

- *Special meeting of stockholders.* Our Certificate of Incorporation provides that special meetings of the stockholders may only be called by the at the direction of a majority of the directors of the Company or upon the request of stockholders owning of record 20% or more of our outstanding shares of Common Stock.

- *Stockholder advance notice procedures.* Our By-laws establish advance notice procedures with respect to stockholders proposals and the nominations of candidates for election as directors. These provisions may have the effect of precluding the conduct of certain business at a meeting if the proper procedures are not followed.

- *Action by written consent of the stockholders.* Holders of Common Stock may act by written consent provided they meet the procedural requirements in Article VII, Section 1(b) of our Certificate of Incorporation. These requirements could delay or deter stockholders' ability to take action with respect to the Company without convening a meeting.

Anti-Takeover Effects of Certain Provisions of Delaware Law

We are subject to the provisions of Section 203 of the DGCL, which generally may have an anti-takeover effect for transactions not approved in advance by our board of directors, including discouraging attempts that might result in a premium over the market price for our Common Stock. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a three-year period following the time that the stockholder becomes an interested stockholder unless:

- the business combination or the transaction which resulted in the stockholder becoming an interested stockholder is approved by the board of directors prior to the time the interested stockholder obtained such status;

- upon consummation of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced; or

- at or subsequent to such time, the business combination is approved by the board of directors and authorized at an annual or special meeting of the stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

For purposes of Section 203, a "business combination" is defined to include mergers, asset sales and other transactions resulting in financial benefit to an interested stockholder. In general, an "interested stockholder" is a person who owns (or is an affiliate or associate of the corporation and, within the prior three years, did own) 15% or more of the corporation's voting stock.

DESCRIPTION OF DEBT SECURITIES

The following description of the Senior Notes is a summary and does not purport to be complete. The Senior Notes are governed by an indenture, dated September 23, 1999, between the Company and The Bank of New York Mellon Trust Company, N.A. (successor in interest to Chase Manhattan Trust Company, National Association), as original trustee (the "Indenture"). The description is subject to and qualified in its entirety by reference to all of the provisions of the Indenture and the Senior Notes, including definitions of certain terms used in the Indenture and the Senior Notes prospectus supplement and prospectus. References herein to the terms "we" and "us" mean the Company.

General

The Senior Notes are our general unsecured and unsubordinated obligations and will rank equally in right of payment with all of our other existing and future unsecured and unsubordinated obligations. The Senior Notes will be effectively subordinated to any of our existing or future secured debt to the extent of the value of the assets securing such debt and will be structurally subordinated to all existing and future liabilities and any preferred equity of our subsidiaries.

The Senior Notes were issued in the form of one or more global notes in fully registered form in minimum denominations of €100,000 and integral multiples of €1,000 in excess thereof. The notes were issued in book-entry only form and will be represented by one or more global notes deposited with a common depositary on behalf of Clearstream Banking, société anonyme, and Euroclear Bank, S.A./N.V., and registered in the name of the common depositary or its nominee. The Senior Notes are traded on The New York Stock Exchange under the bond trading symbol of "BWA22."

Principal, Maturity and Interest

We initially issued €500,000,000 aggregate principal amount of the Senior Notes.

The Indenture does not limit the amount of debt securities that we may issue under the Indenture and provides that debt securities may be issued from time to time in one or more series. We may, without the consent of the existing holders of the Senior Notes, issue additional debt securities having the same terms as the Senior Notes (other than the issue date, date from which interest begins to accrue and initial interest payment date) so that the Senior Notes and the new debt securities form a single series under the Indenture governing the Senior Notes.

The Senior Notes will bear interest at 1.800% per year from November 6, 2015 or from the immediately preceding interest payment date to which interest has been paid. Interest will be payable annually in arrears on November 7 of each year, commencing November 7, 2016 (each, an "Interest Payment Date"). Interest on an Interest Payment Date will be paid to the persons, or "holders," in whose names the Senior Notes are registered on the security register at the close of business on the regular record date. The regular record date will be the fifteenth calendar day, whether or not a Business Day, immediately preceding the related Interest Payment Date.

Interest on the Senior Notes will be computed on the basis of an ACTUAL/ACTUAL (ICMA) (as defined in the rulebook of the International Capital Markets Association) day count convention. The principal of each Senior Note payable at maturity or upon earlier redemption or repurchase will be paid against presentation and surrender of such Senior Note at the office or agency maintained for such purpose, initially the corporate trust office of Deutsche Bank Trust Company Americas, located at 60 Wall Street, Trust and Agency Services, 16th Floor, New York, New York 10005, in euro.

If any Interest Payment Date, the Stated Maturity Date or any earlier date of redemption or repurchase falls on a day that is not a Business Day, the required payment will be made on the next Business Day as if it were made on the date the payment was due and no interest will accrue on the amount so payable for the period from and after that Interest Payment Date, the Stated Maturity Date or such date of redemption or repurchase, as the case may be. For purposes of the Senior Notes, “Business Day” means any day, other than a Saturday or Sunday, (1) which is not a day on which banking institutions in The City of New York, London or Frankfurt are authorized or required by law, regulation or executive order to close and (2) on which the Trans-European Automated Real-Time Gross Settlement Express Transfer system (the TARGET2 system), or any successor thereto, is open. Notwithstanding anything to the contrary contained herein, installments of interest on Senior Notes that are due and payable on an Interest Payment Date (as defined below) falling on or prior to a redemption or repurchase date will be payable on such Interest Payment Date to the holders thereof as of the close of business on the regular record date for such Interest Payment Date.

Sinking Fund

The Senior Notes will not be subject to any sinking fund provisions and will not be convertible into or exchangeable for any of our equity interests.

Optional Redemption

We may redeem the Senior Notes at our option at any time, in whole or from time to time in part, at a redemption price (the “Optional Redemption Price”) equal to the sum of:

- 100% of the principal amount of the Senior Notes being redeemed plus unpaid interest, if any, accrued thereon to, but excluding, the redemption date; and

- the Make-Whole Amount, as defined below, if any, with respect to such Senior Notes.

If the Senior Notes are redeemed on or after August 7, 2022, the Optional Redemption Price will not include the Make-Whole Amount (as defined below).

If we have given notice of redemption as provided in the Indenture and have made funds available on the redemption date referred to in the notice for the redemption, the Senior Notes called for redemption will cease to bear interest on the redemption date and the holders of those Senior Notes from and after the redemption date will be entitled to receive only the payment of the Optional Redemption Price upon surrender of the Senior Notes in accordance with the notice.

We will give notice of any optional redemption to holders of Senior Notes, at their addresses, as shown in the security register for the Senior Notes, not more than 60 nor less than 30 days prior to the redemption date.

The notice of redemption will specify, among other items, the Optional Redemption Price and the principal amount of the Senior Notes held by the holder to be redeemed.

If we choose to redeem less than all of the Senior Notes, we will notify the trustee in writing at least 45 days prior to giving notice of redemption, or a shorter period as may be satisfactory to the trustee, of the aggregate principal amount of Senior Notes to be redeemed and their redemption date. The trustee will select, in accordance with its customary procedures, the Senior Notes to be redeemed in part, which, in the case of Senior Notes in book-entry form, will be in accordance with the procedures of any applicable depositary.

"Make-Whole Amount" means, in connection with any optional redemption of the Senior Notes, the excess, if any, of:

- the aggregate present value as of the date of redemption of each euro of principal being redeemed and the amount of interest, excluding unpaid interest, if any, accrued thereon to, but excluding, the date of redemption that would have been payable in respect of each euro if the redemption payment had not been made (determined by discounting, on an annual basis (ACTUAL/ACTUAL (ICMA) (as defined in the rulebook of the International Capital Markets Association)), the principal and interest at the Reinvestment Rate, from the respective dates on which the principal and interest would have been payable if the redemption payment had not been made, to the date of redemption), over

- the aggregate principal amount of the Senior Notes being redeemed.

Redemption for Tax Reasons

If, as a result of any change in, or amendment to, the laws (or any regulations or rulings promulgated under the laws) of the United States (or any taxing authority thereof or therein), or any change in, or amendments to, an S-17 official position regarding the application or interpretation of such laws, regulations or rulings, which change or amendment is announced or becomes effective on or after the date of this prospectus supplement, we become or, based upon a written opinion of independent counsel selected by us, will become obligated to pay additional amounts as described herein under the heading "—Payment of Additional Amounts" with respect to the Senior Notes, then we may at any time at our option, having given not less than 30 nor more than 60 days prior notice to holders, redeem, in whole, but not in part, the Senior Notes at a redemption price equal to 100% of the principal amount of the Senior Notes plus unpaid interest, if any, accrued thereon to, but excluding, the redemption date.

Change of Control Repurchase Event

If a change of control repurchase event occurs with respect to the Senior Notes, unless we have exercised our right to redeem the Senior Notes as described above, we will make an offer to each holder of Senior Notes to repurchase all or any part (in minimum denominations of €100,000 and any integral multiples of €1,000 in excess thereof) of that holder's Senior Notes at a purchase price in cash equal to 101% of the aggregate principal amount of such Senior Notes plus unpaid interest, if any, accrued thereon to, but excluding, the repurchase date. Within 30 days following any change of control repurchase event or, at our option, prior to any change of control, but after the public announcement of the change of control, we will mail a notice to each holder, with a copy to the trustee, describing the transaction or transactions that constitute or may constitute the change of control repurchase event and offering to repurchase the Senior Notes on the payment date specified in the notice, which date will be no earlier than 30 days and no later than 60 days from the date such notice is mailed. The notice shall, if mailed prior to the date of consummation of the change of control, state that the offer to purchase is conditioned on the change of control repurchase event occurring on or prior to the payment date specified in the notice.

We will comply with the requirements of Rule 14e-1 under the Exchange Act, and any other securities laws and regulations thereunder to the extent those laws and regulations are applicable in connection with the repurchase of the Senior Notes as a result of a change of control repurchase event. To the extent that the provisions of any securities laws or regulations conflict with the change of control repurchase event provisions of the Senior Notes, we will comply with the applicable securities laws and regulations and will not be deemed to have breached our obligations under the change of control repurchase event provisions of the Senior Notes by virtue of such conflict.

On the change of control repurchase event payment date, we will, to the extent lawful:

- accept for payment all Senior Notes or portions of the Senior Notes properly tendered pursuant to our offer;

- deposit with the paying agent an amount equal to the aggregate purchase price in respect of all Senior Notes or portions of the Senior Notes properly tendered; and

- deliver or cause to be delivered to the trustee the Senior Notes properly accepted, together with an officers' certificate stating the aggregate principal amount of the Senior Notes being purchased by us.

The paying agent will promptly mail to each holder of Senior Notes properly tendered the purchase price for such Senior Notes, and the trustee will promptly authenticate and mail (or cause to be transferred by book-entry) to each holder a new note equal in principal amount to any unpurchased portion of such Senior Notes surrendered; *provided* that each new note will be in a principal amount equal to €100,000 or an integral multiple of €1,000 in excess thereof.

We will not be required to make an offer to repurchase the Senior Notes upon a change of control repurchase event if a third party makes such an offer in the manner, at the times and otherwise in compliance with the requirements for an offer made by us and such third party purchases all Senior Notes properly tendered and not withdrawn under its offer.

The term "below investment grade rating event" means the Senior Notes become rated below investment grade by each rating agency on any date from the date of the public notice of an arrangement that could result in a change of control until the end of the 60-day period following public notice of the occurrence of such change of control (which period shall be extended so long as the rating of the Senior Notes is under publicly announced consideration for possible downgrade by either of the rating agencies); *provided* that a below investment grade rating event otherwise arising by virtue of a particular reduction in rating shall not be deemed to have occurred in respect to a particular change of control (and thus shall not be deemed a below investment grade rating event for purposes of the definition of change of control repurchase event hereunder) if the rating agencies making the reduction in rating to which this definition would otherwise apply do not announce or publicly confirm or inform the trustee in writing at our or its request that the reduction was the result, in whole or in part, of any event or circumstance comprised of or arising as a result of, or in respect of, such change of control (whether or not such change of control shall have occurred at the time of the below investment grade rating event). Neither the trustee nor any paying agent shall be responsible for monitoring the rating status of the Senior Notes, making any request upon any rating agency, or determining whether any below investment grade rating event has occurred.

The term "change of control" means the consummation of any transaction (including, without limitation, any merger or consolidation) the result of which is that any "person" (as that term is used in Section 13(d)(3) of the Exchange Act) becomes the beneficial owner, directly or indirectly, of more than 50% of our voting stock measured by voting power rather than number of shares.

The term "change of control repurchase event" means the occurrence of both a change of control and a below investment grade rating event.

The term "investment grade" means a rating of Baa3 or better by Moody's (or its equivalent under any successor rating categories of Moody's), a rating of BBB- or better by S&P (or its equivalent under any successor rating categories of S&P) and the equivalent investment grade credit rating from any additional rating agency or rating agencies selected by us.

The term "Moody's" means Moody's Investors Service Inc.

The term "rating agency" means (1) each of Moody's and S&P; and (2) if either of Moody's or S&P ceases to rate the Senior Notes or fails to make a rating of the Senior Notes publicly available for reasons outside of our control, a "nationally recognized statistical rating organization" within the meaning of Section 3(a)(62) of the Exchange Act, selected by us (as certified by a resolution of our board of directors) as a replacement agency for Moody's or S&P, or both, as the case may be.

The term "S&P" means Standard & Poor's Ratings Services, a division of McGraw-Hill, Inc.

The term "voting stock" of any specified "person" (as that term is used in Section 13(d)(3) of the Exchange Act) as of any date means the capital stock of such person that is at the time entitled to vote generally in the election of the board of directors of such person.

Limitation on Liens

The Indenture provides that we will not, and will not permit any of our Subsidiaries to, issue, assume or guarantee any indebtedness for money borrowed ("Debt") if such Debt is secured by a mortgage, pledge, security interest or lien (a "mortgage" or "mortgages") upon any of our Principal Properties or of any of our Subsidiaries' Principal Properties or upon any shares of stock or other stock or other equity interest or indebtedness of any of our Subsidiaries (whether such property, shares of stock or other equity interest or indebtedness is now owned or hereafter acquired) which owns any

Principal Property, without in any such case effectively providing that the debt securities shall be secured equally and ratably with (or prior to) such Debt; provided, however, that the foregoing restrictions shall not apply to:

- mortgages existing on the date the debt securities are originally issued or mortgages provided for under the terms of agreements existing on such date;
- mortgages on Current Assets securing Current Liabilities;
- mortgages on any property we or any of our Subsidiaries acquire, construct, alter or improve after the date of the Indenture that are created or assumed contemporaneously with or within one year after such acquisition (or, in the case of property constructed, altered or improved, after the completion and commencement of commercial operation of such property, whichever is later) to secure or provide for the payment of the purchase price or cost of such property, provided that in the case of any such construction, alteration or improvement the mortgages shall not apply to any property we or any of our Subsidiaries theretofore owned, other than (1) the property so altered or improved and (2) any theretofore unimproved real property on which the property so constructed or altered, or the improvement, is located;
- existing mortgages on property we or any of our Subsidiaries acquire (including mortgages on any property acquired from a Person that is consolidated with or merged with or into us or any of our Subsidiaries) or mortgages outstanding at the time any Person becomes one of our Subsidiaries that are not incurred in connection with such entity becoming one of our Subsidiaries;
- mortgages in our or any of our Subsidiaries' favor;
- mortgages on any property (1) in favor of domestic or foreign governmental bodies to secure partial, progress, advance or other payments pursuant to any contract or statute, (2) securing indebtedness incurred to finance all or any part of the purchase price or cost of constructing, installing or improving the property subject to such mortgages, including mortgages to secure Debt of the pollution control or industrial revenue bond type, or (3) securing indebtedness issued or guaranteed by the United States, any state, any foreign country or any department, agency, instrumentality or political subdivision of any such jurisdiction; and
- any extension, renewal or replacement (or successive extensions, renewals or replacements), in whole or in part, of any mortgage referred to in the foregoing bullet points; provided, however, that the principal amount of Debt secured thereby shall not exceed the principal amount of Debt so secured at the time of such extension, renewal or replacement, together with the reasonable costs related to such extension, renewal or replacement, and that such extension, renewal or replacement shall be limited to all or a part of the property that secured the mortgage so extended, renewed or replaced (plus improvements on such property).

Notwithstanding the foregoing, we and any of our Subsidiaries may, without securing the debt securities, issue, assume or guarantee secured Debt (that would otherwise be subject to the foregoing restrictions) in an aggregate amount that, together with all other such secured Debt and the aggregate amount of our and our Subsidiaries' Attributable Indebtedness deemed to be outstanding in respect of all Sale/Leaseback Transactions entered into pursuant to the provisions described under "—Limitation on Sale/Leaseback Transactions" of the Senior Notes prospectus (excluding any such Sale/Leaseback Transactions the proceeds of which have been applied in accordance with clauses (2) or (3) under the "—Limitation on Sale/Leaseback Transactions" covenant described in the Senior Notes prospectus), does not exceed 10% of the Consolidated Net Worth, as shown on a consolidated balance sheet as of a date not more than 90 days prior to the proposed transaction we prepare in accordance with generally accepted accounting principles in the United States of America.

Consolidation, Merger and Sale of Assets

The Indenture provides that we will not consolidate with or merge into any other corporation, or convey, transfer or lease, or permit one or more of our Significant Subsidiaries to convey, transfer or lease, all or substantially all of our property and assets on a consolidated basis, to any Person unless (1) either we are the continuing corporation or such corporation or Person assumes by supplemental indenture all of our obligations under Indenture and the debt securities issued thereunder, (2) immediately after such transaction no Default or Event of Default shall exist and (3) the surviving corporation or such Person is a corporation, partnership or trust organized and validly existing under the laws of the United States of America, any state thereof or the District of Columbia.

Events of Default

An "Event of Default" is defined under the Indenture as being:

- default in the payment of any interest on any debt security when it becomes due and payable, and continuance of such default for a period of 30 days;

- default in the payment of the principal of any debt security at its maturity;

- default in our performance (or our breach) of any of our covenants or agreements in Indenture, continued for 90 days after we receive written notice;

- acceleration of, or any failure to pay at final maturity, any of our or our Subsidiaries' Debt (other than the debt securities or Non-Recourse Indebtedness) in an aggregate amount in excess of $25 million if such acceleration is not rescinded or annulled, or such indebtedness shall not have been discharged, within 15 days after we receive written notice thereof; and

- certain events of our or of one of our Significant Subsidiaries' bankruptcy, insolvency or reorganization.

The Indenture provides that if an Event of Default, other than certain events with respect to our bankruptcy, insolvency or reorganization, shall occur and be continuing, then the trustee or the holders of not less than 25% in aggregate principal amount of the outstanding debt securities may, by a notice in writing to us (and to the trustee if given by the holders), declare the principal of the debt securities, and all accrued and unpaid interest thereon, to be due and payable immediately. If an Event of Default with respect to certain events of our bankruptcy, insolvency or reorganization shall occur and be continuing, then the principal on the debt securities, and all accrued and unpaid interest thereon, shall be due and payable immediately without any act on the part of the trustee or any holder.

The holders of not less than a majority in principal amount of the outstanding debt securities may, on behalf of the holders of all of the debt securities, waive any past default under the Indenture and its consequences, except a default (1) in respect of the payment of principal of or interest on the debt securities or (2) in respect of a covenant or provision that cannot be modified or amended without the consent of each holder.

Under the Indenture, we are required to file annually with the trustee an officers' certificate as to our compliance with all conditions and covenants. The Indenture provides that the trustee may withhold

notice to the holders of the debt securities of any default (except payment defaults on the debt securities) if it considers it to be in the interest of such holders to do so.

Subject to the provisions of the Indenture relating to the duties of the trustee, the Indenture provides that when an Event of Default occurs and is continuing, the trustee will be under no obligation to exercise any of its rights or powers under Indenture at the request or direction of any of the holders, unless such holders shall have offered to the trustee reasonable security or indemnity. Subject to such provisions concerning the rights of the trustee, the holders of a majority in aggregate principal amount of the outstanding debt securities will have the right to direct the time, method and place of conducting any proceeding for any remedy available to the trustee or exercising any trust or power conferred on the trustee under the Indenture.

Modification or Waiver

The Indenture provides that we may modify and amend Indenture, and the trustee may modify and amend Indenture with the consent of the holders of not less than a majority in principal amount of the outstanding debt securities; provided that no such modification or amendment may, without the consent of each holder, among other things:

- change the maturity of the principal of, or any installment of interest on, the debt securities;
- reduce the principal amount of, or the rate of interest on, the debt securities;
- change the place or currency of payment of principal of, or interest on, the debt securities;
- impair the right to institute suit for the enforcement of any such payment on or after the maturity thereof;
- reduce the percentage of holders necessary to modify or amend the Indenture or to consent to any waiver thereunder or reduce the requirements for voting or quorum described below; or

- modify the foregoing requirements or reduce the percentage of outstanding debt securities necessary to waive any past default.

The Indenture provides that we may modify and amend Indenture and the trustee may modify and amend Indenture without the consent of any holder for any of the following purposes:

- to evidence the succession of another Person to our company and the assumption by such Person of our covenants contained in Indenture and the debt securities;

- to add covenants of our company for the benefit of the holders or to surrender any right or power conferred upon our company;

- to add Events of Default;

- to secure the debt securities;

- to evidence and provide for the acceptance of appointment by a successor trustee;

- to cure any ambiguity, defect or inconsistency in the Indenture; provided such action does not adversely affect the interests of the holders;

- to supplement any of the provisions of Indenture to the extent necessary to permit or facilitate defeasance and discharge of the debt securities; provided such action shall not adversely affect the interests of the holders; or

- to conform with the requirements of the Trust Indenture Act.

Defeasance and Covenant Defeasance

We may, at our option and at any time, terminate our obligations with respect to the outstanding debt securities (“Defeasance”). Defeasance means that we will be deemed to have paid and discharged the entire indebtedness represented by the outstanding debt securities, except for (1) the rights of the holders of outstanding debt securities to receive payment in respect of the principal of and interest on such debt securities when such payments are due, (2) our obligations to issue temporary debt securities, register and transfer or exchange any debt securities, replace mutilated, destroyed, lost or stolen debt securities, maintain an office or agency for payments in respect of the debt securities and segregate and hold money in trust, (3) the rights, powers, trusts, duties and immunities of the trustee and (4) the Defeasance provisions of the Indenture. In addition, we may, at our option and at any time, elect to terminate our obligations with respect to the debt securities (being primarily the restrictions described under “—Limitation on Liens” and “—Limitation on Sale/Leaseback Transactions” of the Senior Notes prospectus), and any omission to comply with such obligations will not constitute a Default or an Event of Default with respect to the debt securities (“Covenant Defeasance”).

In order to exercise either Defeasance or Covenant Defeasance:

- we must irrevocably deposit with the trustee in trust, for the benefit of the holders, cash in United States dollars, U.S. Government Obligations, or a combination thereof, in such amounts as will be sufficient, in the opinion of a nationally recognized firm of independent public accountants, to pay the principal of and interest on the outstanding debt securities to maturity;

- we must deliver to the trustee an opinion of counsel to the effect that the holders of the outstanding debt securities will not recognize income, gain or loss for federal income tax purposes as a result of such Defeasance or Covenant Defeasance, and will be subject to federal income tax on the same amounts, in the same manner and at the same times as would have been the case if such Defeasance or Covenant Defeasance had not occurred (in the case of Defeasance, such opinion must refer to and be based upon a ruling of the Internal Revenue Service issued, or a change in applicable federal income tax laws occurring, after the date hereof);

- no Default or Event of Default shall have occurred and be continuing on the date of such deposit or, insofar as the last bullet point under the first paragraph under "—Events of Default" of the Senior Notes prospectus is concerned, at any time during the period ending the 91st day after the date of deposit (it being understood that this condition shall not be deemed satisfied until the expiration of such period);

- such Defeasance or Covenant Defeasance shall not cause the trustee to have a conflicting interest (as defined by the Trust Indenture Act) with respect to any of our securities;

- such Defeasance or Covenant Defeasance shall not result in a breach or violation of, or constitute a default under, the Indenture or any material agreement or instrument to which we are a party or by which we are bound; and

- we shall have delivered to the trustee an officers' certificate and an opinion of counsel, each stating that all conditions precedent under the Indenture to either Defeasance or Covenant Defeasance, as the case may be, have been complied with and that no violations under agreements governing any other outstanding Debt would result.

Satisfaction and Discharge

The Indenture provides that it will be discharged and will cease to be of further effect (except as to any surviving rights of registration of transfer or exchange of the debt securities, as expressly provided for in the Indenture) as to all outstanding debt securities when (1) either (a) all the debt securities theretofore authenticated and delivered (except lost, stolen or destroyed debt securities which have been replaced or paid and debt securities for whose payment money or certain U.S. Government Obligations has theretofore been deposited in trust or segregated and held in trust by us and thereafter repaid to us or discharged from such trust) have been delivered to the trustee for cancellation or (b) all debt securities not theretofore delivered to the trustee for cancellation have become due and payable or will become due and payable at maturity within one year and we have irrevocably deposited or caused to be deposited with the trustee funds in an amount sufficient to pay and discharge the entire indebtedness on the debt securities not theretofore delivered to the trustee for cancellation, for principal of and interest on the debt securities to the date of deposit together with irrevocable instructions from us directing the trustee to apply such funds to the payment thereof at maturity; (2) we have paid or have caused to be paid all other sums payable under the Indenture by us; and (3) we have delivered to the trustee an officers' certificate and an opinion of counsel stating that all conditions precedent under Indenture relating to the satisfaction and discharge of Indenture have been complied with.

Certain Definitions

"Attributable Indebtedness" means, with respect to any Sale/Leaseback Transaction as of any particular time, the present value (discounted at the rate of interest implicit in the terms of the lease) of the obligations of the lessee under such lease for Net Rental Payments during the remaining term of the lease (including any period for which such lease has been extended).

"Consolidated Net Tangible Assets" means the total amount of assets (less applicable reserves and other properly deductible items) after deducting therefrom (1) all current liabilities (excluding any current liabilities which are by their terms extendible or renewable at the option of the obligor thereon to a time more than 12 months after the time as of which the amount thereof is being computed), (2) all goodwill, trade names, trademarks, patents, unamortized debt discount and expense and other like intangibles and (3) appropriate adjustments on account of non-controlling interests of other Persons holding stock of our Subsidiaries, all as set forth on the most recent balance sheet of the Company and its consolidated subsidiaries (but, in any event, as of a date within 150 days of the date of determination) and computed in accordance with generally accepted accounting principles.

"Consolidated Net Worth" means the amount of total stockholders' equity shown in our most recent consolidated statement of financial position.

"Current Assets" of any Person includes all assets of such Person that would in accordance with generally accepted accounting principles be classified as current assets.

"Current Liabilities" of any Person includes all liabilities of such Person that would in accordance with generally accepted accounting principles be classified as current liabilities.

"Net Rental Payments" under any lease for any period means the sum of the rental and other payments required to be paid in such period by the lessee thereunder, not including, however, any amounts required to be paid by such lessee (whether or not designated as rental or additional rental) on account of maintenance and repairs, insurance, taxes, assessments or similar charges.

"Non-Recourse Indebtedness" means our indebtedness or the indebtedness of any of our Subsidiaries in respect of which the recourse of the holder of such indebtedness, whether direct or indirect and whether contingent or otherwise, is effectively limited to specified assets, and with respect to which neither we nor any of our Subsidiaries provide any credit support.

“Person” means any individual, corporation, partnership, joint venture, association, joint-stock company, trust, unincorporated organization or government or any agency or political subdivision thereof.

“Principal Property” means any manufacturing plant or warehouse, together with the land upon which it is erected and fixtures comprising a part thereof, that we own or that is owned by one of our Subsidiaries which constitutes a “significant subsidiary” as defined in Rule 1-02 of Regulation S-X of the Exchange Act, and is located in the United States, the gross book value (without deduction of any reserve for depreciation) of which on the date as of which the determination is being made is an amount which exceeds 1% of Consolidated Net Tangible Assets, other than any such manufacturing plant or warehouse or any portion thereof (together with the land upon which it is erected and fixtures comprising a part thereof) (1) which is financed by industrial development bonds or (2) which, in the opinion of our board of directors, is not of material importance to our total business conducted and the total business conducted by our Subsidiaries, taken as a whole.

“Sale/Leaseback Transaction” means any arrangement with any Person pursuant to which we or any of our Subsidiaries lease for a period of more than three years, any real or personal property, which property we have or such Subsidiary has sold or transferred or will sell or transfer to such Person in contemplation of such leasing.

“Subsidiary” of a Person means (1) any corporation more than 50% of the outstanding securities having ordinary voting power of which is owned, directly or indirectly, by such Person or by one or more of its Subsidiaries, or by such Person and one or more of its Subsidiaries, or (2) any partnership or similar business organization more than 50% of the ownership interests having ordinary voting power of which shall at the time be so owned. For the purposes of this definition, “Securities Having Ordinary Voting Power” means securities or other equity interests that ordinarily have voting power for the election of directors, or persons having management power with respect to the Person, whether at all times or only so long as no senior class of securities has such voting power by reason of any contingency.

ANNEX A

BORGWARNER INC.
2014 STOCK INCENTIVE PLAN

SECTION 1. *Purpose.*

The purpose of the Plan is to give the Company a significant advantage in attracting, retaining and motivating officers, employees and directors and to provide the Company and its subsidiaries with the ability to provide incentives more directly linked to the profitability of the Company's businesses and increases in stockholder value.

SECTION 2. *Definitions.*

For purposes of the Plan, the following terms are defined as set forth below:

2.1 "Affiliate" means a corporation or other entity controlled by the Company and designated by the Committee as such.

2.2 "Award" means a Stock Appreciation Right, Stock Option, Restricted Stock, Stock Unit, Performance Unit, or Performance Share.

2.3 "Award Agreement" means a written agreement or notice memorializing the terms and conditions of an Award granted pursuant to the Plan.

2.4 "Board" means the Board of Directors of the Company.

2.5 "Breach of Conduct" means, for purposes of the Plan, any of the following:

(a) actions by the participant resulting in the termination of the participant's employment with the Company or any Affiliate for Cause,

(b) the participant's violation of the Company's Code of Ethical Conduct where such business standards have been distributed or made available to the participant,

(c) the participant's unauthorized disclosure to a third party of confidential information, intellectual property, or proprietary business practices, processes, or methods of the Company; or willful failure to protect the Company's confidential information, intellectual property, proprietary business practices, processes, or methods from unauthorized disclosure, or

(d) the participant's soliciting, inducing, or attempting to induce employees of the Company and its Affiliates to terminate their employment with the Company or an Affiliate.

2.6 "Cause" has the meaning set forth in Subsection 6.12.

2.7 "CEO" means the chief executive officer of the Company or any successor corporation.

2.8 "Change in Control" and "Change in Control Price" have the meanings set forth in Subsections 12.2 and 12.3, respectively.

2.9 "Code" means the Internal Revenue Code of 1986, as amended from time to time, and any successor thereto.

2.10 “Commission” means the Securities and Exchange Commission or any successor agency.

2.11 “Committee” means the Committee referred to in Subsection 3.1.

2.12 “Company” means BorgWarner Inc., a Delaware corporation.

2.13 “Disability” means, with respect to any Award recipient, that the recipient:

(a) is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment which can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, or

(b) is, by reason of any medically determinable physical or mental impairment which can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than 3 months under an accident or health plan covering the Company’s employees, or

(c) is determined to be permanently disabled by the Social Security Administration.

“Disability” shall be determined by the plan administrator of the RSP under the disability claims procedures of the RSP but applying the foregoing definition of “Disability” and subject to final review and approval by the Committee in the case of a participant who is a “covered employee” within the meaning of Section 162(m)(3) of the Code.

2.14 “Exchange Act” means the Securities Exchange Act of 1934, as amended from time to time, and any successor thereto.

2.15 “Fair Market Value” means, as of any given date, the mean between the highest and lowest reported sales prices of the Stock on the New York Stock Exchange Composite Tape or, if not listed on such exchange, on any other national securities exchange on which the Stock is listed or on NASDAQ. If there is no regular public trading market for such Stock, the Fair Market Value of the Stock shall be determined by the Committee in good faith.

2.16 “Freestanding Stock Appreciation Right” means a Stock Appreciation Right granted under Section 7 without relationship to a Stock Option.

2.17 “Incentive Stock Option” means any Stock Option intended to be and designated as an “incentive stock option” within the meaning of Section 422 of the Code.

2.18 “Non-Qualified Stock Option” means any Stock Option that is not an Incentive Stock Option.

2.19 “Performance Goals” means a target or targets of objective performance established by the Committee in its sole discretion. A Performance Goal shall be based on one or more of the following criteria:

(a) earnings before or after taxes (including earnings before interest, taxes, depreciation and amortization);

(b) net or operating income;

(c) earnings per share;

(d) expense reductions;

(e) return on investment;

(f) combined net worth;

(g) debt to equity ratio;

(h) operating cash flow;

(i) return on total capital, equity, or assets;

(j) total shareholder return;

(k) economic value;

(l) changes in the market price of the Common Stock; or

(m) relative profitability - change in operating income over change in sales.

The criteria selected by the Committee may relate to the Company, one or more of its Affiliates or one or more of its business units, or any combination thereof. The Performance Goals so selected by the Committee may be based solely on the performance of the Company, its Affiliates, or business units, or any combination thereof, or may be relative to the performance of one or more peer group companies, indices, or combination thereof. A Performance Goal may include a threshold level of performance below which no payout or vesting will occur, target levels of performance at which a full payout or full vesting will occur, and/or a maximum level of performance at which a specified additional payout or vesting will occur. Each of the foregoing Performance Goals shall be subject to certification by the Committee; provided that the Committee shall have the authority, to the extent consistent with the "qualified performance-based compensation" exception of Section 162(m) of the Code and Section 1.162-27(e) of the Income Tax Regulations, to make equitable adjustments to the Performance Goals in recognition of unusual or nonrecurring events affecting the Company or any Affiliate or the financial statements of the Company or any Affiliate in response to changes in applicable laws or regulations, or to account for items of gain, loss or expense determined to be extraordinary or unusual in nature or infrequent in occurrence or related to the disposal of a segment of a business or related to a change in accounting principles. Once a Performance Goal is established, the Committee shall have no discretion to increase the amount of compensation that would otherwise be payable to a recipient upon attainment of a Performance Goal.

2.20 "Performance Period" means the period of one year or longer established by the Committee in connection with the grant of an Award for which the Committee has established Performance Goals.

2.21 "Performance Unit" means an Award granted under Section 10, the value of which is expressed in terms of cash or in property other than Stock.

2.22 "Performance Share" means an Award granted under Section 11, the value of which is expressed in terms of, or valued by reference to, a share of Stock.

2.23 "Plan" means the BorgWarner Inc. 2014 Stock Incentive Plan, as set forth herein and as hereinafter amended from time to time.

2.24 "Restricted Stock" means an award granted under Section 8.

2.25 "Restricted Stock Agreement" means an Award Agreement memorializing the terms and conditions of a grant of Restricted Stock.

2.26 "Retirement" means, in the case of Section 8 (Restricted Stock), Section 9 (Stock Units), Section 10 (Performance Units), and Section 11 (Performance Shares), the participant's Termination of Employment with the Company and all Affiliates:

(a) on or after the last day of the calendar month coincident with or immediately following the day on which the participant attains age 65, or age 60 if the participant has been credited with at least 15 Years of Service, or

(b) with the written consent of the Company that such Termination of Employment shall constitute retirement.

In the case of Section 6 (Stock Options), "Retirement" means the participant's Termination of Employment with the Company and all Affiliates on or after the last day of the calendar month coincident with or immediately following the day on which the participant attains:

(a) age 65, or

(b) age 60 if the participant has been credited with at least 15 Years of Service.

2.27 "RSP" means the BorgWarner Inc. Retirement Savings Plan.

2.28 "Rule 16b-3" means Rule 16b-3, as promulgated by the Commission under Section 16(b) of the Exchange Act, as amended from time to time or any successor definition adopted by the Commission.

2.29 "Specified Employee" means a "specified employee" within the meaning of Section 409A(a)(2)(B) of the Code and using the methodology selected by the Company from time to time (including any permitted alternate means selected by the Company to identify specified employees), or if none, the default methodology provided by applicable Income Tax Regulations).

2.30 "Stock" means common stock, par value $.01 per share, of the Company that as of the date of grant of an Award, has the highest aggregate value of any class of common stock of the Company outstanding or a class of common stock substantially similar to such class of stock (ignoring differences in voting rights). In addition, Stock does not include any stock of the Company that provides a preference as to dividends or liquidation rights.

2.31 "Stock Appreciation Right" means a right granted under Section 7.

2.32 "Stock Option" means an option granted under Section 6 to purchase one or more shares of Stock.

2.33 "Stock Unit" means a right granted under Section 9.

2.34 "Tandem Stock Appreciation Right" means a Stock Appreciation Right granted under Section 7 in conjunction with a Stock Option.

2.35 "Termination of Employment" means the termination of the participant's employment with the Company and any subsidiary or Affiliate. A participant employed by a subsidiary or an Affiliate shall also be deemed to incur a Termination of Employment if the subsidiary or Affiliate ceases to be such a subsidiary or Affiliate, as the case may be, and the participant does not immediately thereafter become an employee of the Company or another subsidiary or Affiliate. In the case of a participant who is a director but not an employee of the Company or any subsidiary or Affiliate, “Termination of Employment” means the termination of the participant’s services as a member of the Board. For purposes of Paragraph 12.1(d) hereof, a Termination of Employment” must constitute a “Separation from Service” for purposes of Section 409A of the Code.

2.36 “Year of Service” means each twelve (12) month period of employment (or fraction of a 12-month period of employment) with the Company or any subsidiary or Affiliate, based on the participant’s aggregate elapsed time of employment. Credit toward Years of Service runs continuously beginning on the first day a participant performs an hour of service (upon initial employment or reemployment) and ending on the date of the participant’s Termination of Employment. Any period during which a participant is on an authorized leave of absence will be considered as service for determining Years of Service. If a participant is reemployed following a Termination of Employment, the participant’s Years of Service, including fractional years, credited before the Termination of Employment will be restored after the participant performs an hour of service after reemployment.

2.37 In addition, certain other terms used herein have definitions given to them in the first place in which they are used.

SECTION 3. *Administration.*

3.1 The Plan shall be administered by the Compensation Committee of the Board or such other committee of the Board, composed of not less than three (3) members of the Board, each of whom shall be appointed by and serve at the pleasure of the Board and who shall also be:

(a) “non-employee directors” within the meaning of Rule 16b-3,

(b) “independent directors” within the meaning of any applicable stock exchange rule, and

(c) to the extent that the Committee has resolved to take actions necessary to enable compensation arising with respect to Awards under the Plan to constitute performance-based compensation for purposes of Section 162(m) of the Code, “outside directors” within the meaning of Section 162(m) of the Code.

3.2 With respect to Awards granted to members of the Board who are not officers or employees of the Company, a subsidiary, or an Affiliate, the Plan shall be administered by the Committee subject to the approval of a majority of all members of the Board (including members of the Committee) who are “non-employee directors” within the meaning of Rule 16b-3, and “independent directors” with the meaning of any applicable stock exchange rule. With respect to such Awards, all references to the “Committee” contained in the Plan shall be deemed and construed to mean the Committee, the decisions of which shall be subject to the approval of a majority of such members of the Board who are both “non-employee directors within the meaning of Rule 16b-3 and “independent directors” within the meaning of any applicable stock exchange rule.

3.3 The Committee shall have full authority to grant Awards pursuant to the terms of the Plan to officers, employees and directors of the Company and its subsidiaries and Affiliates.

3.4 Among other things, the Committee shall have the authority, subject to the terms of the Plan:

(a) to select the officers, employees and directors to whom Awards may from time to time be granted;

(b) to determine whether and to what extent Awards are to be granted hereunder and the type or types of Awards to be granted;

(c) to determine the number of shares of Stock to be covered by each Award granted hereunder;

(d) to determine the terms and conditions of any Award granted hereunder (including, but not limited to, the option price (subject to Paragraph 6.5(a)), any vesting restriction or limitation and any vesting acceleration or forfeiture waiver regarding any Award and the shares of Stock relating thereto, based on such factors as the Committee shall determine);

(e) to modify, amend or adjust the terms and conditions of any Award, at any time or from time to time to the extent required or permitted by the Plan or by applicable law, including but not limited to any clawback requirements;

(f) to determine to what extent and under what circumstances Stock and other amounts payable with respect to an Award shall be deferred; and

(g) to determine under what circumstances a Stock Option or a Tandem Stock Appreciation Right may be settled in cash or Stock under Subsection 6.13 or Paragraph 7.4(b), respectively.

3.5 The Committee may authorize the CEO to grant Awards pursuant to the terms of the Plan covering up to ten thousand (10,000) shares of Stock per individual, per year, to officers and employees of the Company and its subsidiaries and Affiliates who are not:

(a) subject to Section 16 of the Exchange Act, nor

(b) "covered employees" within the meaning of Section 162(m)(3) of the Code.

Any such authorization so made shall be consistent with recommendations made by the Board's Compensation Committee to the Board regarding non-CEO compensation, incentive-compensation plans and equity-based plans. When such authorization is so made by the Committee, the CEO shall have the authority of the Committee described in Paragraphs 3.4(a), 3.4(b), 3.4(c), and 3.4(d) of the Plan with respect to the granting of such Awards; provided, however, that the Committee may limit or qualify such authorization in any manner it deems appropriate.

3.6 The Committee may also authorize the CEO to grant Awards pursuant to the terms of the Plan covering up to ten thousand (10,000) shares of Stock per individual, as an inducement to an individual to accept an offer of employment, including Awards to individuals who may become, upon accepting an offer of employment:

(a) officers of the Company and its subsidiaries and Affiliates who are subject to Section 16 of the Exchange Act, or

(b) "covered employees" within the meaning of Section 162(m)(3) of the Code.

Any such authorization so made shall be consistent with recommendations made by the Board's Compensation Committee to the Board regarding non-CEO compensation, incentive-compensation plans and equity-based plans. When such authorization is so made by the Committee, the CEO shall have the authority of the Committee described in Paragraphs 3.4(a), 3.4(b), 3.4(c), and 3.4(d) of the Plan with respect to the granting of such Awards; provided, however, that the Committee may limit or qualify such authorization in any manner it deems appropriate.

3.7 The Committee shall have the authority to adopt, alter and repeal such administrative rules, guidelines and practices governing the Plan as it shall, from time to time, deem advisable, to interpret the terms and provisions of the Plan and any Award issued under the Plan (and any agreement relating thereto) and to otherwise supervise the administration of the Plan.

3.8 The Committee may act only by a majority of its members then in office, except that the members thereof may:

(a) delegate all or a portion of the administration of the Plan to one or more officers of the Company, provided that no such delegation may be made that would cause Awards or other transactions under the Plan to cease to be exempt from Section 16(b) of the Exchange Act or to cease to constitute “qualified performance-based compensation within the meaning of Section 1.162-27(e) of the Income Tax Regulations in instances where the Committee has intended that an Award so qualify, and

(b) authorize any one or more of its members or any officer of the Company to execute and deliver documents on behalf of the Committee.

3.9 Any determination made by the Committee or pursuant to delegated authority pursuant to the provisions of the Plan with respect to any Award shall be made in the sole discretion of the Committee or such delegate at the time of the grant of the Award or, unless in contravention of any express term of the Plan, at any time thereafter. All decisions made by the Committee or any appropriately delegated officer pursuant to the provisions of the Plan shall be final and binding on all persons, including the Company and Plan participants.

3.10 In addition to such other rights of indemnification from the Company as they may have, the members of the Committee shall be indemnified by the Company against reasonable expenses, including attorneys’ fees, actually and necessarily incurred in connection with the defense of any action, suit or proceeding, or in connection with any appeal therein, to which they or any of them may be a party by reason of any action taken or failure to act under or in connection with the Plan or any Award granted thereunder, and against all amounts paid by them in settlement thereof (provided such settlement is approved by legal counsel selected by the Company) or paid by them in satisfaction of a judgment in any such action, suit or proceeding, except that such member is liable for negligence or misconduct in the performance of his duties; provided that within sixty days after institution of any such action, suit or proceeding, the member shall in writing offer the Company the opportunity, at its own expense, to handle and defend the same.

SECTION 4. *Stock Subject To Plan; Individual Limitations.*

4.1 Subject to adjustment as provided herein, the total number of shares of Stock of the Company available for Awards under the Plan, including with respect to Incentive Stock Options, shall be eight million (8,000,000) shares.

4.2 No “covered employee,” as such term is defined in Section 162(m) of the Code, shall in any fiscal year of the Company be granted Stock Options, Stock Appreciation Rights, Restricted Stock, Stock Units, or Performance Shares covering more than three hundred thousand (300,000) shares of Stock (including grants of Stock Options, Stock Appreciation Rights, Stock Units, or Performance Shares that are paid or payable in cash), but excluding from this limitation:

(a) any additional shares of Stock credited to the participant as dividend equivalents on Awards,

(b) cash or stock dividends on Restricted Stock that are paid or credited to a participant as additional Restricted Stock, and

(c) dividend equivalents that are paid or credited to a participant on Stock Units.

No “covered employee,” as such term is defined in Section 162(m) of the Code, shall in any fiscal year of the Company be granted Performance Units of a value exceeding when paid six million dollars ($6,000,000) in cash or in property other than Stock, but excluding from this limitation including any additional amounts credited to the participant as interest or dividend equivalents.

4.3 The Stock to be delivered under the Plan may be made available from authorized but unissued shares of Stock, treasury stock, or shares of Stock purchased on the open market.

4.4 With respect to Awards under the Plan,

(a) If any shares of Restricted Stock are forfeited, any Stock Option or Stock Appreciation Right is forfeited, cancelled or otherwise terminated without being exercised, or if any Stock Option or Stock Appreciation Right (whether granted alone or in conjunction with a Stock Option) is exercised for or paid in cash, shares subject to such Awards that are forfeited, cancelled, terminated without being exercised, or paid in cash shall again be available for distribution in connection with Awards under the Plan;

(b) If any Stock Unit, Performance Unit, or Performance Share is cancelled, forfeited, terminates in whole or in part without the delivery of Stock or is paid in cash, shares subject to such Awards that are so cancelled, forfeited, terminated or paid in cash shall again be available for distribution in connection with Awards under the Plan;

(c) If an Award recipient tenders shares of previously-acquired Stock in satisfaction of applicable withholding tax obligations, or if any shares of Stock covered by an Award are not delivered to the Award recipient because such shares are withheld to satisfy applicable withholding tax obligations, such shares shall again be available for further Award grants under the Plan; and

(d) If an Award recipient tenders shares of previously-acquired Stock in payment of the option price upon exercise of a Stock Option or if shares of Stock are withheld in payment of the option price, the number of shares represented thereby shall again be available for further Award grants under the Plan.

4.5 Subject to Subsections 6.15 and 7.6, in the event of any merger, reorganization, consolidation, recapitalization, stock dividend, stock split, extraordinary distribution with respect to the Stock or other change in corporate structure affecting the Stock, then:

(a) the number of shares of Stock reserved for issuance and future grant under the Plan under Section 4.1;

(b) the Exercise Prices of and number of shares of Stock subject to outstanding Stock Options under Section 6 and Stock Appreciation Rights under Section 7;

(c) the number of shares of Stock subject to other outstanding Awards;

(d) the maximum number of shares of Stock that may be issued as ISOs set forth in Section 2.5;

(e) the maximum number of shares of Stock that may be issued to an individual or to a new Employee in any one calendar year set forth in Section 3; and

(f) the number of shares of Stock that are granted as Awards to Non-Employee Directors as set forth in Section 12,

shall be proportionately adjusted, subject to any required action by the Board or the stockholders of the Company and in compliance with applicable securities laws. However, fractions of a Share will not be issued, and no adjustment will be made to outstanding Stock Options if the adjustment would cause the Stock Options to provide for a deferral of compensation subject to Code Section 409A (and any applicable related regulations and guidance).

SECTION 5. *Eligibility.*

Officers, employees and directors of the Company, its subsidiaries and Affiliates who are responsible for or contribute to the management, growth and profitability of the business of the Company, its subsidiaries and Affiliates, as determined by the Committee, are eligible to be granted Awards under the Plan. However, no grant of Incentive Stock Options, Performance Units, or Performance Shares shall be made to a director who is not an officer or a salaried employee of the Company, a subsidiary, or an Affiliate.

SECTION 6. *Stock Options.*

6.1 Stock Options may be granted alone or in addition to other Awards granted under the Plan and may be of two types: Incentive Stock Options and Non-Qualified Stock Options. Any Stock Option granted under the Plan shall be in such form as the Committee may from time to time approve.

6.2 A Stock Option shall entitle the optionee to purchase one or more shares of Stock, pursuant to the terms and provisions of the Plan and the applicable Award Agreement. The Committee shall have the authority to grant participants Incentive Stock Options, Non-Qualified Stock Options or both types of Stock Options (in each case with or without Stock Appreciation Rights), provided however, that Incentive Stock Options may be granted only to employees of the Company and its subsidiaries (within the meaning of Section 424(f) of the Code). To the extent that any Stock Option is not designated as an Incentive Stock Option or even if so designated does not qualify as an Incentive Stock Option, it shall constitute a Non-Qualified Stock Option.

6.3 Stock Options shall be evidenced by Award Agreements, the terms and provisions of which may differ. An Award Agreement providing for the grant of Stock Options shall indicate on its face whether it is intended to be an agreement for an Incentive Stock Option or a Non-Qualified Stock Option. The grant of a Stock Option shall occur on the date the Committee by resolution selects an individual to be a participant in any grant of a Stock Option, determines the number of shares of Stock to be subject to such Stock Option to be granted to such individual and specifies the terms and provisions of the Stock Option. The Company shall notify a participant of any grant of a Stock Option, and a written Award Agreement or Award Agreements shall be duly executed and delivered by the Company to the participant.

6.4 Anything in the Plan to the contrary notwithstanding, no term of the Plan relating to Incentive Stock Options shall be interpreted, amended or altered nor shall any discretion or authority granted under the Plan be exercised so as to disqualify the Plan under Section 422 of the Code or, without the consent of the optionee affected, to disqualify any Incentive Stock Option under such Section 422 of the Code.

6.5 Stock Options granted under the Plan shall be subject to the following terms and conditions and shall contain such additional terms and conditions as the Committee shall deem desirable:

(a) *Option Price.* The option price per share of Stock purchasable under a Stock Option shall be determined by the Committee and set forth in the Award Agreement, and shall not be and shall never become less than the Fair Market Value of the Stock subject to the Stock Option on the date of grant.

(b) *Option Term.* The term of each Stock Option shall be fixed by the Committee, but no Stock Option shall be exercisable more than ten years after the date the Stock Option is granted.

(c) *Exercisability.* Except as otherwise provided herein, Stock Options shall be exercisable at such time or times and subject to such terms and conditions as shall be determined by the Committee. If the Committee provides that any Stock Option is exercisable only in installments, the Committee may at any time waive such installment exercise provisions, in whole or in part, based on such factors as the Committee may determine. In addition, the Committee may at any time, in whole or in part, accelerate the exercisability of any Stock Option.

(d) *Method of Exercise.* Subject to the provisions of this Section 6, Stock Options may be exercised, in whole or in part, at any time during the option term by giving written notice of exercise to the Company specifying the number of shares of Stock subject to the Stock Option to be purchased.

6.6 The option price of Stock to be purchased upon exercise of any Option shall be paid in full in cash (by certified or bank check or such other instrument as the Company may accept) or, if and to the extent set forth in the Award Agreement, may also be paid by one or more of the following:

(a) in the form of unrestricted Stock already owned by the optionee (and, in the case of the exercise of a Non-Qualified Stock Option, Restricted Stock subject to an Award hereunder) based in any such instance on the Fair Market Value of the Stock on the date the Stock Option is exercised; provided, however, that, in the case of an Incentive Stock Option, the right to make a payment in the form of already owned shares of Stock may be authorized only at the time the Stock Option is granted;

(b) by requesting the Company to withhold from the number of shares of Stock otherwise issuable upon exercise of the Stock Option that number of shares having an aggregate Fair Market Value on the date of exercise equal to the exercise price for all of the shares of Stock subject to such exercise; or

(c) by a combination thereof, in each case in the manner provided in the Award Agreement.

In the discretion of the Committee and if not prohibited by law, payment for any shares subject to a Stock Option may also be made by delivering a properly executed exercise notice to the Company or its agent, together with a copy of irrevocable instructions to a broker to deliver promptly to the Company the amount of sale or loan proceeds to pay the purchase price. To facilitate the foregoing, the Company may enter into agreements for coordinated procedures with one or more brokerage firms.

If payment of the option exercise price of a Non-Qualified Stock Option is made in whole or in part in the form of Restricted Stock, the number of shares of Stock to be received upon such exercise equal to the number of shares of Restricted Stock used for payment of the option exercise price shall be subject to the same forfeiture restrictions to which such Restricted Stock was subject, unless otherwise determined by the Committee.

6.7 No shares of Stock shall be issued until full payment of the option exercise price has been made. Subject to any forfeiture restrictions that may apply if a Stock Option is exercised using Restricted Stock, an optionee shall have all of the rights of a stockholder of the Company holding the Stock that is subject to such Stock Option (including, if applicable, the right to vote the shares and the right to receive dividends) when the optionee has given written notice of exercise, has paid in full for such shares and, if requested, has given the representation described in Subsection 16.1, but shall have no rights of a stockholder of the Company prior to such notice of exercise, full payment, and if requested providing the representation described in Subsection 16.1.

6.8 *Transferability of Stock Options.* No Stock Option shall be transferable by the optionee other than

(a) by will or by the laws of descent and distribution, or, in the Committee’s discretion, pursuant to a written beneficiary designation,

(b) pursuant to a qualified domestic relations order (as defined in the Code or Title I of the Employee Retirement Income Security Act of 1974, as amended, or the rules thereunder), or

(c) in the Committee’s discretion, pursuant to a gift to such optionee’s “immediate family” members directly, or indirectly by means of a trust, partnership, or limited liability company.

Subject to the terms of this Plan and the relevant Award Agreement, all Stock Options shall be exercisable only by the optionee, guardian, legal representative or beneficiary of the optionee or permitted transferee, it being understood that the terms "holder" and "optionee" include any such guardian, legal representative or beneficiary or transferee. For purposes of this Subsection 6.8, "immediate family" shall mean, except as otherwise defined by the Committee, the optionee's spouse, children, siblings, stepchildren, grandchildren, parents, stepparents, grandparents, in-laws and persons related by legal adoption. Such transferees may transfer a Stock Option only by will or by the laws of descent and distribution. In no event may a participant transfer an Incentive Stock Option other than by will or the laws of descent and distribution. The transfer of Stock Options to a third party for value is prohibited.

6.9 *Termination by Death.* If an optionee's employment terminates by reason of death, any Stock Option held by such optionee may thereafter be exercised, to the extent then exercisable, or on such accelerated basis as the Committee may determine, for a period of one year (or such other period as the Committee may specify in the Award Agreement) from the date of such death or until the expiration of the stated term of such Stock Option, whichever period is the shorter. In the event of Termination of Employment due to death, if an Incentive Stock Option is exercised after the expiration of the exercise periods that apply for purposes of Section 422 of the Code, such Stock Option will thereafter be treated as a Non-Qualified Stock Option.

6.10 *Termination by Reason of Disability.* If an optionee's employment terminates by reason of Disability, any Stock Option held by such optionee may thereafter be exercised by the optionee, to the extent it was exercisable at the time of termination, or on such accelerated basis as the Committee may determine, for a period of three years (or such shorter period as the Committee may specify in the Award Agreement) from the date of such Termination of Employment or until the expiration of the stated term of such Stock Option, whichever period is the shorter; provided, however, that if the optionee dies within such three-year period (or such shorter period), any unexercised Stock Option held by such optionee shall, notwithstanding the expiration of such three-year (or such shorter) period, continue to be exercisable to the extent to which it was exercisable at the time of death for a period of twelve months from the date of such death or until the expiration of the stated term of such Stock Option, whichever period is the shorter. In the event of Termination of Employment by reason of Disability, if an Incentive Stock Option is exercised after the expiration of the exercise periods that apply for purposes of Section 422 of the Code, such Stock Option will thereafter be treated as a Non-Qualified Stock Option.

6.11 *Termination by Reason of Retirement.* If an optionee's employment terminates by reason of Retirement, any Stock Option held by such optionee may thereafter be exercised by the optionee, to the extent it was exercisable at the time of such Retirement or on such accelerated basis as the Committee may determine, for a period of three years (or such shorter period as the Committee may specify in the Award Agreement) from the date of such Termination of Employment or until the expiration of the stated term of such Stock Option, whichever period is the shorter; provided, however, that if the optionee dies within such three-year (or such shorter) period, any unexercised Stock Option held by such optionee shall, notwithstanding the expiration of such three-year (or such shorter) period, continue to be exercisable to the extent to which it was exercisable at the time of death for a period of twelve months from the date of such death or until the expiration of the stated term of such Stock Option, whichever period is the shorter. In the event of Termination of Employment by reason of Retirement, if an Incentive Stock Option is exercised after the expiration of the exercise periods that apply for purposes of Section 422 of the Code, such Stock Option will thereafter be treated as a NonQualified Stock Option.

6.12 *Other Termination.* Unless otherwise determined by the Committee, if an optionee incurs a Termination of Employment for any reason other than death, Disability or Retirement, any Stock Option held by such Optionee shall thereupon terminate, except that such Stock Option, to the extent then exercisable, or on such accelerated basis as the Committee may determine, may be exercised for the lesser of one year from the date of such Termination of Employment or the balance of such Stock Option's term if such Termination of Employment of the optionee is involuntary and without Cause; provided, however, that if the optionee dies within such one-year period, any unexercised Stock Option held by such optionee shall notwithstanding the expiration of such one-year period, continue to be exercisable to the extent to which it was exercisable at the time of death for a period of twelve months from the date of such death or until the expiration of the stated term of such Stock Option, whichever period is the shorter. In the event of Termination of Employment for any reason other than death, Disability or Retirement, if an Incentive Stock Option is exercised after the expiration of the exercise periods that apply for purposes of Section 422 of the Code, such Stock Option will thereafter be treated as a Non-Qualified Stock Option.

Unless otherwise determined by the Committee, for the purposes of the Plan “Cause” shall mean:

(a) the participant’s conviction of, or entering a guilty plea, no contest plea or nolo contendre plea to any felony or to any crime involving dishonesty or moral turpitude under Federal law or the law of the state in which such action occurred,

(b) dishonesty in the course of fulfilling the participant’s employment duties or

(c) willful and deliberate failure on the part of the participant to perform his employment duties in any material respect.

6.13 *Cashing Out of Stock Option.* On receipt of written notice of exercise, the Committee may elect to cash out all or part of the portion of the shares of Stock for which a Stock Option is being exercised by paying the optionee an amount, in cash or Stock, equal to the excess of the Fair Market Value of the Stock over the option price times the number of shares of Stock for which to the Option is being exercised on the effective date of such cash out.

6.14 *Change in Control Cash Out.* During the sixty-day period from and after a Change in Control (the “Exercise Period”), the Committee may, but shall not be required to, permit an Optionee with respect to any outstanding Stock Option, whether or not the Stock Option is fully exercisable, and in lieu of the payment of the exercise price for the shares of Stock being purchased under the Stock Option and by giving notice to the Company, to elect (within the Exercise Period) to surrender all or part of the Stock Option to the Company and to receive cash, within thirty days of such notice, in an amount equal to the amount by which the Change in Control Price per share of Stock on the date of such election shall exceed the exercise price per share of Stock under the Stock Option (the “Spread”) multiplied by the number of shares of Stock granted under the Stock Option as to which the right granted under this Subsection 6.14 shall have been exercised; provided, however, that if the Change in Control is within six months of the date of grant of a particular Stock Option held by an optionee who is an officer or director of the Company and is subject to Section 16(b) of the Exchange Act, no such election shall be made by such optionee with respect to such Stock Option prior to six months from the date of grant. Notwithstanding any other provision hereof, if the end of such sixty-day period from and after a Change in Control is within six months of the date of grant of a Stock Option held by an optionee who is an officer or director of the Company and is subject to Section 16(b) of the Exchange Act, such Stock Option shall be cancelled in exchange for a cash payment to the optionee, effected on the day which is six months and one day after the date of grant of such Option, equal to the Spread multiplied by the number of shares of Stock granted under the Stock Option.

6.15 *Modification.* Notwithstanding any provision of this Plan or any Award Agreement to the contrary, no Modification shall be made in respect to any Stock Option if such Modification would result in the Stock Option constituting a deferral of compensation or having an additional deferral feature.

6.16 Subject to Subsection 6.17 below, a “Modification” for purposes of Subsection 6.15, above, shall mean any change in the terms of a Stock Option (or change in the terms of the Plan or applicable Award Agreement) that may provide the holder of the Stock Option with a direct or indirect reduction in the exercise price of the Stock Option or an additional deferral feature, or an extension or renewal of the Stock Option, regardless of whether the holder in fact benefits from the change in terms. An extension of a Stock Option refers to the granting to the holder of an additional period of time within which to exercise the Stock Option beyond the time originally prescribed. A renewal of a Stock Option is the granting by the Company of the same rights or privileges contained in the original Award Agreement for the Stock Option on the same terms and conditions.

6.17 Notwithstanding Subsection 6.16 above, it shall not be a Modification to change the terms of a Stock Option in any of the ways or for any of the purposes specifically described in published guidance of the Internal Revenue Service as not resulting in a modification, extension or renewal of a stock right or the granting of a new stock right.

6.18 In addition to the authority conferred upon it by Subsections 6.9, 6.10, 6.11, and 6.12 hereof, and notwithstanding any limitations on Stock Option exercise periods contained in said sections, but subject to Paragraph 6.5(b) hereof, the Committee shall have the authority to establish (in the case of a newly granted Stock Option) or extend (in the case of an outstanding Stock Option) the exercise period of any Stock Option beyond the limitations provided in said sections; provided however, that subsequent to its grant, the exercise period of an outstanding Stock Option shall not be extended to a date that is later than the earlier of:

(a) the date on which the Option would expire by its original terms or

(b) the 10th anniversary of the original date of the grant.

6.19 Except for adjustments as permitted by Subsection 4.5, once granted hereunder, the option price of a Stock Option shall not be adjusted. The substitutions and adjustments permitted by Subsection 4.5 shall be limited to those substitutions and adjustments which will not result in the Stock Option, as substituted or adjusted, constituting a “deferral of compensation” within the meaning of Section 409A of the Code.

6.20 Notwithstanding any provision herein to the contrary, the repricing of a Stock Option is prohibited without prior approval of the Company’s stockholders. For this purpose, a “repricing” means any of the following (or any other action that has the same effect as any of the following):

(a) changing the terms of a Stock Option to lower its exercise price;

(b) any other action that is treated as a “repricing” under generally accepted accounting principles; and

(c) repurchasing for cash or canceling a Stock Option at a time when its exercise price is greater than the Fair Market Value of the underlying shares of Stock in exchange for another Award, unless the cancellation and exchange occurs in connection with a change in capitalization or similar change permitted under Subsection 4.5 above. Such cancellation and exchange would be considered a “repricing” regardless of whether it is treated as a “repricing” under generally accepted accounting principles and regardless of whether it is voluntary on the part of the Participant.

SECTION 7. *Stock Appreciation Rights.*

7.1 *Grant and Exercise.* Stock Appreciation Rights may be granted as Awards under the Plan as either Freestanding Stock Appreciation Rights or Tandem Stock Appreciation Rights. Freestanding Stock Appreciation Rights may be granted alone or in addition to other Awards under the Plan. Tandem Stock Appreciation Rights may be granted in conjunction with all or part of any Stock Option granted under the Plan. Tandem Stock Appreciation Rights may be granted only at the time of grant of the related Stock Option. Each grant of a Stock Appreciation Right shall be confirmed by, and be subject to the terms of, an Award Agreement.

7.2 *Freestanding Stock Appreciation Rights.* A Freestanding Stock Appreciation Right granted pursuant to Subsection 7.1 shall be exercisable as determined by the Committee and specified in the Award Agreement, but in no event after ten years from the date of grant. The base price of a Freestanding Stock

Appreciation Right shall not be and shall never become less than the Fair Market Value of a share of Stock on date of grant. A Freestanding Stock Appreciation Right shall entitle the holder, upon receipt of such right, to a cash payment determined by multiplying

(a) the difference between the base price of the Stock Appreciation Right and the Fair Market Value of a share of Stock on the date of exercise of the Freestanding Stock Appreciation Right, by

(b) the number of shares of Stock as to which such Freestanding Stock Appreciation Right shall have been exercised.

A Freestanding Stock Appreciation Right may be exercised by giving written notice of exercise to the Company or its designated agent specifying the number of shares of Stock as to which Freestanding Stock Appreciation Right is being exercised.

7.3 *Tandem Stock Appreciation Rights.* A Tandem Stock Appreciation Right may be exercised by an optionee in accordance with Subsection 7.4 by surrendering the applicable portion of the related Stock Option in accordance with procedures established by the Committee. Upon exercise and surrender, the optionee shall be entitled to receive an amount determined in the manner prescribed in Subsection 7.4. Stock Options which have been so surrendered shall no longer be exercisable to the extent the related Tandem Stock Appreciation Right have been exercised.

7.4 *Tandem Stock Appreciation Rights Terms and Conditions.* Tandem Stock Appreciation Rights shall be subject to such terms and conditions as shall be determined by the Committee, including the following:

(a) The base price of a Tandem Stock Appreciation Right shall not be and shall never become less than the exercise price of the related Stock Option on date of grant. Tandem Stock Appreciation Rights shall be exercisable only at such time or times and to the extent that the Stock Options to which they relate are exercisable in accordance with the provisions of Section 6 (including any extensions) and this Section 7. A Tandem Stock Appreciation Right shall terminate and no longer be exercisable upon the forfeiture, termination, or exercise of the related Stock Option.

(b) Upon the exercise of a Tandem Stock Appreciation Right, an optionee shall be entitled to receive an amount in cash, shares of Stock or both equal in value to the excess of the Fair Market Value of one share of Stock over the option price per share specified in the related Stock Option multiplied by the number of shares in respect of which the Tandem Stock Appreciation Right shall have been exercised, with the Committee having the right to determine the form of payment.

(c) Tandem Stock Appreciation Rights shall be transferable only to permitted transferees of the underlying Stock Option in accordance with Subsection 6.8.

(d) Upon the exercise of a Tandem Stock Appreciation Right, the Stock Option or part thereof to which such Tandem Stock Appreciation Right is related shall be deemed to have been exercised for the purpose of the limitation set forth in Section 4 on the number of shares of Common Stock to be issued under the Plan, but only to the extent of the number of shares covered by the Tandem Stock Appreciation Right at the time of exercise based on the value of the Tandem Stock Appreciation Right at such time.

7.5 In the case of any Stock Appreciation Right providing for, or in which the Committee has determined to make payment in whole or in part in Stock, the holder thereof shall have no rights of a stockholder of the Company prior to the proper exercise of such Stock Appreciation Right, and if requested, prior to providing the representation described in Subsection 16.1, and the issuance of Stock in respect thereof.

7.6 *Modification.* Notwithstanding any provision of this Plan or any Award Agreement to the contrary, no Modification shall be made in respect to any Stock Appreciation Right if such Modification would result in the Stock Appreciation Right constituting a deferral of compensation or having an additional deferral feature.

7.7 Subject to Subsection 7.8 below, a “Modification” for purposes of Subsection 7.6, above, shall mean any change in the terms of an Stock Appreciation Right (or change in the terms of the Plan or applicable Award Agreement) that may provide the holder of the Stock Appreciation Right with a direct or indirect reduction in the base price of the Stock Appreciation Right, or an additional deferral feature, or an extension or renewal of the Stock Appreciation Right, regardless of whether the holder in fact benefits from the change in terms. An extension of a Stock Appreciation Right refers to the granting to the holder of an additional period of time within which to exercise the Stock Appreciation Right beyond the time originally prescribed. A renewal of a Stock Appreciation Right is the granting by the Company of the same rights or privileges contained in the original Award Agreement for the Stock Appreciation Right on the same terms and conditions.

7.8 Notwithstanding Subsection 7.7 above, it shall not be a Modification to change the terms of a Stock Appreciation Right in any of the ways or for any of the purposes specifically described in published guidance of the Internal Revenue Service as not resulting in a modification, extension or renewal of a stock right or the granting of a new stock right.

7.9 Subsequent to its grant, no Stock Appreciation Right shall be extended to a date that is later than the earlier of:

(a) the date on which the Stock Appreciation Right would expire by its original terms, or

(b) the 10^{th} anniversary of the original date of grant.

7.10 Except for adjustments as permitted by Subsection 4.5, once granted hereunder, the base price of a Stock Appreciation Right shall not be adjusted. The substitutions and adjustments permitted by Subsection 4.5 shall be limited to those substitutions and adjustments which will not result in the Stock Appreciation Right, as substituted or adjusted, constituting a “deferral of compensation” within the meaning of Section 409A of the Code.

7.11 Notwithstanding any provision herein to the contrary, the repricing of a Stock Appreciation Right is prohibited without prior approval of the Company’s stockholders. For this purpose, a “repricing” means any of the following (or any other action that has the same effect as any of the following):

(a) changing the terms of a Stock Appreciation Right to lower its base price;

(b) any other action that is treated as a “repricing” under generally accepted accounting principles; and

(c) repurchasing for cash or canceling a Stock Appreciation Right at a time when its base price, is greater than the Fair Market Value of the underlying shares of Stock in exchange for another Award, unless the cancellation and exchange occurs in connection with a change in capitalization or similar change permitted under Subsection 4.5 above. Such cancellation and exchange would be considered a “repricing” regardless of whether it is treated as a “repricing” under generally accepted accounting principles and regardless of whether it is voluntary on the part of the Participant.

SECTION 8. *Restricted Stock.*

8.1 *Administration.* Shares of Restricted Stock may be granted either alone or in addition to other Awards granted under the Plan. The Committee shall determine the officers, employees, and directors to whom and the time or times at which grants of Restricted Stock will be awarded, the number of shares to be awarded to any participant, the time or times within which such Awards may be subject to forfeiture and any other terms and conditions of the Awards, in addition to those contained in Subsection 8.3. Each grant of Restricted Stock shall be confirmed by, and be subject to the terms of a Restricted Stock Agreement.

The Committee may condition the grant or vesting of Restricted Stock upon the attainment of specified performance measures of the participant or of the Company or subsidiary, division or department of the Company for or within which the participant is primarily employed or upon such other factors or criteria as the Committee shall determine. Where the grant or vesting of Restricted Stock is subject to the attainment of one or more Performance Goals, such shares of Restricted Stock shall be released from such restrictions only after the attainment of such Performance Goals has been certified by the Committee.

The provisions of Restricted Stock Awards need not be the same with respect to each recipient.

8.2 *Awards and Certificates.* Shares of Restricted Stock shall be evidenced in such manner as the Committee may deem appropriate, including book-entry registration or issuance of one or more stock certificates. Any certificate issued in respect of shares of Restricted Stock shall be registered in the name of such participant and shall bear an appropriate legend referring to the terms, conditions, and restrictions applicable to such Award, substantially in the following form:
"The transferability of this certificate and the shares of stock represented hereby are subject to the terms and conditions (including forfeiture) of the 2014 Stock Incentive Plan and a Restricted Stock Agreement. Copies of such Plan and Restricted Stock Agreement are on file at the headquarters offices of BorgWarner Inc."

The Committee may require that the certificates evidencing such shares be held in custody by the Company until the restrictions thereon shall have lapsed and that, as a condition of any Award of Restricted Stock, the participant shall have delivered a stock power, endorsed in blank, relating to the Stock covered by such Award.

8.3 *Terms and Conditions.* Shares of Restricted Stock shall be subject to the following terms and conditions:

(a) Subject to the provisions of the Plan and the applicable Restricted Stock Agreement, during a period set by the Committee, commencing with the date of such Award (the "Restriction Period"), the participant shall not be permitted to sell, assign, transfer, pledge or otherwise encumber shares of Restricted Stock. The Committee may provide for the lapse of such restrictions in installments or otherwise and may accelerate or waive such restrictions, in whole or in part, in each case based on period of service, performance of the participant or of the Company or the subsidiary, division or department for which the participant is employed or such other factors or criteria as the Committee may determine.

(b) Except as provided in this Paragraph 8.3(b) and Paragraph 8.3(a) and the applicable Restricted Stock Agreement, the participant shall have, with respect to the shares of Restricted Stock, all of the rights of a stockholder of the Company holding the class or series of Stock that is the subject of the Restricted Stock, including, if applicable, the right to vote the shares and the right to receive any cash dividends. If so determined by the Committee and set forth in the applicable Restricted Stock Agreement, and subject to Subsection 16.7 of the Plan:

(1) cash dividends on the shares of Stock that are the subject of the Restricted Stock Award shall be automatically deferred and reinvested in additional Restricted Stock based upon the Fair Market Value per share of Stock on the dividend payment date (or in the event no trading is reported for the dividend payment date, based upon the Fair Market Value per share of Stock for the most recent prior date for which trading for Stock was reported on the New York Stock Exchange Composite Tape), and

(2) dividends payable in Stock shall be paid in the form of Restricted Stock.

Any cash dividend so reinvested or share dividend so payable shall vest at the same time as the Restricted Stock to which it relates. Absent such a provision regarding dividends in the applicable Restricted Stock Agreement, any dividend payable with respect to Restricted Stock shall be paid to the Participant no later than the end of the calendar year in which the same dividends on Stock are paid to stockholders of Stock, or if later, the 15th day of the third month following the date on which the same dividends on Stock are paid to the Stock's stockholders.

(c) Except to the extent otherwise provided in the applicable Restricted Stock Agreement and Paragraphs 8.3(a) and 8.3(d) and Paragraph 12.1(b), upon a participant's Termination of Employment for any reason during the Restriction Period, all shares still subject to restriction shall be forfeited by the participant.

(d) Except to the extent otherwise provided in Paragraph 12.1(b), in the event that a participant's employment is involuntarily terminated (other than for Cause), or in the event of a participant's Retirement, the Committee shall have the discretion to waive in whole or in part any or all remaining restrictions with respect to any or all of such participant's shares of Restricted Stock; provided however, that in the case of Restricted Stock granted to a "covered employee" within the meaning of Section 162(m)(3) of the Code that is intended to constitute "qualified performance-based compensation," the Committee shall have no discretion to waive the requirement that the applicable Performance Goals be achieved in accordance with the original terms of the Award.

(e) If and when the Restriction Period expires without a prior forfeiture of the Restricted Stock subject to such Restriction Period, unlegended certificates for such shares shall be delivered to the participant.

SECTION 9. *Stock Units.*

9.1 *Administration.* A Stock Unit is the grant of a right to receive a share of Stock or the Fair Market Value in cash of a share of Stock, in the future, at such time and upon such terms as the Committee shall establish. Stock Units may be granted either alone or in addition to other Awards granted under the Plan. The Committee shall determine the officers, employees, and directors to whom and the time or times at which grants of Stock Units will be awarded, the number of Stock Units to be awarded to any participant, the time or times within which such Awards may be subject to forfeiture, and any other terms and conditions of the Awards in addition to those contained in Subsection 9.2. The provisions of Stock Units Awards need not be the same with respect to each recipient. Each grant of Stock Units shall be confirmed by, and be subject to, the terms of an Award Agreement.

9.2 *Terms and Conditions.* Stock Units shall be subject to the following terms and conditions.

(a) Subject to the provisions of the Plan and the applicable Award Agreement, Stock Units may not be sold, assigned, transferred, pledged or otherwise encumbered.

(b) Except to the extent otherwise provided in the applicable Award Agreement and Paragraph 9.2(c) and Paragraph 12.1(c), upon a participant's Termination of Employment for any reason prior to the date on which Stock Units awarded to the participant shall have vested, all rights to receive cash or Stock in payment of such Stock Units shall be forfeited by the participant.

(c) Except to the extent otherwise provided in Paragraph 12.1(c), in the event that a participant's employment is involuntarily terminated (other than for Cause), or in the event of a participant's Retirement, the Committee shall have the discretion to waive, in whole or in part, any or all remaining payment limitations with respect to any or all of such participant's Stock Units.

(d) In any case in which the Committee has waived, in whole or in part, any or all remaining payment limitations with respect to any or all of a participant's Stock Units, payment of such participant's Stock Units shall occur on the time(s) or event(s) otherwise specified pursuant to Paragraph 9.2(g) below, in such participant's Award Agreement

(e) With respect to any grant of Stock Units, the recipient of such grant shall acquire no rights of a shareholder of Stock unless and until the recipient becomes the holder of shares of Stock delivered to such recipient with respect to such Stock Units.

(f) The Committee may in its discretion provide that a participant shall be entitled to receive dividend equivalents on outstanding Stock Units. Such dividend equivalents may, as determined by the Committee at the time the Award is granted, be:

(1) paid in cash,

(2) credited to the participant as additional Stock Units, or

(3) any combination of cash and additional Stock Units.

If dividend equivalents are credited to the participant as additional Stock Units, the number of additional Stock Units that shall be credited to the participant with respect to any dividend on Stock shall not exceed the amount that is the result of multiplying the number of Stock Units credited to the participant on the dividend record date by the dividend paid on each share of Stock, and then dividing this amount by the price per share of Stock on the dividend payment date. For this purpose, the price per share of Stock shall be its Fair Market Value for the dividend payment date. In the event no trading is reported for the dividend payment date, the price per share of Stock shall be the Fair Market Value for the most recent prior date for which trading for Stock was reported on the New York Stock Exchange Composite Tape. A Stock Unit credited to a recipient as a dividend equivalent shall vest at the same time as the Stock Unit to which it relates. Any credit of dividend equivalents shall be subject to Subsection 16.7 of the Plan. Any dividend payable with respect to Stock Units that the Committee has determined shall be paid in cash shall be paid to the Participant no later than the end of the calendar year in which the same dividends on Stock are paid to stockholders of Stock, or if later, the 15th day of the third month following the date on which the same dividends on Stock are paid to the Stock's stockholders.

(g) The Award Agreement for each award of Stock Units shall specify the time(s) or event(s) of payment of vested Stock Units, which time(s) or event(s) shall be limited to one or more of the following:

(1) the date on which the Stock Units shall have vested,

(2) the date of the Award recipient's Termination of Employment, or

(3) a specified date.

In the case of an Award of Stock Units providing for payment upon the vesting of the Stock Units, payment shall be made as soon as administratively practicable thereafter, but in no event later than March 15 of the year following the year in which the vesting of the Stock Units occurs. In the case of an Award of Stock Units providing for payment upon Termination of Employment, payment shall be made on or after the Termination of Employment in the year in which the Termination of Employment occurs, except that in the case of a Specified Employee, payment shall be made on the first day of the seventh month following the month in which such Termination of Employment occurs, or, if earlier, the date of the Award recipient's death. In the case of an Award of Stock Units providing for a specified date for payment, payment shall be made as soon as practicable on or after the specified date, but in no event no later than December 31 of the year in which the specified date occurs.

(h) On the time(s) or event(s) specified in the applicable Award Agreement for the payment of cash or Stock with respect to vested Stock Units, the Committee shall cause to be delivered to the participant:

(1) a number of shares of Stock equal to the number of vested Stock Units, or

(2) cash equal to the Fair Market Value of such number of shares of Stock,

the form of payment determined by the Committee in its discretion or as provided by in the applicable Award Agreement.

(i) Notwithstanding any other provision of this Plan to the contrary, the time(s) or event(s) for payment of Stock Units specified pursuant to Paragraph 7.2(h), above, shall not be accelerated for any reason, other than as specifically provided in Section 409A of the Code and the guidance issued thereunder.

SECTION 10. *Performance Units.*

10.1 *Administration.* Performance Units may be awarded to officers and employees of the Company, its subsidiaries and Affiliates, either alone or in addition to other Awards under the Plan. The Committee shall determine the officers and employees to whom, and the time or times at which, Performance Units shall be awarded, the number of Performance Units to be awarded to any participant, the duration of the Performance Period and any other terms and conditions of the Award, in addition to those contained in Subsection 10.2. Each grant of Performance Units shall be confirmed by, and be subject to, the terms of an Award Agreement.

10.2 *Terms and Conditions.* Performance Units shall be subject to the following terms and conditions.

(a) The Committee may, prior to or at the time of the grant, designate Performance Units, in which event it shall condition payment with respect thereto to the attainment of Performance Goals. The Committee may also condition Performance Unit payments upon the continued service of the participant. The provisions of such Awards (including without limitation any applicable Performance Goals) need not be the same with respect to each recipient. Subject to the provisions of the Plan and the applicable Award Agreement, Performance Units may not be sold, assigned, transferred, pledged or otherwise encumbered during the Performance Period.

(b) Except to the extent otherwise provided in the applicable Award Agreement and Paragraph 10.2(c) and Paragraph 12.1(d), upon a participant's Termination of Employment for any reason during the Performance Period or before any applicable Performance Goals are satisfied, all rights to receive cash or Stock in payment of the Performance Units shall be forfeited by the participant.

(c) Except to the extent otherwise provided in Paragraph 12.1(d), in the event that a participant's employment is involuntarily terminated (other than for Cause), or in the event of a participant's Retirement, the Committee shall have the discretion to waive, in whole or in part, any or all remaining payment limitations with respect to any or all of such participant's Performance Units; provided however, that in the case of Performance Units granted to a "covered employee" within the meaning of Section 162(m)(3) of the Code, the Committee shall have no discretion to waive the requirement that the applicable Performance Goals be achieved in accordance with the original terms of the Award.

(d) In any case in which the Committee has, prior to the expiration of the Performance Period, waived, in whole or in part, any or all payment limitations with respect to a participant's Performance Units, such participant shall receive payment with respect to his or her Performance Units in the year following the year in which the Performance Period ends or would have ended, at the same time as the Committee has provided for payment to all other Award recipients.

(e) (1) At the expiration of the Performance Period, the Committee shall evaluate the extent to which the Performance Goals for the Award have been achieved and shall determine the number of

Performance Units granted to the participant which shall have been earned, and the cash value thereof. The Committee shall then cause to be delivered to the participant:

(A) a cash payment equal in amount to the cash value of the Performance Units, or

(B) shares of Stock equal in value to the cash value of the Performance Units,

the form of payment determined by the Committee in its discretion or as provided in the applicable Award Agreement. Payment shall occur as soon as administratively practicable thereafter, but in no event later than March 15 of the year following the year in which the Performance Period ends.

(2) In the Committee's discretion, the Committee may evaluate and certify the extent to which the Performance Goals for the Award have been achieved as of any date in the final six months of the Performance Period. Based on this interim evaluation and certification, the Committee shall determine the number of Performance Units granted to the participant which shall have been earned based on achievement of the Performance Goals as of the interim evaluation date, and the cash value thereof. The Committee shall then cause to be delivered to the participant:

(A) a cash payment equal in amount to the cash value of the Performance Units earned based on the interim evaluation, pro-rated for the portion of the Performance Period completed as of the interim valuation and further reduced to reasonably reflect the time value of money as required by Code Section 162(m), or

(B) shares of Stock equal in value to the cash value of the Performance Units earned based on the interim valuation, pro-rated for the portion of the Performance Period completed as of the interim valuation, and further reduced to reasonably reflect the time value of money as required by Code Section 162(m), the form of payment determined by the Committee in its discretion or as provided in the Applicable Award Agreement. Payment shall occur as soon as administratively practicable thereafter, but in no event later than March 15 of the year following the year in which the Committee certifies the interim Performance Goals. Payment of Performance Units based on an interim valuation is conditioned on the participant's repayment to the Company of any amount by which the cash value of the Performance Units determined to have been earned as of the interim valuation (before reduction to reflect the time value of money) exceeds the cash value of the Performance Units determined to have been earned as of the end of the Performance Period.

At the end of the Performance Period, the Committee shall evaluate the extent to which the Performance Goals for the Award have been achieved for the entire Performance Period and determine the number of Performance Units granted to the Participant which shall have been earned for the entire Performance Period, and the cash value thereof. The cash value of the Performance Units determined to have been earned as of the interim valuation, after pro-ration but before reduction to reflect the time value of money, will be deducted from the cash value of the Performance Units determined to have been earned for the entire Performance Period. Any cash value of the earned Performance Units as of the end of the Performance Period in excess of the cash value of the earned Performance Units as of the interim valuation will be paid as provided in the Subparagraph 10.2(e)(1). Any cash value of the earned Performance Units as of the interim valuation in excess of the cash value of the earned Performance Units as of the end of the Performance Period must be repaid by the participant.

(f) If Performance Units may, or are to be paid in Stock, the Committee shall designate in the applicable Award Agreement a method of converting the Performance Units into Stock based on the Fair Market Value of the Stock.

SECTION 11. *Performance Shares.*

11.1 *Administration.* Performance Shares may be awarded to officers and employees of the Company, its subsidiaries and Affiliates, either alone or in addition to other Awards under the Plan. The

Committee shall determine the officers and employees to whom, and the time or times at which, Performance Shares shall be awarded, the number of Performance Shares to be awarded to any participant, the duration of the Performance Period and any other terms and conditions of the Award, in addition to those contained in Subsection 11.2. Each grant of Performance Shares shall be confirmed by, and be subject to, the terms of an Award Agreement.

11.2 *Terms and Conditions.* Performance Shares shall be subject to the following terms and conditions.

(a) The Committee may, prior to or at the time of the grant, designate Performance Shares, in which event it shall condition payment with respect thereto to the attainment of Performance Goals. The Committee may also condition Performance Share payments upon the continued service of the participant. The provisions of such Awards (including without limitation any applicable Performance Goals) need not be the same with respect to each recipient. Subject to the provisions of the Plan and the applicable Award Agreement, Performance Shares may not be sold, assigned, transferred, pledged or otherwise encumbered during the Performance Period.

(b) Except to the extent otherwise provided in the applicable Award Agreement and Paragraph 11.2(c) and Paragraph 12.1(d), upon a participant's Termination of Employment for any reason during the Performance Period or before any applicable Performance Goals are satisfied, all rights to receive cash or Stock in payment of the Performance Shares shall be forfeited by the participant.

(c) Except to the extent otherwise provided in Paragraph 12.1(d), in the event that a participant's employment is involuntarily terminated (other than for Cause), or in the event of a participant's Retirement, the Committee shall have the discretion to waive, in whole or in part, any or all remaining payment limitations with respect to any or all such participant's Performance Shares; provided however, that in the case of Performance Shares granted to a "covered employee" within the meaning of Section 162(m)(3) of the Code, the Committee shall have no discretion to waive the requirement that the applicable Performance Goals be achieved in accordance with the original terms of the Award.

(d) In any case in which the Committee has waived, in whole or in part, prior to the expiration of the Performance Period, any or all payment limitations with respect to a participant's Performance Shares,
such participant shall receive payment with respect to his or her Performance Shares in the year following the year in which Performance Period ends, at the same time as the Committee has provided for payment to all other Award recipients.

(e) (1) At the expiration of the Performance Period, the Committee shall evaluate the extent to which the Performance Goals for the Award have been achieved and shall determine the number of Performance Shares granted to the participant which shall have been earned, and the cash value thereof. The Committee shall then cause to be delivered to the participant

(A) a number of shares of Stock equal to the number of Performance Shares determined by the Committee to have been earned, or

(B) cash equal to the Fair Market Value of such number of shares of Stock,

the form of payment determined by the Committee in its discretion or as provided in the applicable Award Agreement. Payment shall occur as soon as administratively practicable thereafter, but in no event later than March 15 of the year following the year in which the Performance Period ends.

(2) In the Committee's discretion, the Committee may evaluate and certify the extent to which the Performance Goals for the Award have been achieved as of any date in the final six months of the Performance Period. Based on this interim evaluation and certification, the Committee shall determine the number of Performance Shares granted to the participant which shall be been earned based on

achievement of the Performance Goals as of the interim evaluation date, and the cash value thereof. The Committee shall then cause to be delivered to the participant:

(A) a number of shares of Stock equal to the number of Performance Shares determined by the Committee to have been earned based on the interim evaluation, pro-rated for the portion of the Performance Period completed as of the interim valuation and further reduced to reasonably reflect the time value of money as required by Code Section 162(m), or

(B) cash equal to the Fair Market Value of the number of shares of Stock earned based on the interim valuation, pro-rated for the portion of the Performance Period completed as of the interim valuation, and further reduced to reasonably reflect the time value of money as required by Code Section 162(m),

the form of payment determined by the Committee in its discretion or as provided in the Applicable Award Agreement. Payment shall occur as soon as administratively practicable thereafter, but in no event later than March 15 of the year following the year in which the Committee certifies achievement of the interim Performance Goals. Payment of Performance Shares based on an interim valuation is conditioned on the participant's repayment to the Company of any amount by which the cash value of the Performance Shares determined to have been earned as of the interim valuation (before reduction to reflect the time value of money) exceeds the cash value of the Performance Shares determined to have been earned as of the end of the Performance Period.

At the end of the Performance Period, the Committee shall evaluate the extent to which the Performance Goals for the Award have been achieved for the entire Performance Period and determine the number of Performance Shares granted to the Participant which shall have been earned for the entire Performance Period, and the cash value thereof. The cash value of the Performance Shares determined to have been earned as of the interim valuation, after pro-ration but before reduction to reflect the time value of money, will be deducted from the cash value of the Performance Shares determined to have been earned for the entire Performance Period. Any cash value of the earned Performance Shares as of the end of the Performance Period in excess of the cash value of the earned Performance Shares as of the interim valuation will be paid as provided in Subparagraph 11.5(e)(1). Any cash value of the earned Performance Shares as of the interim valuation in excess of the cash value of the earned Performance Shares as of the end of the Performance Period must be repaid by the participant.

SECTION 12. *Change in Control Provisions.*

12.1 *Impact of Event.* Notwithstanding any other provision of the Plan to the contrary, in the event of a Change in Control:

(a) Any Stock Options and Stock Appreciation Rights outstanding as of the date such Change in Control is determined to have occurred and not then exercisable and vested shall become fully exercisable and vested to the full extent of the original grant.

(b) The restrictions applicable to any outstanding Restricted Stock shall lapse, and such Restricted Stock shall become free of all restrictions and become fully vested and transferable to the full extent of the original grant.

(c) The restrictions applicable to any outstanding Stock Units shall lapse, and such Stock Units shall become free of all restrictions and become fully vested. Payment for Stock Units that have vested as a result of this Paragraph 12.1(c) shall occur on the time(s) or event(s) otherwise specified in the Award recipient's Award Agreement.

(d) The restrictions applicable to any outstanding Performance Units and Performance Shares shall lapse, the Performance Goals of all such outstanding Performance Units and Performance Shares shall be deemed to have been achieved at target levels, the relevant Performance Period shall be deemed to have ended on the effective date of the Change of Control, and all other terms and conditions thereto shall be deemed to have been satisfied. If due to a Change in Control, a Performance Period is shortened, the target Performance Award initially established for such Performance Period shall be prorated by multiplying the initial target Performance Award by a fraction, the numerator of which is the actual number of whole months in the shortened Performance Period and the denominator of which is the number of whole months in the original Performance Period. Payment for such Performance Units and Performance Shares that vest as a result of the Change in Control shall be made in cash or Stock (as determined by the Committee) as promptly as is practicable upon such vesting, but in no event later than March 15 of the year following the year in which the Performance Units and Performance Shares shall have vested pursuant to this Paragraph 12.1(d). Payment for Performance Units and Performance Shares that have vested prior to the Change in Control as a result of the Committee's waiver of payment limitations prior to the date of the Change in Control shall be made in cash or Stock (as determined by the Committee)

(1) in the year following the year in which the Performance Period would have otherwise ended absent a Change in Control, or, if earlier

(2) as soon as practicable in the year in which the Award recipient's Termination of Employment occurs; provided however, that in the case of a "Specified Employee" who becomes entitled to payment of Performance Units or Performance Shares under this Paragraph 12.1(d)(2) by reason of his or her Termination of Employment, payment shall be made on the first day of the seventh month following the month in which such Termination of Employment occurs, or, if earlier, the date of the Specified Employee's death.

12.2 *Definition of Change in Control.* For purposes of the Plan, a "Change in Control" shall mean the happening of any of the following events:

(a) The acquisition by any individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act) (a "Person") of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of 20% or more of either:

(1) the then outstanding shares of common stock of the Company (the "Outstanding Company Common Stock") or

(2) the combined voting power of the then outstanding voting securities of the Company entitled to vote generally in the election of directors (the "Outstanding Company Voting Securities");

provided, however, that for purposes of Paragraph 12.2(a), the following acquisitions shall not constitute a Change in Control:

(W) any acquisition directly from the Company,

(X) any acquisition by the Company,

(Y) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by the Company or any corporation controlled by the Company, or

(Z) any acquisition by any corporation pursuant to a transaction described in Subparagraphs (1), (2) and (3) of Paragraph 12.2(c); or

(b) Individuals who, as of the date this Plan is approved by the Shareholders, constitute the Board (the "Incumbent Board") and cease for any reason to constitute at least a majority of the Board; provided, however, that any individual becoming a director subsequent to the date hereof whose election, or nomination for election by the Company's stockholders, was approved by a vote of at least a majority of the directors then comprising the Incumbent Board shall be considered as though such individual were a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a Person other than the Board; or

(c) Consummation by the Company of a reorganization, statutory share exchange, merger or consolidation or similar transaction involving the Company or any of its Subsidiaries or sale or other disposition of all or substantially all of the assets of the Company or the acquisition of assets of another entity by the Company or any of its Subsidiaries (each of the foregoing, a “Business Combination”), in each case, unless, following such Business Combination,

(1) all or substantially all of the individuals and entities who were the beneficial owners, respectively, of the Outstanding Company Common Stock and Outstanding Company Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than 60% of, respectively, the then outstanding shares of common stock (or, for a non-corporate entity, equivalent securities) and the combined voting power of the then outstanding voting securities entitled to vote generally in the election of directors (or, for a non-corporate entity, equivalent governing body), as the case may be, of the entity resulting from such Business Combination (including, without limitation, an entity which as a result of such transaction owns the Company or all or substantially all of the Company’s assets either directly or through one or more subsidiaries) in substantially the same proportions as their ownership, immediately prior to such Business Combination of the Outstanding Company Common Stock and Outstanding Company Voting Securities, as the case may be,

(2) no Person (excluding any corporation resulting from such Business Combination or any employee plan (or related trust) of the Company or such corporation resulting from such Business Combination) beneficially owns, directly or indirectly, 20% or more of, respectively, the then outstanding shares of common stock (or, for a non corporate entity, equivalent securities) of the entity resulting from such Business Combination or the combined voting power of the then outstanding voting securities of such entity except to the extent that such ownership existed prior to the Business Combination and

(3) at least a majority of the members of the board of directors (or, for a non-corporate entity, equivalent governing body) of the entity resulting from such Business Combination were members of the Incumbent Board at the time of the execution of the initial agreement, or of the action of the Board, providing for such Business Combination; or

(d) Approval by the stockholders of the Company of a complete liquidation or dissolution of the Company.

12.3 _Change in Control Price._ For purposes of the Plan, “Change in Control Price” means the higher of:

(a) the highest reported sales price, regular way, of a share of Stock in any transaction reported on the New York Stock Exchange Composite Tape or other national exchange on which such shares are listed or on NASDAQ during the sixty-day period prior to and including the date of a Change in Control or

(b) if the Change in Control is the result of a tender or exchange offer or a Business Combination, the highest price per share of Stock paid in such tender or exchange offer or Business Combination; provided, however, that:

(1) in the case of a Stock Option which

(A) is held by an optionee who is an officer or director of the Company and is subject to Section 16(b) of the Exchange Act and

(B) was granted within 240 days of the Change in Control, then the Change in Control Price for such Stock Option shall be the Fair Market Value of the Stock on the date such Stock Option is exercised or cancelled and

(2) in the case of Incentive Stock Options and Stock Appreciation Rights relating to Incentive Stock Options, the Change in Control Price shall be in all cases the Fair Market Value of the Stock on the date such Incentive Stock Option or Stock Appreciation Right is exercised.

To the extent that the consideration paid in any such transaction described above consists all or in part of securities or other non-cash consideration, the value of such securities or other non-cash consideration shall be determined in the sole discretion of the Board.

SECTION 13. *Term, Amendment and Termination.*

13.1 Unless terminated sooner by the Board, the Plan will terminate on the date that immediately precedes the tenth (10^{th}) anniversary of the Plan's effective date. Awards outstanding as of the date on which the Plan terminates shall not be affected or impaired by the termination of the Plan.

13.2 The Board may amend, alter, or discontinue the Plan at any time, but no amendment, alteration or discontinuation shall be made which would

(a) impair the rights of a participant under an Award theretofore granted without the participant's consent, except such an amendment made to cause the Plan to qualify for the exemption provided by Rule 16b-3 or for Awards to qualify for the "qualified performance-based compensation" exception provided by Section 1.162-27(e) of the Income Tax Regulations (where the Committee has intended that such Awards qualify for the exception),

(b) disqualify the Plan from the exemption provided by Rule 16b-3, or

(c) extend the term of the Plan.

In addition, no such amendment shall be made without the approval of the Company's stockholders to the extent such approval is required by law or agreement.

13.3 The Committee may amend the terms of any Award theretofore granted, prospectively or retroactively, but no such amendment shall impair the rights of any holder without the holder's consent except:

(a) to the extent required or permitted by the Plan or by applicable law, including but not limited to any clawback requirements,

(b) an amendment made to cause the Plan or Award to qualify for the exemption provided by Rule 16b-3, or

(c) an amendment made to cause the Award to qualify for the "qualified performance-based compensation" exception provided by Section 1.162-27(e) of the Income Tax Regulations (where the Committee has intended that such Award qualify for the exception).

13.4 Subject to the above provisions, the Board shall have the authority to amend the Plan and the terms of any Award theretofore granted to take into account changes in law and tax and accounting rules.

SECTION 14. *Unfunded Status of Plan.*

It is presently intended that the Plan constitute an "unfunded" plan for incentive and deferred compensation. The Committee may authorize the creation of trusts or other arrangements to meet the obligations created under the Plan to deliver Stock or make payments; provided, however, that, unless the Committee otherwise determines, the existence of such trusts or other arrangements is consistent with the “unfunded” status of the Plan.

SECTION 15. *Cancellation and Rescission of Awards.*

15.1 The Committee may cancel, declare forfeited, or rescind any unexercised, undelivered, or unpaid Award upon its determining that

(a) a participant has violated the terms of the Plan or the Award Agreement under which such Award has been made, or

(b) the participant has committed a Breach of Conduct.

In addition, for a period of one year following the exercise, payment or delivery of an Award, the Committee may rescind any such exercise, payment or delivery of an Award upon its determining that the participant committed a Breach of Conduct prior to the exercise, payment or delivery of the Award, or within six months thereafter.

15.2 In the case of an Award’s cancellation, forfeiture, or rescission due to a Breach of Conduct by reason of the participant’s conviction of, or entering a guilty plea, no contest plea or nolo contendre plea to any felony or to any crime involving dishonesty or moral turpitude, the Committee’s determination that a participant has committed a Breach of Conduct, and its decision to require rescission of an Award’s exercise, payment or delivery shall be conclusive, binding, and final on all parties. In all other cases, the Committee’s determination that a participant has violated the terms of the Plan or the Award, or has committed a Breach of Conduct, and the Committee’s decision to cancel, declare forfeited or rescind an Award or to require rescission of an Award’s exercise, payment or delivery shall be conclusive, binding, and final on all parties unless the participant makes a written request to the Committee to review such determination and decision within thirty days of the Committee’s written notice of such actions to the participant. In the event of such a written request, the members of the Board who are “independent directors” within the meaning of the applicable stock exchange rule (including members of the Committee) shall review the Committee’s determination no later than the next regularly scheduled meeting of the Board. If, following its review, such directors approve, by a majority vote,

(a) the Committee’s determination that the participant violated the terms of the Plan or the Award or committed a Breach of Conduct, and

(b) the Committee’s decision to cancel, declare forfeited, or rescind the Award,

such determination and decision shall thereupon be conclusive, binding, and final on all parties.

15.3 In the event an Award is rescinded, the affected participant shall repay or return to the Company any cash amount, Stock, or other property received from the Company upon the exercise, payment or delivery of such Award (or, if the participant has disposed of the Stock or other property received and cannot return it, its cash value at the time of exercise, payment or delivery), and, in the case of Stock or other property delivered to the participant, any gain or profit realized by the participant in a subsequent sale or other disposition of such Stock or other property. Such repayment and (or) delivery shall be on such terms and conditions as the Committee shall prescribe.

SECTION 16. *General Provisions.*

16.1 The Committee may require each person purchasing or receiving shares pursuant to an Award to represent to and agree with the Company in writing that such person is acquiring the shares without a view to the distribution thereof. The certificates for such shares may include any legend which the Committee deems appropriate to reflect any restrictions on transfer.

All certificates for shares of Stock or other securities delivered under the Plan shall be subject to such stock transfer orders and other restrictions as the Committee may deem advisable under the rules, regulations and other requirements of the Commission, any stock exchange upon which the Stock is then listed and any applicable Federal or state securities law, and the Committee may cause a legend or legends to be put on any such certificates to make appropriate reference to such restrictions. The Company shall have no obligation to issue or deliver certificates for shares of Stock under the Plan prior to:

(a) obtaining approval from any governmental agency which the Company determines is necessary or advisable,

(b) admission of such shares to listing on the stock exchange on which the Stock may be listed, and

(c) completion of any registration or other qualification of such shares under any state or federal law or ruling of any governmental body which the Company determines to be necessary or advisable.

16.2 Notwithstanding any other provisions of this Plan, the following shall apply to any person subject to Section 16 of the Exchange Act, except in the case of death or disability or unless Section 16 shall be amended to provide otherwise than as described below, in which event this Plan shall be amended to conform to Section 16, as amended:

(a) Restricted stock or other equity securities (within the meaning used in Rule 16b-3) offered pursuant to this Plan must be held by the person for at least six months from the date of grant; and

(b) At least six months must elapse from the date of acquisition of any Stock Option, Stock Appreciation Right, Stock Unit, Performance Share, Performance Unit or other derivative security (within the meaning used in Rule 16b-3) issued pursuant to the Plan to the date of disposition of such derivative security (other than upon exercise or conversion) or its underlying security.

16.3 Nothing contained in the Plan shall prevent the Company or any subsidiary or Affiliate from adopting other or additional compensation arrangements for its employees.

16.4 The adoption of the Plan shall not confer upon any employee any right to continued employment nor shall it interfere in any way with the right of the Company or any subsidiary or Affiliate to terminate the employment of any employee at any time.

16.5 No later than the date as of which an amount first becomes includible in the gross income of the participant for Federal income tax purposes with respect to any Award under the Plan, the participant shall pay to the Company, or make arrangements satisfactory to the Company regarding the payment of, any Federal, state, local or foreign taxes of any kind required by law to be withheld with respect to such amount. With the advance consent of the Company, withholding obligations may be settled with Stock, including Stock that is part of the Award that gives rise to the withholding requirement. The Company shall have the right to determine the manner in which the withholding obligations relating to an award shall be satisfied and the Company can require that any such withholding obligations be settled by the Company retaining Stock or cash that is part of the Award that gives rise to the withholding obligations. The obligations of the Company under the Plan shall be conditional on such payment or arrangements, and the Company, its subsidiaries and its Affiliates shall, to the extent permitted by law, have the right to deduct any such taxes from any payment otherwise due to the participant. The Committee may establish such procedures as it deems appropriate, including the making of irrevocable elections, for the settlement of withholding obligations with Stock.

16.6 At the time of grant, the Committee may provide in connection with any grant made under the Plan that the shares of Stock received as a result of such grant shall be subject to a right of first refusal pursuant to which the participant shall be required to offer to the Company any shares that the participant wishes to sell at the then Fair Market Value of the Stock, subject to such other terms and conditions as the Committee may specify at the time of grant.

16.7 The reinvestment of cash dividends in additional shares of Restricted Stock, and the crediting of dividend equivalents or interest equivalents (if such interest equivalents are payable in Stock when distributed) on Stock Units or on the deferred payment of Stock Units, Performance Units or Performance Shares shall only be permissible if sufficient shares of Stock are available under Section 4 (taking into account then outstanding Awards).

16.8 The Committee shall establish such procedures as it deems appropriate for a participant to designate a beneficiary to whom any amounts payable in the event of the participant's death are to be paid.

16.9 It is intended that payments under the Stock Options, Stock Appreciation Rights, Performance Units, and Performance Shares provisions of the Plan to recipients who are "covered employees" within the meaning of Section 162(m)(3) of the Code constitute "qualified performance-based compensation" within the meaning of Section 1.162-27(e) of the Income Tax Regulations. Awards of Restricted Stock may be designated by the Committee as intended to constitute "qualified performance-based compensation" in the relevant Award Agreement. To the maximum extent possible, the Plan and the terms of any Stock Options, Stock Appreciation Rights, Performance Units, Performance Shares, and, where applicable, Restricted Stock, shall be so interpreted and construed.

16.10 It is intended that Stock Options awarded pursuant to Section 6, Stock Appreciation Rights awarded pursuant to Section 7, and Restricted Stock awarded pursuant to Section 8 not constitute a "deferral of compensation" within the meaning of Section 409A of the Code. It is further intended that Performance Shares and Performance Units granted pursuant to Sections 10 and 11 not constitute a "deferral of compensation" within the meaning of Section 409A of the Code excepting, however, Performance Shares and Performance Units that become vested as a result of the Committee's waiver of payment limitations prior to the end of the applicable Performance Period. Finally, it is intended that Stock Units awarded pursuant to Section 9, and Performance Units and Performance Shares that are or become vested as a result of the Committee's waiver of payment limitations prior to the end of the applicable Performance Period satisfy the requirements of Sections 409A(2) through (a)(4) of the Code in all material respects. This Plan shall be interpreted for all purposes and operated to the extent necessary in order to comply with the intent expressed in this Subsection 16.10.

16.11 If any provision of this Plan is or becomes invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions contained herein shall not be impaired or affected thereby. The invalid, illegal, or unenforceable provision shall be treated as amended to the minimum extent necessary to make the provision valid, legal, and enforceable and to accomplish the Company's original objectives for establishing this Plan.

16.12 The Plan and all Awards made and actions taken thereunder shall be governed by and construed in accordance with the laws of the State of Delaware without taking into account its conflict of laws provisions.

SECTION 17. *Effective Date.*

The Plan as approved by the Board of Directors on February 12, 2014 shall be effective on the date the Plan is approved by the stockholders of the Company and shall apply to Awards granted thereafter.

Exhibit 21.1

BORGWARNER INC. (Parent)* NAME OF SUBSIDIARY	JURISDICTION
B80 Italia S.r.l.	Italy
BorgWarner Aftermarket Europe GmbH	Germany
BorgWarner Alternators Inc.	Delaware
BorgWarner Arden LLC	Delaware
BorgWarner Arnstadt RE GmbH & Co. KG	Germany
BorgWarner Asia Inc.	Delaware
BorgWarner Automotive Asia Limited	Hong Kong
BorgWarner Automotive Components (Beijing) Co., Ltd.	China
BorgWarner Automotive Components (Jiangsu) Co., Ltd.	China
BorgWarner Automotive Components (Ningbo) Co., Ltd.	China
BorgWarner Automotive Components (Tianjin) Co., Ltd.	China
BorgWarner Automotive Components (Wuhan) Co., Ltd.	China
BorgWarner Brasil Ltda.	Brazil
BorgWarner (China) Investment Co., Ltd.	China
BorgWarner Chungju Co. LLC	South Korea
BorgWarner Comercial e Distribuidora de Pecas para Veiculos Automotores Ltda.	Brazil
BorgWarner Comercializadora PDS, S. de R.L. de C.V.	Mexico
BorgWarner Componentes PDS, S. de R.L. de C.V.	Mexico
BorgWarner Cooling Systems GmbH	Germany
BorgWarner Cooling Systems (India) Private Limited	India
BorgWarner Diversified Transmission Products Services Inc.	Delaware

BorgWarner Drivetrain de Mexico S.A. de C.V.	Mexico
BorgWarner Drivetrain Engineering GmbH	Germany
BorgWarner Drivetrain Management Services de Mexico S.A. de C.V.	Mexico
BorgWarner Electric Motors, L.L.C.	Virginia
BorgWarner Emissions Systems Holding LLC	Delaware
BorgWarner Emissions Systems India Private Limited	India
BorgWarner Emissions Systems LLC	Delaware
BorgWarner Emissions Systems (Ningbo) Co. Ltd.	China
BorgWarner Emissions Systems of Michigan Inc.	Delaware
BorgWarner Emissions Systems Portugal, Unipessoal LDA	Portugal
BorgWarner Emissions Systems (Ningbo) Co., Ltd.	China
BorgWarner Emissions Systems Spain, S.L.U.	Spain
BorgWarner Emissions Talegaon Private Limited	India
BorgWarner Engineering Ketsch RE GmbH & Co. KG	Germany
BorgWarner Engineering Kibo RE GmbH & Co. KG	Germany
BorgWarner Esslingen GmbH	Germany
BorgWarner Europe GmbH	Germany
Borg Warner Europe Holdings (PDS) B. V.	Netherlands
BorgWarner Europe Holding S.a. r. l.	Luxembourg
BorgWarner Gateshead Limited	United Kingdom
BorgWarner Germany Holding GmbH	Germany
BorgWarner Germany Holding Services GmbH	Germany
BorgWarner Germany REH GmbH	Germany
BorgWarner Germany REM GmbH	Germany

BorgWarner Germany Verwaltungs GmbH	Germany
BorgWarner Global Holding S.a. r. l.	Luxembourg
BorgWarner Heidelberg I RE GmbH & Co. KG	Germany
BorgWarner Heidelberg II RE GmbH & Co. KG	Germany
BorgWarner Heidelberg REH GmbH	Germany
BorgWarner Heidelberg REM GmbH	Germany
BorgWarner Holding Inc.	Delaware
BorgWarner Holdings Limited	United Kingdom
BorgWarner Hungary Kft.	Hungary
BorgWarner India Holdings Inc.	Delaware
BorgWarner Investment Holding Inc.	Delaware
BorgWarner IT Services Europe GmbH	Germany
BorgWarner Ithaca LLC	Delaware
BorgWarner Ketsch Plant RE GmbH & Co. KG	Germany
BorgWarner Ketsch REH GmbH	Germany
BorgWarner Ketsch REM GmbH	Germany
BorgWarner Kft.	Hungary
BorgWarner Kibo RE GmbH & Co. KG	Germany
BorgWarner Korea Holdings LLC	Delaware
BorgWarner Korea Holdings (PDS) B.V.	Netherlands
BorgWarner Korea LLC	South Korea
BorgWarner Limited	United Kingdom
BorgWarner Ludwigsburg GmbH	Germany
BorgWarner Ludwigsburg RE GmbH & Co. KG	Germany
BorgWarner Markdorf Plant RE GmbH & Co. KG	Germany

BorgWarner Markdorf REH GmbH	Germany
BorgWarner Markdorf REM GmbH	Germany
BorgWarner Massachusetts Inc.	Delaware
BorgWarner Mauritius Holdings Ltd.	Mauritius
BorgWarner Mexico Holding BV	Netherlands
BorgWarner Mexico Holdings LLC	Delaware
BorgWarner Mexico Holdings II LLC	Delaware
BorgWarner Morse Systems India Private Limited	India
BorgWarner Morse Systems Italy S.r.l.	Italy
BorgWarner Morse Systems Japan K.K.	Japan
BorgWarner Morse Systems Mexico, S.A. de C.V.	Mexico
BorgWarner Muggendorf RE GmbH & Co. KG	Germany
BorgWarner Netherlands Holdings (PDS) B.V.	Netherlands
BorgWarner NW Inc.	Delaware
BorgWarner Oroszlany Kft.	Hungary
BorgWarner PDS (Anderson), L.L.C.	Delaware
BorgWarner PDS Brasil Produtos Automotivos Ltda.	Brazil
BorgWarner PDS (Changnyeong) LLC	South Korea
BorgWarner PDS (Indiana) Inc.	Delaware
BorgWarner PDS Irapuato, S. de R.L. de C.V.	Mexico
BorgWarner PDS (Livonia) Inc.	Delaware
BorgWarner PDS Mexico Holdings, S. de R.L. de C.V.	Mexico
BorgWarner PDS (Ochang) LLC	South Korea
BorgWarner PDS Technologies, L.L.C.	Delaware

BorgWarner PDS (Thailand) Limited	Thailand
BorgWarner PDS (USA) Inc.	Delaware
BorgWarner Poland Sp. z o.o.	Poland
BorgWarner Pyongtaek LLC	South Korea
BorgWarner (Reman) Holdings, L.L.C.	Delaware
BorgWarner Romeo Power LLC	Delaware
BorgWarner Rzeszów Sp. z o.o.	Poland
BorgWarner Shenglong (Ningbo) Co., Ltd.	China
BorgWarner South Asia LLC	Delaware
BorgWarner Southborough Inc.	Delaware
BorgWarner Spain Holding, S.L.U	Spain
BorgWarner Sweden AB	Sweden
BorgWarner Systems Lugo S.r.l.	Italy
BorgWarner (Thailand) Limited	Thailand
BorgWarner Thermal Systems Inc.	Delaware
BorgWarner Thermal Systems of Michigan Inc.	Delaware
BorgWarner TorqTransfer Systems Beijing Co., Ltd.	China
BorgWarner Tralee Ltd.	Ireland
BorgWarner Transmission Products LLC	Delaware
BorgWarner Transmission Systems Arnstadt GmbH	Germany
BorgWarner Transmission Systems GmbH	Germany
BorgWarner Transmission Systems Korea LLC	South Korea
BorgWarner Transmission Systems Tulle S.A.S.	France
BorgWarner Trustees Limited	United Kingdom
BorgWarner Turbo & Emissions Systems France S.A.S.	France

BorgWarner Turbo and Emissions Systems de Mexico S.A. de C.V.	Mexico
BorgWarner Turbo Systems Engineering GmbH	Germany
BorgWarner Turbo Systems GmbH	Germany
BorgWarner Turbo Systems LLC	Delaware
BorgWarner Turbo Systems of Michigan Inc.	Delaware
BorgWarner Turbo Systems Worldwide Headquarters GmbH	Germany
BorgWarner UK Financing Ltd.	United Kingdom
BorgWarner UK Holding and Services Ltd.	United Kingdom
BorgWarner United Transmission Systems Co., Ltd.	China
BorgWarner US Holding LLC	Delaware
BorgWarner USA Industries, L.L.C.	Delaware
BorgWarner Waterloo Inc.	Canada
BorgWarner Wrexham Limited	United Kingdom
BW El Salto, S.A. De C.V.	Mexico
BWA Receivables Corporation	Delaware
BWA Turbo Systems Holding LLC	Delaware
Cascadia Motion LLC	Delaware
Creon Insurance Agency Limited	United Kingdom
Kuhlman LLC	Delaware
Kysor Europe Limited	United Kingdom
M. & M. Knopf Auto Parts, L.L.C.	Delaware
New PDS Corp.	Delaware
NSK-Warner K.K.	Japan
NSK-Warner Mexico, S.A. de C.V .	Mexico

NSK-Warner (Shanghai) Co., Ltd.	China
NSK-Warner U.S.A., Inc.	Michigan
Old Remco Holdings, L.L.C.	Delaware
Old Remco International Holdings, L.L.C.	Delaware
SeohanWarner Turbo Systems LLC	South Korea
Sevcon New Energy Technology (Hubei) Company Limited	China
Transmission Systems AutoForm LLC	South Korea

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-12939, 333-45423, 333-45507, 333-45491, 333-45493, 333-45495, 333-45499, 333-51647, 333-67131, 333-67133, 333-67135, 333-85289, 333-85291, 333-85293, 333-85295, 333-85301,333-95207, 333-35716; 333-35718, 333-35720, 333-35722, 333-35724, 333-117171, 333-118203, 333-118202, 333-118201, 333-118200, 333-122204, 333-124086, 333-134167, 333-136604, 333-136605, 333-136606, 333-150568, 333-150569, 333-150570, 333-150571, 333-150572, 333-159694, 333-197761) and Registration Statements on Form S-3 (Nos. 333-06041, 333-14717, 333-20485, 333-31259, 333-66879, 333-84931, 333-99007, 333-106787, 333-149539, 333-163928, 333-216118) of BorgWarner Inc. of our report dated February 13, 2020 relating to the financial statements and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Detroit, Michigan
February 13, 2020

EXHIBIT 31.1

Certification of the Principal Executive Officer
Pursuant to 15 U.S.C. 78m(a) or 78o(d)
(Section 302 of the Sarbanes-Oxley Act of 2002)

I, Frederic B. Lissalde, certify that:

1. I have reviewed this annual report on Form 10-K of BorgWarner Inc.;

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

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

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

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

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

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 13, 2020

/s/ Frederic B. Lissalde

Frederic B. Lissalde
President and Chief Executive Officer

EXHIBIT 31.2

Certification of the Principal Financial Officer
Pursuant to 15 U.S.C. 78m(a) or 78o(d)
(Section 302 of the Sarbanes-Oxley Act of 2002)

I, Kevin A. Nowlan, certify that:

1. I have reviewed this annual report on Form 10-K of BorgWarner Inc.;

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

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

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

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

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

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 13, 2020

/s/ Kevin A. Nowlan

Kevin A. Nowlan
Vice President, Interim Chief Financial Officer and Treasurer

EXHIBIT 32.1

CERTIFICATIONS OF CHIEF EXECUTIVE OFFICER
AND CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350

In connection with the Annual Report of BorgWarner Inc. (the “Company”) on Form 10-K for the period ended December 31, 2019 (the “Report”), each of the undersigned officers of the Company certifies, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that to the best of such officer's knowledge:

(1) the Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 13, 2020

/s/ Frederic B. Lissalde

Frederic B. Lissalde
President and Chief Executive Officer

/s/ Kevin A. Nowlan

Kevin A. Nowlan
Vice President, Interim Chief Financial Officer and Treasurer

A signed original of this written statement required by Section 906 has been provided to BorgWarner Inc. and will be retained by BorgWarner Inc. and furnished to the Securities and Exchange Commission or its staff upon request.