AMERICAN AXLE & MANUFACTURING HOLDINGS INC
Form 10-K
February 15, 2019

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

/X/ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018

or

/ / TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _______ to _______

Commission file number 1-14303

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
(Exact name of registrant as specified in its charter)

DELAWARE	38-3161171
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
ONE DAUCH DRIVE, DETROIT, MICHIGAN	48211-1198
(Address of principal executive offices)	(Zip Code)

313-758-2000
(Registrant's telephone number, including area code)
Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Name of Each Exchange on Which Registered
COMMON STOCK, PAR VALUE $0.01 PER SHARE	NEW YORK STOCK EXCHANGE
PREFERRED SHARE PURCHASE RIGHTS, PAR VALUE $0.01 PER SHARE	NEW YORK STOCK EXCHANGE

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

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

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

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 x No o

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

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

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

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

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

The closing price of the Common Stock on June 30, 2018 as reported on the New York Stock Exchange was $15.56 per share and the aggregate market value of the registrant's Common Stock held by non-affiliates was approximately $1,727.8 million. As of February 12, 2019, the number of shares of the registrant's Common Stock, $0.01 par value, outstanding was 111,732,271 shares.

Documents Incorporated by Reference
Portions of the registrant's Annual Report to Stockholders for the year ended December 31, 2018 and Proxy Statement for use in connection with its Annual Meeting of Stockholders to be held on May 2, 2019, to be filed with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after December 31, 2018, are incorporated by reference in Part I (Items 1, 1A, 1B, 2, 3 and 4), Part II (Items 5, 6, 7, 7A, 8, 9, 9A and 9B), Part III (Items 10, 11, 12, 13 and 14) and Part IV (Item 15) of this Report.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
TABLE OF CONTENTS - ANNUAL REPORT ON FORM 10-K
Year Ended December 31, 2018

			Page Number
Part I	Item 1	Business	2
	Item 1A	Risk Factors	12
	Item 1B	Unresolved Staff Comments	18
	Item 2	Properties	19
	Item 3	Legal Proceedings	20
	Item 4	Mine Safety Disclosures	20
Part II	Item 5	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	21
	Item 6	Selected Financial Data	22
	Item 7	Management's Discussion and Analysis of Financial Condition and Results of Operations	23
	Item 7A	Quantitative and Qualitative Disclosures About Market Risk	42
	Item 8	Financial Statements and Supplementary Data	43
	Item 9	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	97
	Item 9A	Controls and Procedures	97
	Item 9B	Other Information	97
Part III	Item 10	Directors, Executive Officers and Corporate Governance	98
	Item 11	Executive Compensation	98
	Item 12	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	98
	Item 13	Certain Relationships and Related Transactions, and Director Independence	98
	Item 14	Principal Accounting Fees and Services	98
Part IV	Item 15	Exhibits and Financial Statement Schedules	99

Part I

Item 1. Business

As used in this report, except as otherwise indicated in information incorporated by reference, references to “our Company,” "we," "our," "us" or “AAM” mean American Axle & Manufacturing Holdings, Inc. (Holdings) and its subsidiaries and predecessors, collectively.

General Development of Business

Holdings, a Delaware corporation, is a successor to American Axle & Manufacturing of Michigan, Inc., a Michigan corporation, pursuant to a migratory merger between these entities in 1999.

In 2017, Alpha SPV I, Inc., a wholly-owned subsidiary of Holdings, merged with and into Metaldyne Performance Group, Inc. (MPG), with MPG as the surviving corporation in the merger. Upon completion of the merger, MPG became a wholly-owned subsidiary of Holdings.

Narrative Description of Business

Company Overview

We are a global Tier I supplier to the automotive, commercial and industrial markets. We design, engineer, validate and manufacture driveline, metal forming, powertrain and casting products, employing over 25,000 associates, operating at nearly 90 facilities in 17 countries, to support our customers on global and regional platforms with a continued focus on delivering operational excellence, technology leadership and quality.

We are a primary supplier of driveline components to General Motors Company (GM) for its full-size rear-wheel drive (RWD) light trucks and sport utility vehicles (SUV) manufactured in North America, supplying a significant portion of GM's rear axle and four-wheel drive and all-wheel drive (4WD/AWD) axle requirements for these vehicle platforms. We also supply GM with various products from each of our Metal Forming, Powertrain and Casting segments. Sales to GM were approximately 41% of our consolidated net sales in 2018, 47% in 2017, and 67% in 2016.

We also supply driveline system products to FCA US LLC (FCA) for heavy-duty Ram full-size pickup trucks and its derivatives, the AWD Jeep Cherokee, and a passenger car driveshaft program. In addition we sell various products to FCA from each of our Metal Forming, Powertrain and Casting segments. Sales to FCA were approximately 13% of our consolidated net sales in 2018, 14% in 2017 and 18% in 2016.

Business Strategy

We have aligned our business strategy to build value for our key stakeholders. We accomplish our strategic objectives by capitalizing on our competitive strengths and continuing to diversify our customer, product and geographic sales mix, while providing exceptional value to our customers.

Competitive Strengths

We achieve our strategic objectives by emphasizing a commitment to:

Sustaining our operational excellence and focus on cost management.

- AAM received the 2017 and 2016 GM Supplier of the Year Award, which is awarded to suppliers that consistently exceed GM's expectations, create outstanding value or bring new innovations to GM.
- We also received Jaguar Land Rover's (JLR) Supplier Excellence award for AAM's contribution to their business, cost transformation and operational delivery during 2017.
- During 2018, we launched more than 50 programs across our four business units, supporting a variety of customers including Ford, JLR and Mercedes-AMG. In 2019, we expect to launch approximately 50 new and replacement programs across our business units.
- We continue to focus on cost management through the implementation of the AAM Operating System to improve quality, eliminate waste and reduce lead time and total costs globally.
- We have established a cost competitive, operationally flexible global manufacturing, engineering and sourcing footprint to increase our presence in global growth markets, support global product development initiatives and establish regional cost competitiveness.
- Our business is vertically integrated to reduce cost and mitigate risk in the supply chain. Our acquisitions of MPG and USM Mexico Manufacturing LLC (USM Mexico) in 2017 furthered our efforts to vertically integrate the supply chain and helped ensure continuity of supply for certain parts to our largest manufacturing facility.

Maintaining our high quality standards, which are the foundation of our product durability and reliability.

- In 2018, we had five facilities in the United States, one facility in China and one facility in South Korea awarded the GM Supplier Quality Excellence Award for outstanding quality performance during the 2017 performance year. For our Changshu Manufacturing Facility in China, it was the fourth consecutive year that they earned this award.
- Our Fraser and Royal Oak, Michigan facilities were awarded the FCA Outstanding Quality Award in 2018 for the 2017 performance year.
- Also in 2018, our Suzhou Manufacturing Facility in China was recognized with Ford's Q1 Award, which recognizes suppliers who consistently deliver exceptional quality and Chery International's 2017 Excellent Quality Performance Supplier Award.
- Several other facilities were recognized for outstanding quality performance by OEMs such as Daimler, Honda and JLR.
- AAM has an enhanced internal quality assurance system that drives continuous improvement to meet and exceed the growing expectations of our OEM customers.

Achieving technology leadership by delivering innovative products which improve the diversification of our product portfolio while increasing our total global served market.

-

In our Driveline segment, AAM's significant investment in research and development (R&D) has resulted in the development of advanced technology products designed to assist our customers in meeting the market demands for improved fuel efficiency; lower emissions; enhanced power density; advanced, sophisticated electronic controls; improved safety, ride and handling performance; and enhanced reliability and durability.

- e-AAM was created to design and commercialize battery electric and hybrid driveline systems designed to improve fuel efficiency, reduce CO_2 emissions and provide AWD capability. To date, e-AAM has

3

secured two driveline systems contracts featuring patented e-AAM™ hybrid and electric driveline systems technology. One of these programs launched in 2018, and the other is expected to launch in 2020.

- AAM's EcoTrac® Disconnecting AWD system is a fuel-efficient driveline system that provides OEMs the option of an all-wheel-drive system that disconnects when not needed to improve fuel efficiency and reduce CO_2 emissions compared to conventional AWD systems. In 2018, AAM launched the next generation of our EcoTrac® Disconnecting AWD system (EcoTrac® Gen II), which is smaller, lighter in weight and more efficient. This technology is featured on several significant global crossover platforms, including GM's Chevrolet Equinox and GMC Terrain, FCA's AWD Jeep Cherokee and its derivatives, as well as the Cadillac XT4 and the Ford Edge.

- AAM has established a high-efficiency product portfolio that is designed to improve axle efficiency and fuel economy through innovative product design technologies. Our high-efficiency axles are featured on several premium OEM vehicles, including Mercedes-Benz and Jaguar Land Rover. As our customers focus on reducing weight through the use of aluminum and other lightweighting alternatives, AAM is well positioned to offer innovative, industry leading solutions. Our portfolio includes high-efficiency axles, aluminum axles and AWD applications for hybrid electric vehicles to full-electric vehicles. AAM's Quantum™ lightweight axle technology features a revolutionary design, which offers significant mass reduction and increased fuel economy and efficiency that is scalable across multiple applications without loss of performance or power. During 2018, AAM's Quantum™ lightweight axle technology received multiple awards, including the inaugural Future of Lightweighting Altair Enlighten Award and the inaugural Society of Automotive Analysts' Lightweighting Innovation Award.

- In our Powertrain segment, we have identified opportunities to apply our high strength connecting rod technology and refined vibration control systems to support hybrid powertrain systems and power dense four cylinder and three cylinder engines that are smaller in size. Also in our Powertrain segment, our Subiaco Manufacturing Facility has been recognized by the Metal Powder Industries Federation with a 2018 Powder Metallurgy Design Award of Distinction.

- In our Metal Forming segment, we have developed forged axle tubes, which deliver significant weight and cost reductions as compared to the traditional welded axle tubes. These forged axle tubes are expected to enter production on a program for a major OEM customer in 2019.

- Our Casting segment has developed patented high strength ductile iron called Ductile - ITE™, which provides the potential to reduce mass by up to 20% while providing greater overall strength. Also in our Casting segment, we have identified an opportunity to begin utilizing three-dimensional printed sand cores in our production process, which has the potential to reduce costs and floor space requirements.

- AAM's Advanced Technology Development Center (ATDC) at our Detroit campus, allows us to accelerate technological advancements. This state-of-the-art facility is our center for technology benchmarking, prototype development, advanced technology development, supplier collaboration, customer showcasing and associate training on our future products, processes, and systems.

Diversification of Customer, Product and Geographic Sales Mix

Another element of building value for our key stakeholders is the diversification of our business through the growth of new and existing customer relationships and expansion of our product portfolio.

- In addition to maintaining and building upon our longstanding relationships with GM and FCA, we are focused on generating profitable growth with new and existing global customers. New business launches in 2018 included key customers such as Ford, JLR and Mercedes-AMG.

- We are working on approximately $1.5 billion in quoted and emerging new business opportunities. These opportunities would allow us to continue the diversification and expansion of our customer base, product portfolio and global footprint.

- We continue to evaluate and consider strategic opportunities that will complement our core strengths and supplement our diversification strategies while providing future, profitable growth prospects. Our

4

acquisition of MPG in 2017 was a key step in achieving our goals of customer, product and geographic diversification.

We are focused on increasing our presence in global markets to support our customers' platforms.

- As our customers design their products for global markets, they will continue to require global support from their suppliers. For this reason, it is critical that we maintain a global presence in these markets in order to remain competitive for new contracts. As a result of our acquisition of MPG, we have expanded our global presence, primarily in Asia and Europe.

- In 2018, we entered into a new joint venture (JV) with Liuzhou Wuling Automobile Industry Co., Ltd. (Liuzhou Wuling), a subsidiary of Guangxi Automotive Group Co., Ltd. This is in addition to our existing JV with Hefei Automobile Axle Co., Ltd. (HAAC), a subsidiary of the JAC Group (Anhui Jianghuai Automotive Group Co., Ltd.), which includes 100% of HAAC's light commercial axle business. Liuzhou Wuling manufactures independent rear axles and driveheads to be used on crossovers, including SUVs, minivans and multi-purposes vehicles and HAAC supplies front and rear beam axles to several leading Chinese light truck manufacturers, including JAC and Foton (Beiqi Foton Motor Co., Ltd.). These joint ventures continue to be a strong advantage for building relationships with leading Chinese manufacturers.

Competition

We compete with a variety of independent suppliers and distributors, as well as with the in-house operations of certain vertically integrated OEMs. Technology, design, quality and cost are the primary elements of competition in our industry segments. In addition to traditional competitors in the automotive sector, the trend towards advanced electronic integration has increased the level of new market entrants, including technology companies.

Industry Trends

See Item 7, “Management's Discussion and Analysis - Industry Trends.”

Productive Materials

We believe that we have adequate sources of supply of productive materials and components for our manufacturing needs. Most raw materials (such as steel) and semi-processed or finished items are available within the geographical regions of our operating facilities from qualified sources in quantities sufficient for our needs. We currently have contracts with our steel suppliers that ensure continuity of supply to our principal operating facilities. We also have validation and testing capabilities that enable us to strategically qualify steel sources on a global basis. As we continue to expand our global manufacturing footprint, we may need to rely on suppliers in local markets that have not yet proven their ability to meet our requirements.

Backlog

We typically enter into agreements to provide our products for the life of our customers' vehicle programs. Our new and incremental business includes awarded programs and incremental content and volume including customer requested engineering changes. Our backlog may be impacted by various assumptions, many of which are provided by our customers based on their long range production plans. These assumptions include future production volume estimates, changes in program launch timing and fluctuation in foreign currency exchange rates.

Our gross new and incremental business backlog is approximately $1.25 billion for programs launching from 2019 to 2021. In 2017, our gross new and incremental business backlog was approximately $1.5 billion for programs launching from 2018 to 2020.

Of this $1.25 billion gross new and incremental business backlog, approximately 45% is for end-use markets outside of North America, approximately 70% relates to light trucks, including crossover vehicles and SUVs, and approximately 10% relates to our e-AAM™ hybrid and electric driveline systems technology.

5

Patents and Trademarks

We maintain and have pending various U.S. and foreign patents, trademarks and other rights to intellectual property relating to our business, which we believe are appropriate to protect our interest in existing products, new inventions, manufacturing processes and product developments. We do not believe that any single patent or trademark is material to our business, nor would expiration or invalidity of any patent or trademark have a material adverse effect on our business or our ability to compete.

Cyclicality and Seasonality

Our operations are cyclical because they are directly related to worldwide automotive production, which is itself cyclical and dependent on general economic conditions and other factors. Our business is moderately seasonal as our major OEM customers historically have an extended shutdown of operations (typically 1-2 weeks) in conjunction with their model year changeover and an approximate one-week shutdown in December. Our major OEM customers also occasionally have longer shutdowns of operations (up to 6 weeks) for program changeovers. Accordingly, our quarterly results may reflect these trends.

Litigation and Environmental Matters

We are involved in various legal proceedings incidental to our business. Although the outcome of these matters cannot be predicted with certainty, we do not believe that any of these matters, individually or in the aggregate, will have a material adverse effect on our financial condition, results of operations or cash flows.

We are subject to various federal, state, local and foreign environmental and occupational safety and health laws, regulations and ordinances, including those regulating air emissions, water discharge, waste management and environmental cleanup. We will continue to closely monitor our environmental conditions to ensure that we are in compliance with all laws, regulations and ordinances. We have made, and anticipate continuing to make, capital and other expenditures (including recurring administrative costs) to comply with environmental requirements. Such expenditures were not significant in 2018, 2017 and 2016.

Associates

We employ over 25,000 associates on a global basis (including our joint venture affiliates) of which approximately 11,500 are employed in the U.S. and approximately 13,500 are employed at our foreign locations. Approximately 5,000 are salaried associates and approximately 20,000 are hourly associates. Of the 20,000 hourly associates, approximately 60% are covered under collective bargaining agreements with various labor unions.

Executive Officers of the Registrant

Name	Age	Position
David C. Dauch	54	Chairman of the Board & Chief Executive Officer
Michael K. Simonte	55	President
David E. Barnes	60	Vice President & General Counsel
Timothy E. Bowes	55	President - Casting
David M. Buckley	54	President - Europe
Gregory Deveson	57	President - Driveline
Terri M. Kemp	53	Vice President - Human Resources
Michael J. Lynch	54	Vice President - Finance & Controller
Christopher J. May	49	Vice President & Chief Financial Officer
Tolga Oal	47	Senior Vice President - Global Procurement & Supplier Quality Engineering
Alberto L. Satine	62	Senior Vice President - Special Projects
James Voeffray	53	Senior Vice President - Global Sales & Product Management
Norman Willemse	62	President - Metal Forming

David C. Dauch, age 54, has been AAM's Chief Executive Officer since September 2012. Mr. Dauch has served on AAM's Board of Directors since April 2009 and was appointed Chairman of the Board in August 2013. From September 2012 through August 2015, Mr. Dauch served as AAM’s President & CEO. Prior to that, Mr. Dauch served as President & Chief Operating Officer (2008 - 2012) and held several other positions of increasing responsibility from the time he joined AAM in 1995. Presently, he serves on the boards of Business Leaders for Michigan, the Detroit Economic Club, the Detroit Regional Chamber, the Great Lakes Council Boy Scouts of America, the Boys & Girls Club of Southeast Michigan, the National Association of Manufacturers (NAM), the Original Equipment Suppliers Association (OESA), Amerisure Mutual Holdings, Inc. and the Amerisure Companies (since December 2014). Mr. Dauch also serves on the Miami University Business Advisory Council, the General Motors Supplier Council and the FCA NAFTA Supplier Advisory Council.

Michael K. Simonte, age 55, has been President since August 2015. Mr. Simonte previously served as Executive Vice President & Chief Financial Officer (since December 2011); Executive Vice President - Finance & Chief Financial Officer (since February 2009); Group Vice President - Finance & Chief Financial Officer (since December 2007); Vice President - Finance & Chief Financial Officer (since January 2006); Vice President & Treasurer (since May 2004); and Treasurer (since September 2002). Mr. Simonte joined AAM in December 1998 as Director, Corporate Finance. Prior to joining our Company, Mr. Simonte served as Senior Manager at the Detroit office of Ernst & Young LLP. Mr. Simonte is a certified public accountant.

David E. Barnes, age 60, has been General Counsel and Corporate Secretary since joining AAM in 2012, and became a Vice President in 2017. In addition to his responsibilities as General Counsel and Corporate Secretary, he also serves as the Chief Compliance Officer of the Company. Prior to joining AAM, Mr. Barnes served as Executive Vice President, General Counsel and Secretary for Atlas Oil Company. He has held various positions during his career at Ford Motor Company, Dykema Gossett and Venture Holdings LLC, after beginning his career at Honigman, Miller, Schwartz and Cohn. Mr. Barnes holds a juris doctor degree.

Timothy E. Bowes, age 55, has been President - Casting since August 2017. Mr. Bowes previously served as Senior Vice President - Strategic & Business Development (since April 2016) and Senior Vice President - Corporate Planning (since December 2015). Prior to joining AAM, Mr. Bowes served as Chief Executive Officer & President of Transtar Corporation, since 2013. Prior to Transtar, Mr. Bowes served as Executive Officer & President - Commercial Truck at Meritor Inc., which he joined in 2005. He has held various leadership positions during his 25-year automotive and industrial career, managing business operations, strategic opportunities and sales & marketing for multiple organizations. In addition to Transtar and Meritor, Mr. Bowes' career also includes working at Hilite International, Wescast Industries, Intermet Corporation and ITT Automotive.

David Buckley, age 54, has been President - Europe since January 2019. He joined AAM in November 2017 as Vice President - Strategic and Business Development. Prior to joining AAM, Mr. Buckley served as President and Chief Executive Officer for Vexos, Inc from 2014 to 2017. Before joining Vexos, Mr. Buckley gained extensive global leadership experience as Chief Executive Officer of Cross Match Technologies, Vectronix and Modtech. Earlier in his career, Mr. Buckley led successful business units at General Electric and PricewaterhouseCoopers consulting. Mr. Buckley is a certified LEAN expert. Mr. Buckley is also a veteran of the U.S. Navy, and serves on the U.S. Naval Academy admissions board, and as a member of the U.S. Naval Academy Foundation Board.

Gregory Deveson, age 57, has been President - Driveline since January 2019. Prior to that, he served as President - Powertrain since joining AAM in April 2017. Prior to joining AAM, Mr. Deveson served as Senior Vice President of the Driveline Systems Group at Magna Powertrain from 2008 to 2016. Over his 25-year automotive and manufacturing career, Mr. Deveson has managed business operations, strategic opportunities, product engineering, purchasing and quality for multiple organizations.

Terri M. Kemp, age 53, has been Vice President - Human Resources since September 2012. Prior to that, she served as Executive Director - Human Resources & Labor Relations (since November 2010), Executive Director - Human Resources (since September 2009), Director - Human Resources Operations (since October 2008), and served in various plant and program management roles since joining the Company in July 1996. Prior to joining our Company, Mrs. Kemp served for nine years at Corning Incorporated, where she progressed through a series of manufacturing positions with increasing responsibility, including Industrial Engineer, Department Head and Operations Manager.

Michael J. Lynch, age 54, has been Vice President and Controller since February 2017. Prior to that, he served as Vice President - Driveline Business Performance & Cost Management (since May 2015); Vice President - Finance & Controller (since September 2012); Executive Director & Controller (since October 2008); Director - Commercial Analysis (since July 2006); Director - Finance, Driveline Americas (since March 2006); Director - Investment & Commercial Analysis (since November 2005); Director - Finance, Driveline (since October 2005); Director - Finance Operations, U.S. (since April 2005); Manager - Finance (since June 2003); Manager - Finance, Forge Division (since September 2001); Finance Manager - Albion Automotive (since October 1998); Supervisor - Cost Estimating (since February 1998) and Financial Analyst at the Detroit Manufacturing Facility since joining AAM in September 1996. Prior to joining our Company, Mr. Lynch served at Stellar Engineering for nine years in various capacities.

Christopher J. May, age 49, has been Vice President & Chief Financial Officer since August 2015. Prior to that, he served as Treasurer (since December 2011); Assistant Treasurer (since September 2008); Director of Internal Audit (since September 2005); Divisional Finance Manager - Metal Formed Products (since June 2003); Finance Manager - Three Rivers Manufacturing Facility (since August 2000); Manager, Financial Reporting (since November 1998) and Financial Analyst since joining AAM in 1994. Prior to joining AAM, Mr. May served as a Senior Accountant for Ernst & Young. Mr. May is a certified public accountant.

Tolga Oal, age 47, has been Senior Vice President - Global Procurement and Supplier Quality Engineering since January 2019. Prior to that he was President - Driveline (since September 2018), and Senior Vice President - AAM and President - AAM North America since joining our Company in September 2015. Prior to joining AAM, Mr. Oal served as Vice President of Global Electronics for TRW Automotive, since 2012. Before that, Mr. Oal served in various manufacturing and management positions of increasing responsibility within TRW for Global Electronics, including Director of Operations and as Director of Finance. Prior to joining TRW, Mr. Oal held various leadership positions in engineering, sales, purchasing, and finance at Siemens VDO Automotive/Continental.

Alberto L. Satine, age 62, has been Senior Vice President - Special Projects since January 2019. Prior to that, he served as President - Electrification (since September 2018); President - AAM Driveline (since August 2015); Senior Vice President - Global Driveline Operations (since January 2014); Group Vice President - Global Sales & Business Development (since December 2011); Vice President - Strategic & Business Development (since November 2005);

Vice President - Procurement (since January 2005); Executive Director, Global Procurement Direct Materials (since January 2004); General Manager, Latin American Driveline Sales and Operations (since August 2003) and General Manager of International Operations (since joining our Company in May 2001). Prior to joining our Company, Mr. Satine held several management positions at Dana Corporation, including the position of Regional President of Dana's Andean Operations in South America from 1997 to 2000 and General Manager of the Spicer Transmission Division in Toledo, Ohio from 1994 to 1997.

James Voeffray, age 53, has been Senior Vice President - Global Sales since joining AAM in September 2018. Prior to joining AAM, Mr. Voeffray served as Senior Vice President - Sales, Marketing & Program Management for GKN's Automotive Driveline Division from 2016 to 2018. During his 20 year career with GKN, Mr. Voeffray held a number of global leadership roles in the United States and United Kingdom, including the role of Senior Vice President - eDrive Systems. Mr. Voeffray also held various roles at Magna Powertrain Division and Ford Motor Company.

Norman Willemse, age 62, has been President - Metal Forming since August 2015. Prior to that, he served as Vice President - Metal Formed Product Business Unit (since December 2011); Vice President - Global Metal Formed Product Business Unit (since October 2008); Vice President - Global Metal Formed Product Operations (since December 2007); General Manager - Metal Formed Products Division (since July 2006) and Managing Director - Albion Automotive (since joining our Company in August 2001). Prior to joining our Company, Mr. Willemse served at AS Transmissions & Steering (ASTAS) for seven years as Executive Director Engineering Group Manager Projects and Engineering and John Deere for over 17 years in various engineering positions of increasing responsibility. Mr. Willemse is a professional certified mechanical engineer.

Internet Website Access to Reports

The website for American Axle & Manufacturing Holdings, Inc. is www.aam.com. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to section 13(a) or 15(d) of the Securities Exchange Act of 1934 are available free of charge through our website as soon as reasonably practicable after they are electronically filed with, or furnished to, the Securities and Exchange Commission (SEC). The SEC also maintains a website at www.sec.gov that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The information contained in the Company's website is not included, or incorporated by reference, in this Annual Report on Form 10-K.

Item 1A. Risk Factors

The following risk factors and other information included in this Annual Report on Form 10-K should be considered as our business, financial condition, operating results and cash flows could be materially adversely affected if any of the following risks occur.

Our business is significantly dependent on sales to GM and FCA.

We are a primary supplier of driveline components to GM for its full-size RWD light trucks and SUVs manufactured in North America, supplying a significant portion of GM's rear axle and 4WD/AWD axle requirements for these vehicle platforms. We also supply GM with various products from each of our Metal Forming, Powertrain and Casting segments. Sales to GM were approximately 41% of our consolidated net sales in 2018, 47% in 2017, and 67% in 2016. A reduction in our sales to GM or a reduction by GM of its production of RWD light trucks or SUVs, as a result of market share losses of GM or otherwise, could have a material adverse effect on our results of operations and financial condition.

We also supply driveline system products for FCA's heavy-duty Ram full-size pickup trucks and its derivatives, the AWD Jeep Cherokee and a passenger car driveshaft program. In addition, we sell various products to FCA from each of our Metal Forming, Powertrain and Casting segments. Sales to FCA accounted for approximately 13% of our consolidated net sales in 2018, 14% in 2017 and 18% in 2016. A reduction in our sales to FCA or a reduction by FCA of its production of the programs we support, as a result of market share losses of FCA or otherwise, could have a material adverse effect on our results of operations and financial condition.

Our business may also be adversely affected by reduced demand for the product programs we currently support, or anticipate supporting in the future, or if we do not obtain sales orders for successor programs that replace our current product programs.

We are under continuing pressure from our customers to reduce our prices.

Annual price reductions are a common practice in the automotive industry. Many of our contracts require us to reduce our prices in subsequent years and most of our contracts allow us to adjust prices for engineering changes requested by our customers. If we accommodate a customer's demand for higher annual price reductions and are unable to offset the impact of any such price reductions through continued technology improvements, cost reductions or other productivity initiatives, our results of operations and financial condition could be adversely affected.

Our business faces substantial competition.

The markets in which we compete are highly competitive. Our competitors include manufacturing facilities controlled by OEMs, as well as many other domestic and foreign companies possessing the capability to produce some or all of the products we supply. In addition to traditional competitors in the automotive sector, the trend towards advanced electronic integration has increased the level of new market entrants, including technology companies. Some of our competitors are affiliated with OEMs and others could have economic advantages as compared to our business, such as patents, existing underutilized capacity and lower wage and benefit costs. Technology, design, quality and cost are the primary elements of competition in our markets. As a result of these competitive pressures and other industry trends, OEMs and suppliers are developing strategies to reduce costs. These strategies include supply base consolidation, OEM in-sourcing and global sourcing. Our business may be adversely affected by increased competition from suppliers benefiting from OEM affiliate relationships or financial and other resources that we do not possess. Our business may also be adversely affected if we do not sustain our ability to meet customer requirements relative to technology, design, quality, delivery and cost.

Our company or our customers may not be able to successfully and efficiently manage the timing and costs of new product program launches.

Certain of our customers are preparing to launch new product programs for which we will supply newly developed products and related components. There can be no assurance that we will successfully complete the transition of our manufacturing facilities and resources to support these new product programs or other future product programs on a timely and cost efficient basis. Accordingly, the launch of new product programs may adversely affect production rates or other operational efficiency and profitability measures at our facilities. We may also experience difficulties with the performance of our supply chain on program launches, which could result in our inability to meet our contractual obligations to key customers. Production shortfalls or production delays, if any, could result in our failure to effectively manage our material and freight costs relating to these program launches. In addition, our customers may delay the launch or fail to successfully execute the launch of these new product programs, or any additional future product program for which we will supply products. Our revenues, operating results and financial condition could be adversely impacted if our customers fail to timely launch such programs or if we are unable to manage the timing requirements and costs of new product program launches.

If we are unable to respond timely to changes in regulation, technology, and market innovation, we risk not being able to develop our intellectual property into commercially viable products.

Our results of operations and financial condition are impacted, in part, by our competitive advantage in developing, engineering, and manufacturing innovative products. In the future, our ability to anticipate changes in technology, successfully develop, engineer, and bring to market new and innovative proprietary products, or successfully respond to evolving business models, in particular, autonomous and electric vehicle advances, may have a significant impact on our market competitiveness. If we are unable to maintain our competitive advantage through innovation, there could be a material adverse effect on our results of operations and financial condition.

Our company's global operations are subject to risks and uncertainties.

We have business and technical offices and manufacturing facilities in multiple countries outside the United States. International operations are subject to certain risks inherent in conducting business outside the U.S., such as changes in currency exchange rates, tax laws, price and currency exchange controls, tariffs or import restrictions, nationalization, immigration policies, expropriation and other governmental action. Our global operations also may be adversely affected by political events, domestic or international terrorist events and hostilities, natural disasters and significant weather events, or disruptions in the global financial markets.

Certain events, such as the United Kingdom's continued efforts to exit the European Union and tax reform, create a level of uncertainty for multi-national companies. As U.S. companies continue to expand globally, increased complexity exists due to recent changes to the U.S. corporate tax code, potential revisions to international tax law treaties, and renegotiated trade agreements, including the potential ratification of the United States-Mexico-Canada trade agreement (USMCA) or other potential changes to the North American Free Trade Agreement (NAFTA). These uncertainties could have a material adverse effect on our business and our results of operations and financial condition. As we continue to expand our business globally, our success will depend, in part, on our ability to anticipate and effectively manage these and other risks.

Our business is dependent on the rear-wheel drive light truck and SUV market segments in North America.

A substantial portion of our revenue is derived from products supporting RWD light truck and SUV platforms in North America. Sales and production levels of light trucks and SUVs can be affected by many factors, including changes in consumer demand; product mix shifts favoring other types of light vehicles, such as front-wheel drive based crossover vehicles and passenger cars; fuel prices; and government regulations. A reduction in the market segments we currently supply could have a material adverse impact on our results of operations and financial condition.

Our goodwill, other intangible assets, and long-lived assets are at risk of impairment if our business or market conditions indicate that the carrying value of those assets exceeds their fair value.

Accounting principles generally accepted in the United States of America (GAAP) require that companies evaluate the carrying value of goodwill, other intangible assets, and long-lived assets routinely in order to assess whether any indication of asset impairment exists. Goodwill and other indefinite-lived intangible assets are required to be evaluated on an annual basis, while finite-lived intangible assets and long-lived assets should be evaluated only when events and circumstances exist that indicate an asset or group of assets may be impaired.

Our acquisitions of MPG and USM Mexico in 2017 significantly increased the value of our goodwill and other intangible assets, and resulted in a change to our organizational structure from one reporting unit to multiple reporting units. As such, the threshold for analyzing impairment of goodwill has been reduced from an evaluation of the carrying value of our consolidated operations and its related fair value, to an analysis performed across multiple reporting units. This could potentially provide greater risk that goodwill becomes impaired in future operating periods. Further, the increase to goodwill and other intangible asset balances in connection with these acquisitions provides a greater chance that an impairment of these assets would have a material adverse effect on our results of operations and financial condition.

Our business is dependent on our Guanajuato Manufacturing Complex.

A high concentration of our global business is supported by our Guanajuato Manufacturing Complex (GMC) in Mexico. In 2018, GMC represented a significant portion of our net sales, profitability and cash flow from operations. We expect GMC to continue to represent a substantial portion of these metrics for the foreseeable future. A significant disruption to our GMC operations as a result of changes in trade agreements between Mexico and the U.S. (including USMCA or NAFTA), tariffs, natural disaster or otherwise could have a material adverse impact on our results of operations and financial condition.

We may incur material losses and costs as a result of product recall or field action, product liability and warranty claims, litigation and other disputes and claims.

We are exposed to warranty, product recall or field action and product liability claims in the event that our products fail to perform as expected, and we may be required to participate in a recall of such products. We are not responsible for certain warranty claims that may be incurred by our customers, which include returned components for which no defect was found upon inspection, discretionary acts of dealer goodwill, defects related to certain directed buy components, and build-to-print design issues. We review warranty claim activity in detail, and we may have disagreements with our customers as to responsibility for these types of costs incurred by our customers. In addition, as we continue to diversify our customer base, we expect our obligation to share in the cost of providing warranties as part of our agreements with new customers will increase. Costs and expenses associated with warranties, field actions, product recalls and product liability claims could have a material adverse impact on our results of operations and financial condition and may differ materially from the estimated liabilities that we have recorded in our consolidated financial statements.

In addition to warranty claims relating directly to products we produce, potential product recalls for our customers and their other suppliers, and the potential reputational harm that may result from such product recalls, could have a material adverse impact on our results of operations and financial condition.

We are also involved in various legal proceedings incidental to our business. Although we believe that none of these matters are likely to have a material adverse effect on our results of operations or financial condition, there can be no assurance as to the ultimate outcome of any such legal proceeding or any future legal proceedings.

A failure of our information technology (IT) networks and systems, or a failure to successfully integrate the IT systems of acquired companies, could adversely impact our business and operations.

We rely upon information technology networks and systems to process, transmit and store electronic information, and to manage or support a variety of business processes or activities. Additionally, we and certain of our third-party vendors collect and store personal information in connection with human resources operations and other aspects of our business. The secure operation of these information technology networks and systems and the proper processing and maintenance of this information are critical to our business operations. We cannot be certain that the security measures we have in place to protect these systems and data will be successful or sufficient to protect our IT systems from current and emerging technology threats and damage from computer viruses, unauthorized access, cyber attack and other similar disruptions. The occurrence of any of these events could compromise our networks, and the information stored there could be accessed, publicly disclosed or lost. Any such access, disclosure or other loss of information could result in legal claims or proceedings, liability or regulatory penalties under laws protecting the

privacy of personal information, the disruption of our operations or damage to our reputation. We may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.
In connection with our acquisition of MPG, we are integrating our IT systems and infrastructure, however, there is no assurance we will be able to successfully complete this integration on a timely basis, which could have a material adverse effect on our results of operations and financial condition.

Our business could be adversely affected by the cyclical nature of the automotive industry.

Our operations are cyclical because they are directly related to worldwide automotive production, which is itself cyclical and dependent on general economic conditions and other factors, such as credit availability, interest rates, fuel prices and consumer confidence. Our business may be adversely affected by an economic decline or fiscal crisis that results in a reduction of automotive production and sales by our largest customers.

Negative or unexpected tax consequences, as well as possible changes in foreign and domestic tax laws could adversely affect our results of operations and financial condition.
In 2017, the Tax Cuts and Jobs Act (the 2017 Act) was signed into law in the United States and has resulted in significant changes to tax regulations in the U.S. In addition, there have been recent global proposals brought forward by the Organisation for Economic Co-operation and Development (OECD) alongside the Group of Twenty (G-20), for tax jurisdictions to evaluate the potential reform of longstanding corporate tax law principles and treaties that could adversely affect multi-national companies. Although the OECD does not enact tax law, proposals like this or others that lead to substantial changes in enacted tax laws and treaties could have a material adverse impact on our results of operations and financial condition.
We file income tax returns in the U.S. federal jurisdiction, as well as various states and foreign jurisdictions. We are also subject to examinations of these income tax returns by the relevant tax authorities. Based on the status of these audits and the protocol of finalizing audits by the relevant tax authorities, it is not possible to estimate the impact of changes, if any, to previously recorded uncertain tax positions. Any negative or unexpected outcomes of these examinations and audits could have a material adverse impact on our results of operations and financial condition.

Our business could be adversely affected by disruptions in our supply chain and our customers' supply chain.

We depend on a limited number of suppliers for certain key components and materials needed for our products. We rely upon, and expect to continue to rely upon, certain suppliers for critical components and materials that are not readily available in sufficient volume from other sources. As we continue to expand our global manufacturing footprint, we may need to rely on suppliers in local markets that have not yet proven their ability to meet our requirements. These supply chain characteristics make us susceptible to supply shortages and price increases. If production volumes increase rapidly, there can be no assurance that the suppliers of critical components and materials will be able or willing to meet our future needs on a timely basis.

Our supply chain, as well as our customers' supply chain, is also at risk of unanticipated events such as natural disasters or changes in governmental regulations and trade agreements (including USMCA or NAFTA), that could cause a disruption in the supply of critical components to us and our customers. A significant disruption in the supply of these materials could have a material adverse effect on our results of operations and financial condition.

Our restructuring initiatives may not achieve their intended outcomes.

We have initiated restructuring actions in recent years to reduce cost and realign certain areas of our business and plan to initiate further restructuring actions in future periods. There can be no assurance that such restructuring initiatives will successfully achieve the intended outcomes, or that the charges related to such initiatives will not have a material adverse effect on our results of operations and financial condition.

As part of our strategic initiatives, we are actively assessing our product portfolio and may pursue plans to divest certain operations in future periods. Our results of operations or financial condition could be adversely affected if we initiate a divestiture and it is not completed in accordance with our expected timeline, or at all, or if we do not realize the expected benefits of the divestiture.

13

Our company may not realize all of the revenue expected from our new and incremental business backlog.

The realization of incremental revenues from awarded business is inherently subject to a number of risks and uncertainties, including the accuracy of customer estimates relating to the number of vehicles to be produced in new and existing product programs and the timing of such production, as well as the fluctuation in exchange rates for programs sourced in currencies other than our reporting currency. It is also possible that our customers may delay or cancel a product program that has been awarded to us. Our revenues, operating results and financial condition could be adversely affected relative to our current financial plans if we do not realize substantially all the revenue from our new and incremental business backlog.

Exchange rate fluctuations could adversely affect our company's global results of operations and financial condition.

As a result of our international operations, we are exposed to foreign currency risks that arise from our normal business operations, including risks associated with transactions that are denominated in currencies other than our local functional currencies. Gains and losses resulting from the remeasurement of assets and liabilities in a currency other than the functional currency of our foreign subsidiaries are reported in current period income. In the future, unfavorable changes in exchange rate relationships between the functional currencies of our subsidiaries and their non-functional currency denominated assets and liabilities could have an adverse impact on our results of operations and financial condition. While we use, from time to time, foreign currency forward contracts to help mitigate certain of these risks and reduce the effects of fluctuations in exchange rates, our efforts to manage these risks may not be successful.

We are also subject to currency translation risk as we are required to translate the financial statements of our foreign subsidiaries to U.S. dollars. We report the effect of translation for our foreign subsidiaries with a functional currency other than the U.S. dollar as a separate component of stockholders' equity. Unfavorable changes in the exchange rate relationship between the U.S. dollar and the functional currencies of our foreign subsidiaries could have an adverse impact on our results of operations and financial condition.

Our business could be adversely affected by volatility in the price of raw materials.

Worldwide commodity market conditions in recent years have resulted in volatility in the cost of steel and other metallic materials we use in production. During periods of general economic improvement and increases in customer demands, we have seen the cost of steel and metallic materials needed for our products increase. If we are unable to pass such cost increases on to our customers, this could have a material adverse effect on our results of operations and financial condition.

Our business could be adversely affected if we fail to maintain satisfactory labor relations.

A significant portion of our hourly associates worldwide are members of industrial trade unions employed under the terms of collective bargaining agreements. There can be no assurance that future negotiations with our labor unions will be resolved favorably or that we will not experience a work stoppage or disruption that could have a material adverse impact on our results of operations and financial condition. In addition, there can be no assurance that such future negotiations will not result in labor cost increases or other terms and conditions that could adversely affect our results of operations and financial condition or our ability to compete for future business.

We may be unable to consummate and successfully integrate acquisitions and joint ventures.

Engaging in acquisitions and joint ventures involves potential risks, including financial risks and failure to successfully integrate and fully realize the expected benefits of such acquisitions and joint ventures. In 2017, AAM completed our acquisition of 100% of the equity interests of MPG. Failure to successfully integrate our acquisition of

MPG, or to fully realize the expected benefits and efficiencies of the acquisition, may have a material adverse impact on our results of operations and financial condition. Integrating acquired operations is a significant challenge and there is no assurance that we will be able to manage the integrations successfully.

As we continue to expand globally and accelerate our diversification efforts, we may pursue strategic growth initiatives with greater frequency. An inability to successfully achieve the levels of organic and inorganic growth from our strategic initiatives could adversely impact our results of operations and financial condition.

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. 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 to our proprietary technologies or design around the patents we own or license. Further, as we expand our operations in jurisdictions where the protection of intellectual property rights is less robust, the risk of others duplicating our proprietary technologies increases, despite efforts we undertake to protect them. Developments or assertions by or against us relating to intellectual property rights, and any inability to protect these rights, could materially adversely affect our business and our competitive position.

Our company's ability to operate effectively could be impaired if we lose key personnel.

Our success depends, in part, on the efforts of our executive officers and other key associates, such as engineers and global operational leadership. In addition, our future success will depend on, among other factors, our ability to continue to attract and retain qualified personnel, particularly engineers and other employees with critical expertise and skills that support key customers and products. The loss of the services of our executive officers or other key associates, unexpected turnover, or the failure to attract or retain associates, could have a material adverse effect on our results of operations and financial condition.

We have incurred substantial indebtedness.

We have incurred substantial indebtedness and related debt service obligations, which could have important consequences, including:

- reduced flexibility in planning for, or reacting to, changes in our business, the competitive environment and the markets in which we operate, and to technological and other changes;
- reduced access to capital and increasing borrowing costs generally or for any additional indebtedness to finance future operating and capital expenses and for general corporate purposes;
- lowered credit ratings;
- reduced funds available for operations, capital expenditures and other activities; and
- competitive disadvantages relative to other companies with lower debt levels.

Our Senior Secured Credit Facilities, comprised of our Revolving Credit Facility, as well as our Term Loan A Facility and Term Loan B Facility (secured on a first priority basis by all or substantially all of the assets of AAM, Inc., the assets of Holdings and each guarantor's assets), and our senior unsecured notes, contain customary affirmative and negative covenants. Some, or with respect to certain covenants, all of these agreements include financial covenants based on total net leverage and cash interest expense coverage ratios and limitations on Holdings, AAM Inc, and their restricted subsidiaries to make certain investments, declare or pay dividends or distributions on capital stock, redeem or repurchase capital stock and certain debt obligations, incur liens, incur indebtedness, or merge, make certain acquisitions or sales of assets. A violation of any of these covenants or agreements could result in a default under these contracts, which could permit the lenders or note holders, as applicable, to accelerate repayment of any borrowings or notes outstanding at that time and levy on the collateral granted in connection with the senior secured credit facilities. A default or acceleration under the senior secured credit facilities or the indentures governing the senior unsecured notes may result in increased capital costs and defaults under our other debt agreements and may adversely affect our ability to operate our business, our subsidiaries' and guarantors' ability to operate their respective businesses and our results of operations and financial condition.

The available capacity under our Revolving Credit Facility could be limited by our total net leverage ratio under certain conditions. An increase in net leverage ratio, as a result of decreased earnings or otherwise, could result in reduced access to capital under our Revolving Credit Facility.

The interest rates included in the agreements that govern our Senior Secured Credit Facilities are based primarily on the London Interbank Offered Rate (LIBOR). In the future, use of LIBOR may be discontinued and we cannot be certain how long LIBOR will continue to be a viable benchmark interest rate. Use of alternative interest rates could result in increased borrowing costs associated with our Senior Secured Credit Facilities.

Our company faces substantial pension and other postretirement benefit obligations.

We have significant pension and other postretirement benefit obligations to certain of our associates and retirees. Our ability to satisfy the funding requirements associated with these obligations will depend on our cash flow from operations and our ability to access credit and the capital markets. The funding requirements of these benefit plans, and the related expense reflected in our financial statements, are affected by several factors that are subject to an inherent degree of uncertainty and volatility, including governmental regulation. Key assumptions used to value these benefit obligations and the cost of providing such benefits, funding requirements and expense recognition include the discount rate, the expected long-term rate of return on pension assets, mortality rates and the health care cost trend rate. If the actual trends in these factors are less favorable than our assumptions, this could have an adverse effect on our results of operations and financial condition.

Our business is subject to costs associated with environmental, health and safety regulations.

Our operations are subject to various federal, state, local and foreign laws and regulations governing, among other things, emissions to air, discharge to waters and the generation, handling, storage, transportation, treatment and disposal of waste and other materials. We believe that our current and former operations and facilities have been, and are being, operated in compliance, in all material respects, with such laws and regulations, many of which provide for substantial fines and criminal sanctions for violations. The operation of our manufacturing facilities entails risks in these areas, however, and there can be no assurance that we will not incur material costs or liabilities. In addition, potentially significant expenditures could be required in order to comply with evolving environmental, health and safety laws, regulations or other pertinent requirements that may be adopted or imposed in the future by governmental authorities.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

The table below summarizes our global manufacturing locations and key administrative locations:

North America		Europe	Asia	South America
United States		Czech Republic	China	Brazil
Brewton, AL (d)	Oxford, MI (b)	Oslavany (b)	Changshu (a)	Araucária (a)
Columbiana, AL (d)	Rochester Hills, MI (e)	Zbysov (b)	Hefei (JV) (a)	Indaiatuba (c)
Paris, AR (c)	Royal Oak, MI (b)	England	Huzhou City (JV) (b)	
Subiaco, AR (c)	Southfield, MI (e)	Halifax (c)	Shanghai (e)	
Bolingbrook, IL (b)	Three Rivers, MI (a)	France	Suzhou (c)	
Chicago, IL (b)	Troy, MI (b)	Decines (c)	India	
Bluffton, IN (c)	Warren, MI (c)	Lyon (c)	Chennai (a)	
Columbus, IN (b)	St. Cloud, MN (d)	Germany	Jamshedpur (JV) (c)	
Fort Wayne, IN (b)	Biscoe, NC (d)	Bad Homburg (e)	Pune (a), (e)	
Fremont, IN (c)	Malvern, OH (b)	Nurnberg (b)	Japan	
New Castle, IN (d)	Minerva, OH (b)	Zell (b)	Tokyo (e)	
North Vernon, IN (c)	Twinsburg, OH (c)	Luxembourg	South Korea	
Remington, IN (b)	Ridgway, PA (c)	Steinfort (e)	Pyeongtaek (c)	
Rochester, IN (a)	St. Mary's, PA (c)	Poland	Thailand	
Auburn Hills, MI (b)	Charleston, SC (a)	Swidnica (a)	Rayong (a)	
Detroit, MI (e)	Browntown, WI (d)	Scotland		
Fraser, MI (b)	Menomonee Falls, WI (d)	Glasgow (a)		
Kingsford, MI (d)	Reedsburg, WI (d)	Spain		
Litchfield, MI (c)	Wauwatosa, WI (d)	Barcelona (c)		
Mexico		Valencia (c)		
El Carmen (d)	Silao (a), (b)	Sweden		
Ramos Arizpe (c)		Arjeplog (e)		
		Trollhättan (a), (e)		

(a) Location supports the Driveline segment. (b) Location supports the Metal Forming segment. (c) Location supports the Powertrain segment. (d) Location supports the Casting segment. (e) Administrative, engineering or technical location.

We believe that our property and equipment is properly maintained and in good operating condition. We will continue to evaluate capacity requirements in light of current and projected market conditions. We also intend to continue redeploying assets in order to increase our capacity utilization and reduce future capital expenditures to support program launches.

Item 3. Legal Proceedings

We are involved in various legal proceedings incidental to our business. Although the outcome of these matters cannot be predicted with certainty, we do not believe that any of these matters, individually or in the aggregate, will have a material effect on our financial condition, results of operations or cash flows.

We are subject to various federal, state, local and foreign environmental and occupational safety and health laws, regulations and ordinances, including those regulating air emissions, water discharge, waste management and environmental cleanup. We closely monitor our environmental conditions to ensure that we are in compliance with applicable laws, regulations and ordinances. We have made, and anticipate continuing to make, capital and other expenditures to comply with environmental requirements, including recurring administrative costs. Such expenditures were not significant in 2018, 2017 and 2016.

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

Market Information

Our common stock, par value $0.01 per share, is listed for trading on the New York Stock Exchange (NYSE) under the symbol "AXL." We had approximately 202 stockholders of record as of February 12, 2019.

Dividends

We did not declare or pay any cash dividends on our common stock in 2018. Our Credit Agreement associated with our Senior Secured Credit Facilities that was entered into in connection with our acquisition of MPG, limits our ability to declare or pay dividends or distributions on capital stock.

Issuer Purchases of Equity Securities

In 2016, AAM's Board of Directors authorized a share repurchase program of up to $100 million of AAM's common shares as part of AAM's overall capital allocation strategy. The program expired on December 31, 2018. We repurchased a total of $1.5 million of shares under the share repurchase program and there were no share repurchases under the program during 2018.

Securities Authorized for Issuance under Equity Compensation Plans

The information regarding our securities authorized for issuance under equity compensation plans is incorporated by reference from our Proxy Statement.

Item 6. Selected Financial Data

FIVE YEAR CONSOLIDATED FINANCIAL SUMMARY
Year Ended December 31,

	2018	2017	2016	2015	2014
	(in millions, except per share data)				
Statement of operations data					
Net sales	$7,270.4	$6,266.0	$3,948.0	$3,903.1	$3,696.0
Gross profit	1,140.4	1,119.1	726.1	635.4	522.8
Selling, general and administrative expenses	385.7	390.1	314.2	274.1	255.2
Amortization of intangibles	99.4	75.3	5.0	3.2	0.4
Goodwill impairment	485.5 (a)	—	—	—	—
Restructuring and acquisition-related costs	78.9	110.7	26.2	—	—
Gain on sale of business	15.5 (b)	—	—	—	—
Operating income	106.4	543.0	380.7	358.1	267.6
Net interest expense	214.3	192.7	90.5	96.6	97.8
Gain on settlement of capital lease	15.6 (c)	—	—	—	—
Net income (loss)	(56.8) (d)(e)	337.5 (d)(e)	240.7 (d)	235.6 (e)	143.0 (f)
Net income (loss) attributable to AAM	(57.5) (d)(e)	337.1 (d)(e)	240.7 (d)	235.6 (e)	143.0 (f)
Diluted earnings (loss) per share	$(0.51)	$3.21	$3.06	$3.02	$1.85
Balance sheet data					
Cash and cash equivalents	$476.4	$376.8	$481.2	$282.5	$249.2
Total assets	7,510.7	7,882.8	3,422.3 (g)	3,176.9 (g)	3,214.6 (g)
Total long-term debt, net	3,686.8	3,969.3	1,400.9	1,375.7	1,504.6
Total AAM stockholders' equity	1,483.9	1,536.0	504.2 (g)	275.7 (g)	87.6 (g)
Dividends declared per share	—	—	—	—	—
Statement of cash flows data					
Cash provided by operating activities	$771.5	$647.0	$407.6	$377.6	$318.4
Cash used in investing activities	(478.2)	(1,378.1)	(227.7)	(188.1)	(195.3)
Cash provided by (used in) financing activities	(184.5)	615.6	18.4	(143.6)	(21.4)
Other data					
Depreciation and amortization	$528.8	$428.5	$201.8	$198.4	$199.9
Capital expenditures	524.7	477.7	223.0	193.5	206.5
Proceeds from sale of business, net	47.1 (b)	5.9	—	—	—
Acquisition of business, net of cash acquired	1.3	895.5	5.6	—	—
Purchase buyouts of leased equipment	0.5	13.3	4.6	—	—

(a) We recorded a goodwill impairment charge in 2018 associated with the annual goodwill impairment test for our Powertrain and Casting segments.

(b) In 2018, we completed the sale of the aftermarket business associated with our Powertrain segment for approximately $50 million, of which we received net proceeds of $47.1 million. As a result of the sale, we recorded a $15.5 million pre-tax gain.

(c) In 2018, we reached a settlement agreement related to a capital lease obligation that we had recognized as a result of the acquisition of MPG. This settlement resulted in a pre-tax gain of $15.6 million, including accrued interest.

(d) For 2018, these amounts include goodwill impairment charges of $400.3 million, net of tax, acquisition and integration related charges of $27.5 million, net of tax, asset impairment and plant closure costs of $25.7 million, net of tax, and implementation costs, including professional expenses, relating to restructuring of $9.2 million, net of tax. For 2017, these amounts include acquisition and integration related charges of $56.0 million, net of tax, asset impairment and plant closure costs of $2.3 million, net of tax, and implementation costs, including professional expenses, relating to restructuring of $9.0 million, net of tax. For 2016, these amounts include acquisition and integration related charges of $7.1 million, net of tax, asset impairment and plant closure costs of $4.7 million and implementation costs, including professional expenses, relating to restructuring of $6.6 million, net of tax.

(e) Includes charges of $15.3 million, net of tax, in 2018, $2.3 million, net of tax, in 2017 and $0.5 million, net of tax, in 2015 related to debt refinancing and redemption costs.

(f) Includes a settlement charge of $23.1 million, net of tax, related to our terminated vested lump-sum pension payout in the U.S.

(g) Each of these amounts have been adjusted by $25.8 million, net of tax, related to the retrospective application of our change in accounting principle for indirect inventory, in which we changed our method of accounting from capitalizing indirect inventory and recording as expense when the inventory was consumed, to expensing indirect inventory at the time of purchase. This change in accounting principle was effective in the second quarter of 2017.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A)

COMPANY OVERVIEW

We are a global Tier I supplier to the automotive, commercial and industrial markets. We design, engineer, validate and manufacture driveline, metal forming, powertrain and casting products, employing over 25,000 associates, operating at nearly 90 facilities in 17 countries, to support our customers on global and regional platforms with a continued focus on delivering operational excellence, technology leadership and quality.

We are a primary supplier of driveline components to General Motors Company (GM) for its full-size rear-wheel drive (RWD) light trucks and SUVs manufactured in North America, supplying a significant portion of GM's rear axle and four-wheel drive and all-wheel drive (4WD/AWD) axle requirements for these vehicle platforms. We also supply GM with various products from each of our Metal Forming, Powertrain and Casting segments. Sales to GM were approximately 41% of our consolidated net sales in 2018, 47% in 2017, and 67% in 2016.

We also supply driveline system products for FCA US LLC (FCA) for heavy-duty Ram full-size pickup trucks and its derivatives, the AWD Jeep Cherokee, and a passenger car driveshaft program. In addition, we sell various products to FCA from each of our Metal Forming, Powertrain and Casting segments. Sales to FCA were approximately 13% of our consolidated net sales in 2018, 14% in 2017 and 18% in 2016.

Our acquisition of MPG in 2017 has significantly increased the diversification in our product portfolio, and accelerated customer diversification initiatives. As a result of our acquisition of MPG, sales to GM and FCA as a percentage of consolidated net sales has been reduced.

INDUSTRY TRENDS

There are a number of significant trends affecting the markets in which we compete. Intense competition, volatility in fuel, steel, metallic and other commodity prices and significant pricing pressures remain. At the same time, there is a focus on investing in future products that will incorporate the latest technology and meet changing customer demands. The continued advancement of technology and product innovation, as well as the capability to source programs on a global basis, are critical to attracting and retaining business in our global markets.

INCREASE IN DEMAND FOR ELECTRIFICATION AND ELECTRONIC INTEGRATION The electrification of vehicles continues to expand, largely driven by government regulations related to emissions, such as the Corporate Average Fuel Economy standards, as well as consumer demand for greater vehicle performance, enhanced functionality, increased electronic content and vehicle connectivity, and affordable convenience options. As electronic components become an increasingly larger focus for OEMs and suppliers, the industry will likely continue to see the addition of new market entrants from non-traditional automotive companies, including increased competition from technology companies. An area of focus will be the product development cycle and bridging the gap between the shorter development cycles of IT hardware and software and the longer development cycles of traditional powertrain components. Our e-AAM™ hybrid and electric driveline systems, VecTrac™ Torque Vectoring Technology and TracRite® Differential Technology, are examples of AAM's enhanced capabilities in electronic integration.

EVOLUTION OF THE AUTOMOTIVE INDUSTRY AS DEMAND FOR CAR-SHARING, RIDE-SHARING AND AUTONOMOUS VEHICLES INCREASES OEMs are increasingly focused on offering their own car-sharing rental businesses and ride-sharing services, in addition to selling vehicles. Car-sharing typically allows consumers to rent a car for a short period of time, while ride-sharing matches people to available carpools or other services that provide on-demand rides with the use of an online application. With continued urbanization, population growth and increased government regulations to ease congestion, it is expected that the markets for these services will continue to grow, which could cause a shift in the type of vehicles utilized. As such, many OEMs are exploring and expanding their own car-sharing and ride-sharing efforts.

Another trend developing is the expectation that autonomous, self-driving cars will become more common with continued advancements in technology. Autonomous vehicles present many possible benefits, such as a reduction in deadly traffic collisions caused by human error and reduced traffic congestion, but there are also foreseeable challenges such as liability for damage and software reliability. The increased integration of electronics and vehicle connectivity that will likely be required in autonomous vehicle developments will provide an opportunity for suppliers, such as AAM, with advanced capabilities in this area to be competitive in this expanding market.

GLOBAL AUTOMOTIVE PRODUCTION AND INDUSTRY CONSOLIDATION As our customers design their products for global markets, they will continue to require global support from their suppliers. For this reason, it is critical that suppliers maintain a global presence in these markets in order to compete for new contracts. As a result of our acquisition of MPG, we have expanded our global presence, primarily in Asia and Europe. We also have engineering offices around the world to support our global locations and provide technical solutions to our customers on a regional basis.

The cyclical nature of the automotive industry, volatile commodity prices, the shifting demands of consumer preference, regulatory requirements and trade agreements require OEMs and suppliers to remain agile with regard to product development and global capability. A critical objective for OEMs and suppliers will be the ability to meet these global demands while effectively managing costs. OEMs and suppliers are preparing for these challenges through merger and acquisition activity, development of strategic partnerships and reduction of vehicle platform complexity. In order to effectively drive technology development, recognize cost synergies, and increase global footprint, the industry may continue to see consolidation in the supply base as companies recognize and respond to the need for scalability. Our acquisition of MPG is a critical step in achieving the aforementioned objectives.

INCREASED DEMAND FOR FUEL EFFICIENCY AND EMISSIONS REDUCTIONS There has been an increased demand for technologies designed to help reduce emissions, increase fuel economy and minimize the environmental impact of vehicles. As a result, OEMs and suppliers are competing to develop and market new and alternative technologies, such as electric vehicles, hybrid vehicles, fuel cells, and fuel-efficient engines. At the same time, OEMs and suppliers are improving products to increase fuel economy and reduce emissions through lightweighting and efficiency initiatives.

We are responding with ongoing research and development (R&D) efforts that focus on fuel economy, emissions reductions and environmental improvements by integrating electronics and technology. Through the development of our EcoTrac® Disconnecting AWD system, e-AAM™ hybrid and electric driveline systems, Quantum™ lightweight axle technology, high-efficiency axles, PowerLite® axles and PowerDense® gears, high strength connecting rod technology and refined vibration control systems, forged axle tubes, and high strength ductile iron Ductile - ITE™, we have significantly advanced our efforts to improve fuel efficiency, safety, and ride and handling performance while reducing emissions and mass. These efforts have led to new business awards and further position us to compete in the global marketplace.

In addition to AAM's organic growth in technology and processes, our acquisition of MPG has provided us with complementary technologies, expanded our product portfolio, significantly diversified our global customer base, and strengthened our long-term financial profile through greater scale. The anticipated synergies of this acquisition are expected to enhance AAM's ability to compete in today's technological and regulatory environment, while remaining cost competitive through increased scale and integration.

RESULTS OF OPERATIONS

NET SALES Net sales increased to $7,270.4 million in 2018 as compared to $6,266.0 million in 2017 and $3,948.0 million in 2016. The increase in sales in 2018, as compared to 2017, reflects an increase of approximately $738 million related to the inclusion of twelve months of MPG sales in 2018, as compared to nine months of MPG sales in 2017, as the acquisition was completed in April 2017. The increase in sales also reflects higher production volumes related to crossover vehicles and increased production volumes from program launches associated with our new business backlog. This was partially offset by the impact of lower full-size truck sales as a result of a decision by our largest customer to in-source a portion of a replacement program that launched in 2018, and a reduction in production volumes for certain North American light truck programs we support as we prepared for program changeovers in 2018. Net sales were also impacted by an increase in metal market pass-throughs to our customers and the impact of foreign exchange related to translation adjustments totaling approximately $67 million.

The impact of our acquisition of MPG on net sales in 2017 was approximately $2,022 million. Excluding the impact of our acquisition of MPG, our sales in 2017, as compared to 2016, reflect an increase in production volumes for the light truck and SUV programs we support, as well as the impact of program launches from our new business backlog and an increase in metal market pass-throughs to our customers, partially offset by the impact of annual productivity price-downs for certain programs.

COST OF GOODS SOLD Cost of goods sold was $6,130.0 million in 2018 as compared to $5,146.9 million in 2017 and $3,221.9 million in 2016. The change in cost of goods sold in 2018, as compared to 2017, reflects an increase of approximately $639 million attributable to the inclusion of twelve months of MPG cost of goods sold in 2018, as compared to nine months of MPG cost of goods sold in 2017. The change in cost of goods sold in 2018, as compared to 2017, also reflects higher material and freight costs, as well as an increase in project expense and costs associated with increased levels of global launch activity in 2018. Cost of goods sold was also impacted by an increase of approximately $67 million related to metal market pass-through costs and the impact of foreign exchange.

The impact on cost of goods sold of our acquisition of MPG was approximately $1,739 million in 2017, which included $24.9 million for the step-up of inventory to fair value as a result of purchase accounting. Excluding the impact of our acquisition of MPG, the change in cost of goods sold in 2017, as compared to 2016, principally reflected approximately $120 million related to increased production volumes and an increase of approximately $75 million related to metal market pass-through costs, partially offset by approximately $12 million associated with lower net manufacturing costs, including the impact of foreign exchange, and productivity initiatives. The change in cost of goods sold also reflected approximately $22 million related to the positive impact of vertically integrating our supply chain realized as a result of our acquisition of USM Mexico Manufacturing LLC (USM Mexico) in 2017.

Materials costs as a percentage of total cost of goods sold were approximately 59% in 2018, 62% in 2017 and 68% in 2016.

GROSS PROFIT Gross profit increased to $1,140.4 million in 2018 as compared to $1,119.1 million in 2017 and $726.1 million in 2016. Gross margin was 15.7% in 2018 as compared to 17.9% in 2017 and 18.4% in 2016. Gross profit and gross margin were impacted by the factors discussed in Net Sales and Cost of Goods Sold above.

SELLING, GENERAL AND ADMINISTRATIVE EXPENSES (SG&A) SG&A (including R&D) was $385.7 million in 2018 as compared to $390.1 million in 2017 and $314.2 million in 2016. SG&A as a percentage of net sales was 5.3% in 2018, 6.2% in 2017 and 8.0% in 2016. R&D spending was $146.2 million in 2018 as compared to $161.5 million in 2017 and $139.8 million in 2016. The change in SG&A in 2018, as compared to 2017, reflects approximately $25 million associated with the inclusion of twelve months of MPG SG&A in 2018, as compared to nine months of MPG SG&A in 2017, which was offset by lower R&D spending and the achievement of synergies as a result of the acquisition of MPG.

The change in SG&A in 2017, as compared to 2016, was primarily due to an increase of approximately $90 million associated with our acquisition of MPG. SG&A expense also reflected the increase in R&D spending in 2017 as compared to 2016, which was partially offset by the achievement of synergies associated with our restructuring actions initiated in 2016 and as a result of our acquisition of MPG.

AMORTIZATION OF INTANGIBLE ASSETS As a result of our acquisitions of MPG and USM Mexico in 2017, we recognized $1,254.8 million of intangible assets. Amortization expense for the year ended December 31, 2018 was $99.4 million as compared to $75.3 million and $5.0 million for the years ended December 31, 2017 and December 31, 2016, respectively. The increase in amortization expense was primarily attributable to the impact of twelve months of amortization on the MPG intangibles in 2018 as compared to nine months of amortization in 2017. The increase in amortization expense in 2017, as compared to 2016, was attributable to the increase in intangible assets as a result of the MPG and USM Mexico acquisitions in 2017.

GOODWILL IMPAIRMENT As a result of our annual goodwill impairment test in the fourth quarter of 2018, we determined that the carrying values of our Powertrain and Casting segments were greater than their respective fair values. As such, we recorded a total goodwill impairment charge of $485.5 million in 2018 associated with these segments. See Note 5 - Goodwill and Other Intangible Assets for further detail.

RESTRUCTURING AND ACQUISITION-RELATED COSTS Restructuring and acquisition-related costs were $78.9 million in 2018, $110.7 million in 2017, and $26.2 million in 2016. As part of our restructuring actions, we incurred severance charges of approximately $2.5 million, as well as implementation costs, including professional expenses, of approximately $11.7 million during 2018.

Also during 2018, we initiated actions to exit operations at manufacturing facilities in our Driveline, Metal Forming and Powertrain segments. As a result of these actions, we were required to assess the associated long-lived assets for impairment. Based on our analysis, assets that were not to be redeployed to other AAM facilities were determined to be fully impaired resulting in total charges of $30.0 million in 2018.

In 2017, we incurred severance charges of approximately $2.0 million, as well as other implementation costs, including professional fees, of approximately $13.9 million, and asset impairment charges of $1.5 million. In 2016, severance charges were approximately $0.6 million, while implementation costs were $10.2 million and asset impairment charges were $4.5 million.

In 2017, we completed our acquisitions of MPG and USM Mexico. During 2018 we incurred $1.2 million of acquisition-related costs, acquisition-related severance costs of $0.5 million, and $33.0 million of integration expenses associated with these acquisitions. This compares to $40.7 million of acquisition-related costs, $7.2 million of acquisition-related severance charges, and $45.4 million of integration expenses associated with these acquisitions for the year ended December 31, 2017.

Acquisition-related costs primarily consist of advisory, legal, accounting, valuation and certain other professional or consulting fees incurred. Also included in acquisition-related costs in 2017 was a one-time charge of approximately $20 million for MPG stock-based compensation that was accelerated and settled as a result of the acquisition. Integration expenses reflect costs incurred for information technology systems, ongoing operational activities, and consulting fees incurred in conjunction with the acquisitions. We expect to incur additional integration charges of approximately $15 million to $25 million in 2019, as we further the integration of MPG.

In 2019, we plan to initiate a new global restructuring program (the 2019 Program) to further streamline our business by consolidating our four existing business units into three business units. This will occur through the disaggregation of our Powertrain business unit, with a portion moving into our Driveline business unit and a portion moving into our Metal Forming business unit. The primary objectives of this consolidation are to finalize the integration of MPG in a timely manner, align AAM's product and process technologies, and to achieve efficiencies within our corporate and business unit support teams to reduce cost in our business. We did not incur any charges under the 2019 Program during 2018. We expect to incur approximately $25 million to $35 million of total restructuring charges in 2019, including costs incurred under the 2019 Program.

GAIN ON SALE OF BUSINESS In April 2018, we completed the sale of the aftermarket business associated with our Powertrain segment for approximately $50 million. As a result, we recorded a $15.5 million pre-tax gain, which is disclosed in the Gain on sale of business line item of our Consolidated Statement of Operations for the year ended December 31, 2018.

OPERATING INCOME Operating income was $106.4 million in 2018 as compared to $543.0 million in 2017 and $380.7 million in 2016. Operating margin was 1.5% in 2018 as compared to 8.7% in 2017 and 9.6% in 2016. The changes in operating income and operating margin in 2018, 2017 and 2016 were due to the factors discussed in Net Sales, Cost of Goods Sold, SG&A, Amortization of Intangible Assets, Goodwill Impairment, Restructuring and Acquisition-Related Costs and Gain on Sale of Business above.

INTEREST EXPENSE Interest expense was $216.3 million in 2018, $195.6 million in 2017 and $93.4 million in 2016. The change in interest expense in 2018, as compared to 2017, is primarily attributable to additional interest expense incurred on borrowings outstanding under our Senior Secured Credit Facilities entered into in April 2017, as well as on $700.0 million aggregate principal amount of 6.25% senior notes due 2025 and $500.0 million in aggregate principal amount of 6.50% senior notes due 2027, which were issued in March 2017. The change in interest expense in 2017, as compared to 2016, primarily reflects the interest incurred on these additional borrowings in 2017.

The weighted-average interest rate of our total debt outstanding was 5.8% in 2018 and 2017, and 6.6% in 2016. We expect our interest expense in 2019 to be approximately $215 million to $225 million.

INVESTMENT INCOME Investment income was $2.0 million in 2018 and $2.9 million in 2017 and 2016. Investment income includes interest earned on cash and cash equivalents during the period.

OTHER INCOME (EXPENSE) Following are the components of Other Income (Expense) for 2018, 2017 and 2016:

Debt refinancing and redemption costs In March 2018, we made a tender offer for our 6.25% Notes due 2021. Under this tender offer, we retired $383.1 million of the 6.25% Notes due 2021. We redeemed the remaining $16.9 million of the 6.25% Notes due 2021 during the second quarter of 2018. As a result of the tender and subsequent redemption, we expensed $2.5 million for the write-off of the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $8.0 million in tender premiums.

In May 2018, we voluntarily redeemed a portion of our 6.625% Notes due 2022. This resulted in a principal payment of $100 million, and a payment of $0.8 million in accrued interest. As a result of the redemption, we expensed $0.8 million for the write-off of a portion of the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $3.3 million for an early redemption premium.

In November 2018, we voluntarily redeemed a portion of our 7.75% Notes due 2019. This resulted in a principal payment of $100 million, and a payment of $3.9 million in accrued interest. As a result of the redemption, we expensed approximately $0.3 million for the write-off of a portion of the unamortized debt issuance costs that we had been amortizing over the life of the borrowing, and approximately $4.5 million for an early redemption premium.

In 2017, we expensed $2.7 million of prepayment premiums related to the extinguishment of MPG's existing debt at the date of the acquisition and $0.8 million for the write-off of the remaining unamortized debt issuance costs related to our 5.125% Notes that were redeemed in the fourth quarter of 2017. There were no such costs incurred in 2016.

Gain on settlement of capital lease In the second quarter of 2018, we reached a settlement agreement related to a capital lease obligation that we had recognized as a result of the acquisition of MPG. This settlement resulted in a gain of $15.6 million, including accrued interest.

Other, net Other, net, which includes the net effect of foreign exchange gains and losses, our proportionate share of earnings from equity in unconsolidated subsidiaries, and all components of net periodic pension and postretirement benefit costs other than service costs, was expense of $2.2 million in 2018, compared to expense of $6.8 million in 2017, and income of $8.8 million in 2016. The change in Other, net in 2017, as compared to 2016, primarily related to foreign exchange remeasurement losses as a result of the U.S. dollar weakening against the Mexican Peso and Euro.

INCOME TAX EXPENSE (BENEFIT) Income tax was a benefit of $57.1 million in 2018, as compared to expense of $2.5 million in 2017, and expense of $58.3 million in 2016. Our effective income tax rate was 50.1% in 2018 as compared to 0.7% in 2017 and 19.5% in 2016.

In 2018, our income tax benefit is higher than the tax benefit computed at the U.S. federal statutory rate, and in 2017 and 2016 our income tax expense was lower than tax expense computed at the U.S. federal statutory rate, primarily due to the impact of favorable foreign tax rates, and the impact of income tax credits, partially offset by our inability to realize an income tax benefit for losses incurred in certain foreign and state jurisdictions. In addition, during 2018, we finalized an advance pricing agreement in a foreign jurisdiction and settled various other matters, which resulted in an income tax benefit and a reduction of our liability for unrecognized tax benefits and related interest and penalties of approximately $20 million. We also recorded an income tax benefit of approximately $85 million in 2018 as a result of the goodwill impairment charge, partially offset by a discrete tax expense related to the sale of the aftermarket business associated with our Powertrain segment.

Our income tax expense and effective income tax rate for 2017 were lower than our income tax expense and effective income tax rate for 2016 as a result of an increase in the proportionate share of earnings attributable to lower tax rate jurisdictions. In addition, subsequent to the acquisition of MPG, we re-evaluated our valuation allowance position with regard to jurisdictions in which consolidated state tax returns are filed and recorded an income tax benefit for the year ended December 31, 2017. This was partially offset by a discrete tax adjustment related to certain non-deductible transaction and acquisition-related costs. Further, we recognized a net tax benefit of approximately $20 million in 2017 related to accounting for the provisions of the Tax Cuts and Jobs Act under U.S. tax reform.

NET INCOME (LOSS) ATTRIBUTABLE TO AAM AND EARNINGS (LOSS) PER SHARE (EPS) Net income (loss) attributable to AAM was a loss of $57.5 million in 2018 as compared to income of $337.1 million in 2017 and $240.7 million in 2016. Diluted loss per share was $0.51 in 2018 as compared to diluted earnings of $3.21 per share in 2017 and $3.06 per share in 2016. Primarily as a result of the issuance of AAM common shares in conjunction with our acquisition of MPG, our EPS denominator increased by approximately 9 million shares for 2018, as compared to 2017, and increased by approximately 26 million shares for 2017, as compared to 2016. Net Income (Loss) and EPS were primarily impacted by the factors discussed above, as well as the issuance of the additional shares as a result of the acquisition of MPG.

SEGMENT REPORTING

Our business is organized into four operating segments, each representing a reportable segment under ASC 280 Segment Reporting. The four segments are Driveline, Metal Forming, Powertrain and Casting. The results of each segment are regularly reviewed by the chief operating decision maker to assess the performance of the segment and make decisions regarding the allocation of resources.

Our product offerings by segment are as follows:

- Driveline products consist primarily of axles, driveshafts, power transfer units, rear drive modules, transfer cases, and electric and hybrid driveline products and systems for light trucks, sport utility vehicles (SUVs), crossover vehicles, passenger cars and commercial vehicles;
- Metal Forming products consist primarily of axle and transmission shafts, ring and pinion gears, differential gears, transmission gears, and suspension components for Original Equipment Manufacturers and Tier 1 automotive suppliers;
- The Powertrain segment products consist primarily of transmission module and differential assemblies, transmission valve bodies, connecting rod forging and assemblies, torsional vibration dampers, and variable valve timing products for Original Equipment Manufacturers and Tier 1 automotive suppliers; and
- The Casting segment produces both thin wall castings and high strength ductile iron casting, as well as differential cases, steering knuckles, control arms, brackets, and turbo charger housings for the global light vehicle, commercial and industrial markets.

The following tables outline our sales and Segment Adjusted EBITDA for each of our reportable segments for the years ended December 31, 2018, 2017 and 2016 (in millions):

	Year Ended December 31, 2018					
	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$4,254.8	$1,515.4	$ 1,128.5	$919.8	$ —	$7,818.5
Less: Intersegment sales	0.8	418.0	13.8	115.5	—	548.1
Net external sales	$4,254.0	$1,097.4	$ 1,114.7	$804.3	$ —	$7,270.4
Segment adjusted EBITDA	$660.7	$285.9	$ 163.7	$73.6	$ —	$1,183.9

	Year Ended December 31, 2017					
	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$4,040.8	$1,242.6	$ 816.5	$676.4	$ —	$6,776.3
Less: Intersegment sales	1.1	412.6	9.9	86.7	—	510.3
Net external sales	$4,039.7	$830.0	$ 806.6	$589.7	$ —	$6,266.0
Segment adjusted EBITDA	$692.3	$232.3	$ 131.1	$47.0	$ —	$1,102.7

	Year Ended December 31, 2016					
	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$3,735.6	$ 552.2	$ —	$ —	$ —	$4,287.8
Less: Intersegment sales	4.9	334.9	—	—	—	339.8
Net external sales	$3,730.7	$ 217.3	$ —	$ —	$ —	$3,948.0
Segment adjusted EBITDA	$515.8	$ 103.6	$ —	$ —	$ —	$619.4

The increase in Driveline sales for the year ended December 31, 2018, as compared to the year ended December 31, 2017, primarily reflects higher production volumes related to crossover vehicles and increased production volumes from program launches associated with our new business backlog. This was partially offset by the impact of lower full-size truck sales as a result of a decision by our largest customer to in-source a portion of a replacement program that launched in 2018, and a reduction in production volumes for certain North American light truck programs we support as we prepared for program changeovers in 2018. Driveline sales for the year ended December 31, 2018, as compared to the year ended December 31, 2017, were also impacted by an increase related to metal market pass-throughs to our customers of approximately $31 million.

The increase in Driveline sales for the year ended December 31, 2017, as compared to the year ended December 31, 2016, primarily reflects the impact of program launches from our new business backlog, as well as an increase in metal market pass-throughs to our customers, which was partially offset by the impact of annual productivity price-downs for certain programs. Driveline sales for the year ended December 31, 2017 were also positively impacted by increased production volumes on the light truck and SUV programs we support.

The increase in sales in our Metal Forming segment for the year ended December 31, 2018, as compared to the year ended December 31, 2017, primarily reflects the inclusion of twelve months of MPG sales in 2018, as compared to nine months of MPG sales in 2017, as the acquisition was completed in April 2017. The increase in sales in 2018, as compared to 2017, also reflects an increase in metal market pass-throughs to our customers and the impact of foreign exchange related to translation adjustments totaling approximately $43 million. The increase in net sales in our Metal Forming segment for the year ended December 31, 2017, as compared to the year ended December 31, 2016, was primarily attributable to the purchase of MPG.

The increase in sales in our Powertrain segment for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily attributable to the inclusion of twelve months of MPG sales in 2018, as compared to nine months of MPG sales in 2017. The increase was also attributable to higher production volumes from program launches associated with our new business backlog. For the year ended December 31, 2017, as compared to the year ended December 31, 2016, the increase in sales was entirely attributable to our acquisition of MPG, as AAM did not operate in this segment prior to the acquisition.

The increase in sales in our Casting segment for the year ended December 31, 2018, as compared to the year ended December 31, 2017, reflects the inclusion of twelve months of MPG sales in 2018, as compared to nine months of MPG sales in 2017, and an increase of approximately $13 million in metal market pass throughs to our customers. For the year ended December 31, 2017, as compared to the year ended December 31, 2016, the increase in sales was entirely attributable to our acquisition of MPG, as AAM did not operate in this segment prior to the acquisition.

We use Segment Adjusted EBITDA as the measure of earnings to assess the performance of each segment and determine the resources to be allocated to the segments. Segment Adjusted EBITDA is defined as EBITDA for our reportable segments excluding the impact of restructuring and acquisition-related costs, debt refinancing and redemption costs, gain on the sale of a business, goodwill impairments and non-recurring items.

For the year ended December 31, 2018, as compared to the year ended December 31, 2017, the change in Segment Adjusted EBITDA for the Driveline segment was primarily attributable to increased material and freight costs, as well as an increase in project expense of approximately $15 million, and costs associated with increased levels of global launch activity in 2018. For the year ended December 31, 2017, as compared to the year ended December 31, 2016, the increase in Segment Adjusted EBITDA for the Driveline segment was primarily attributable to contribution margin on increased volumes for light truck and SUV programs we currently support, as well as the impact of productivity initiatives and the reorganization to four reportable segments subsequent to our acquisition of MPG. The positive impact of these factors was partially offset by an increase in metal market pass-through costs.

The increase in Metal Forming Segment Adjusted EBITDA for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily due to the acquisition of MPG, partially offset by increased material and freight costs. Metal Forming also experienced an increase in Segment Adjusted EBITDA for the year ended December 31, 2017, as compared to the year ended December 31, 2016, primarily attributable to our acquisition of MPG.

The increase in Powertrain Segment Adjusted EBITDA for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily due to the acquisition of MPG, partially offset by an increase in costs associated with increased levels of global launch activity. For the year ended December 31, 2017, the increase in Segment Adjusted EBITDA, as compared to the year ended December 31, 2016, was entirely attributable to our acquisition of MPG as AAM did not operate in this segment prior to our acquisition.

The increase in Casting Segment Adjusted EBITDA for the year ended December 31, 2018, as compared to the year ended December 31, 2017, was primarily due to the acquisition of MPG, which was partially offset by increased labor costs in an effort to address workforce shortages at certain locations. For the year ended December 31, 2017, the increase in Segment Adjusted EBITDA, as compared to the year ended December 31, 2016, was entirely attributable to our acquisition of MPG as AAM did not operate in this segment prior to our acquisition.

Reconciliation of Non-GAAP and GAAP Information

In addition to results reported in accordance with accounting principles generally accepted in the United States of America (GAAP) in this MD&A, we have provided certain non-GAAP financial measures such as EBITDA and Total Segment Adjusted EBITDA. Such information is reconciled to its closest GAAP measure in accordance with Securities and Exchange Commission rules below.

We define EBITDA to be earnings before interest expense, income taxes, depreciation and amortization. Total Segment Adjusted EBITDA is defined as EBITDA excluding the impact of restructuring and acquisition-related costs, debt refinancing and redemption costs, gain on the sale of a business, goodwill impairments and non-recurring items. We believe that EBITDA and Total Segment Adjusted EBITDA are meaningful measures of performance as they are commonly utilized by management and investors to analyze operating performance and entity valuation. Our management, the investment community and the banking institutions routinely use EBITDA and Total Segment Adjusted EBITDA, together with other measures, to measure our operating performance relative to other Tier 1 automotive suppliers and to assess the relative mix of Adjusted EBITDA by segment. We also believe that Total Segment Adjusted EBITDA is a meaningful measure as it is used for operational planning and decision-making purposes. These non-GAAP financial measures are not and should not be considered a substitute for any GAAP measure. Additionally, non-GAAP financial measures as presented by AAM may not be comparable to similarly titled measures reported by other companies.

	Year Ended December 31,		
	2018	2017	2016
Net income (loss)	$(56.8)	$337.5	$240.7
Interest expense	216.3	195.6	93.4
Income tax expense (benefit)	(57.1)	2.5	58.3
Depreciation and amortization	528.8	428.5	201.8
EBITDA	$631.2	$964.1	$594.2
Restructuring and acquisition-related costs	78.9	110.7	26.2
Debt refinancing and redemption costs	19.4	3.5	—
Gain on sale of business	(15.5)	—	—
Goodwill impairment	485.5	—	—
Non-recurring items:			
Gain on settlement of capital lease	(15.6)	—	—
Pension settlement	—	3.2	—
Acquisition-related fair value inventory adjustment	—	24.9	—
Impact of change in accounting principle	—	(3.7)	—
Other non-recurring items	—	—	(1.0)
Total Segment Adjusted EBITDA	$1,183.9	$1,102.7	$619.4

LIQUIDITY AND CAPITAL RESOURCES

Our primary liquidity needs are to fund debt service obligations, capital expenditures and working capital requirements, in addition to advancing our strategic initiatives. We believe that operating cash flow, available cash and cash equivalent balances and available committed borrowing capacity under our Senior Secured Credit Facilities will be sufficient to meet these needs.

OPERATING ACTIVITIES   Net cash provided by operating activities increased to $771.5 million in 2018 as compared to $647.0 million in 2017 and $407.6 million in 2016. The following factors impacted cash provided by operating activities:

Accounts receivable We experienced an increase in cash flow from operating activities of approximately $56 million related to the change in our accounts receivable balance from December 31, 2017 to December 31, 2018, as compared to the change in accounts receivable from December 31, 2016 to December 31, 2017. This change was primarily attributable to the timing of payments from customers.

Inventories The change in inventory at December 31, 2018, as compared to December 31, 2017, is primarily the result of increased material and freight costs, as well as carrying additional inventory to support program changeover activities that occurred throughout 2018. We experienced a decrease in inventory at December 31, 2017, as compared to December 31, 2016, primarily resulting from the impact of inventory reduction initiatives, as well as the reduction of inventory at certain facilities as a result of expiring programs.

Accounts payable We experienced an increase in cash flow from operating activities as a result of an increase in our accounts payable balance at December 31, 2018 as compared to our accounts payable balance at December 31, 2017. This increase in accounts payable was primarily attributable to increased inventory levels and the timing of payments made to suppliers.

We experienced a decrease in our year-end 2017 accounts payable balance, as compared to our year-end 2016 accounts payable balance, which was primarily due to a reduction in inventory levels and the timing of payments made to suppliers. Also, as a result of our acquisitions in 2017, we settled accounts payable balances with USM Mexico and MPG totaling approximately $35 million, which was reflected as a reduction of cash flow from operating activities in our Consolidated Statement of Cash Flows for 2017. See Note 4 - Business Combinations for further detail.

Deferred revenue At December 31, 2018 and 2017, we had deferred revenue of $44.3 million and $34.1 million, respectively, classified as a current liability and $77.6 million and $78.8 million, respectively, classified as a noncurrent liability in our Consolidated Balance Sheets. These amounts were primarily related to cash receipts from customers for various settlements and commercial agreements that are associated with a future benefit to these customers. In 2016, we reached an agreement with a customer to increase installed capacity for a program we support. We received $10.0 million in 2018, $5.0 million in 2017 and $20.0 million in 2016 related to this agreement.

Interest paid Interest paid in 2018 was $199.7 million as compared to $182.7 million in 2017 and $87.2 million in 2016. The increase in interest paid in 2018 and 2017, as compared to 2016, primarily relates to the additional indebtedness incurred in connection with our acquisition of MPG.

Restructuring and acquisition-related costs We incurred $78.9 million, $110.7 million and $26.2 million of charges related to restructuring and acquisition-related costs in 2018, 2017 and 2016, respectively, and a significant portion of these charges were cash charges. In 2019, we expect restructuring and acquisition-related payments to be between $50 million and $60 million for the full year.

Pension and other postretirement benefits (OPEB) Our cash payments for OPEB, net of GM cost sharing, were $9.9 million in 2018, $12.5 million in 2017, and $17.0 million in 2016. This compares to our annual postretirement cost of $10.3 million in 2018, $11.5 million in 2017, and $12.1 million in 2016. We expect our cash payments for other postretirement benefit obligations in 2019, net of GM cost sharing, to be approximately $18 million.

Due to the availability of our pre-funded pension balances (previous contributions in excess of prior required pension contributions) related to certain of our U.S. pension plans, we expect our regulatory pension funding requirements in 2019 to be approximately $2 million.

Income taxes Based on the status of audits, and the protocol of finalizing audits by the relevant tax authorities, it is not possible to estimate the timing or impact of changes, if any, to previously recorded uncertain tax positions. As of December 31, 2018 and December 31, 2017, we have recorded a liability for unrecognized income tax benefits and related interest and penalties of $45.6 million and $55.2 million, respectively.

In January 2016, we completed negotiations with the Mexican tax authorities to settle 2007 through 2009 transfer pricing audits. We made a payment of $22.9 million in January 2016 that fully satisfied our obligations for transfer pricing issues for tax years 2007 through 2013. Including these settlements, we made payments of approximately $28 million in 2016 to the Mexican tax authorities related to transfer pricing matters.

Although it is difficult to estimate with certainty the amount of our tax liabilities for the years that remain subject to audit, we do not expect the settlements will be materially different from what we have recorded in unrecognized tax benefits. We will continue to monitor the progress and conclusions of current and future audits and will adjust our estimated liability as necessary.

INVESTING ACTIVITIES Capital expenditures were $524.7 million in 2018, $477.7 million in 2017 and $223.0 million in 2016. The increase in our capital spending in 2018, as compared to 2017, primarily supported our significant global program launches within our new and incremental business backlog, as well as launches of replacement programs. The increase in capital spending in 2017, as compared to 2016, was primarily attributable to the acquisition of MPG. We expect our capital spending in 2019 to be approximately 7% of sales, which includes support for our global program launches in 2019 and 2020 within our new and incremental business backlog, as well as program capacity increases and future launches of replacement programs.

In 2018, we completed the sale of the aftermarket business associated with our Powertrain segment. As a result of this sale, we received net proceeds of approximately $47 million.

In 2017, we completed our acquisitions of MPG and USM Mexico. The purchase price for MPG was approximately $1.5 billion, which included a cash portion of approximately $750 million, net of cash acquired. For the acquisition of USM Mexico, we paid $144.1 million, net of cash acquired.

During 2017, we executed early buyout options to purchase certain leased equipment in the amount of $13.3 million.

In 2019, we expect to make a payment of approximately $10 million as part of our investment in the Liuzhou Wuling joint venture that was formed in 2018.

FINANCING ACTIVITIES Net cash used in financing activities was $184.5 million in 2018, compared to net cash provided by financing activities of $615.6 million in 2017, and net cash provided by financing activities of $18.4 million in 2016. Total debt outstanding, net of debt issuance costs, was $3,808.4 million at year-end 2018, $3,975.2 million at year-end 2017 and $1,404.2 million at year-end 2016. The change in total debt outstanding, net of issuance costs, at year-end 2018, as compared to year-end 2017 was primarily due to the factors noted below.

Senior Secured Credit Facilities In 2017, Holdings and American Axle & Manufacturing, Inc. (AAM Inc.) entered into a credit agreement (the Credit Agreement). In connection with the Credit Agreement, Holdings, AAM, Inc. and certain of their restricted subsidiaries entered into a Collateral Agreement and Guarantee Agreement with the financial institutions party thereto as collateral agent and administrative agent. The Credit Agreement includes a $100.0 million term loan A facility (the Term Loan A Facility), a $1.55 billion term loan B facility (the Term Loan B Facility) and a $932 million multi-currency revolving credit facility (the Revolving Credit Facility, and together with the Term Loan A Facility and the Term Loan B Facility, the Senior Secured Credit Facilities). The proceeds of the Revolving Credit Facility are used for general corporate purposes. We incurred debt issuance costs of $54.0 million in 2017 related to the Senior Secured Credit Facilities.

As of December 31, 2018, we have prepaid $8.8 million of the outstanding principal on our Term Loan A Facility and $15.5 million of the outstanding principal on our Term Loan B Facility. These payments satisfy our obligation for principal payments under the Term Loan A Facility and Term Loan B Facility for the next four quarters. As a result, there are no amounts related to the Term Loan A Facility or Term Loan B Facility in the Current portion of long-term debt line item in our Consolidated Balance Sheet as of December 31, 2018.

At December 31, 2018, $894.7 million was available under the Revolving Credit Facility. This availability reflects a reduction of $37.3 million for standby letters of credit issued against the facility.

The Senior Secured Credit Facilities provide back-up liquidity for our foreign credit facilities. We intend to use the availability of long-term financing under the Senior Secured Credit Facilities to refinance any current maturities related to such debt agreements that are not otherwise refinanced on a long-term basis in their local markets, except where otherwise reclassified to Current portion of long-term debt on our Consolidated Balance Sheet.

6.25% Notes Due 2026 In the first quarter of 2018, we issued $400.0 million in aggregate principal amount of 6.25% senior notes due 2026 (the 6.25% Notes due 2026). Proceeds from the 6.25% Notes due 2026 were used primarily to fund the tender offer for the 6.25% senior notes due 2021 (the 6.25% Notes due 2021) described below. We paid debt issuance costs of $6.6 million during 2018 related to the 6.25% Notes due 2026.

Tender Offer of 6.25% Notes Due 2021 Also during the first quarter of 2018, we made a tender offer for our 6.25% Notes due 2021. Under this tender offer, we retired the $400.0 million of the 6.25% Notes due 2021 and expensed $2.5 million for the write-off of the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $8.0 million in tender premiums.

Redemption of 6.625% Notes Due 2022 In the second quarter of 2018, we voluntarily redeemed a portion of our 6.625% Notes due 2022. This resulted in a principal payment of $100.0 million, and a payment of $0.8 million in accrued interest. During 2018, we expensed $0.8 million for the write-off of a portion of the the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $3.3 million for an early redemption premium.

Settlement of Capital Lease Obligation In the second quarter of 2018, we reached a settlement agreement related to a capital lease obligation that we had recognized as a result of the acquisition of MPG. In the third quarter of 2018, we paid $6.6 million related to this settlement agreement. During the fourth quarter of 2018, we paid the remaining $4.8 million related to this settlement agreement.

Redemption of 7.75% Notes Due 2019 In the fourth quarter of 2018, we voluntarily redeemed a portion of our 7.75% Notes due 2019. This resulted in a principal payment of $100.0 million and $3.9 million in accrued interest. We also expensed approximately $0.3 million for the write-off of a portion of the unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing, and approximately $4.5 million for an early redemption premium.

6.50% Notes Due 2027 and 6.25% Notes Due 2025 During the first quarter of 2017, we issued $700.0 million in aggregate principal amount of 6.25% senior notes due 2025 and $500.0 million in aggregate principal amount of 6.50% senior notes due 2027 (the Notes). Proceeds from the Notes were used primarily to fund the cash consideration related to our acquisition of MPG, related fees and expenses, refinance certain existing indebtedness of MPG and borrowings under our previous revolving credit facility, which has been replaced by our new Revolving Credit Facility, together with borrowings under the Senior Secured Credit Facilities. We incurred debt issuance costs of $37.2 million in 2017 related to the Notes.

Foreign Credit Facilities We utilize local currency credit facilities to finance the operations of certain foreign subsidiaries. At December 31, 2018, $127.1 million was outstanding under our foreign credit facilities and an additional $78.2 million was available, as compared to December 31, 2017, when $53.2 million was outstanding under our foreign credit facilities and an additional $159.7 million was available. The increase in outstanding borrowings under our foreign credit facilities primarily relate to our operations in China and Poland as we prepare for program launch activity.

Repayment of MPG Indebtedness Upon our acquisition of MPG in 2017, we assumed approximately $1.9 billion of existing MPG indebtedness, which we repaid in its entirety on the date of acquisition. This indebtedness was comprised of approximately $0.2 billion of a Euro denominated term loan, approximately $1.0 billion of a U.S. dollar denominated term loan and approximately $0.7 billion of outstanding MPG bonds. Upon settlement of the debt, we paid approximately $24.6 million of accrued interest. In addition, we expensed $2.7 million of prepayment premiums related to the extinguishment of MPG's debt, which has been presented in the Debt refinancing and redemption costs line item within our Consolidated Statements of Operations for the year ended December 31, 2017.

Treasury stock Treasury stock increased by $3.7 million in 2018 to $201.8 million as compared to $198.1 million at year-end 2017, due to the withholding and repurchase of shares of AAM stock to satisfy employee tax withholding obligations due upon the vesting of performance shares and restricted stock units.

Credit ratings To access public debt capital markets, the Company relies on credit rating agencies to assign short-term and long-term credit ratings to our securities as an indicator of credit quality for fixed income investors. A credit rating agency may change or withdraw its ratings based on its assessment of our current and future ability to meet interest and principal repayment obligations. Credit ratings affect our cost of borrowing under our Revolving Credit Facility and may affect our access to debt capital markets and other costs to fund our business. The credit ratings and outlook currently assigned to our securities by the rating agencies are as follows:

	Corporate Family Rating	Senior Unsecured Notes Rating	Senior Secured Notes Rating	Outlook
Standard & Poor's	BB-	B	BB	Stable
Moody's Investors Services	B1	B2	Ba2	Stable

33

Dividend program We have not declared or paid any cash dividends on our common stock in 2018, 2017 or 2016.

Off-balance sheet arrangements Our off-balance sheet financing relates principally to operating leases for machinery and equipment, commercial office and production facilities, vehicles and other assets with various expiration dates.

Contractual obligations The following table summarizes payments due on our contractual obligations as of December 31, 2018:

	Payments due by period				
	Total	<1yr	1-3 yrs	3-5 yrs	>5 yrs
	(in millions)				
Current and long-term debt	$3,872.1	$151.3	$126.8	$544.7	$3,049.3
Interest obligations	1,201.3	224.9	435.5	315.7	225.2
Capital lease obligations	3.4	0.9	1.7	0.8	—
Operating leases (1)	112.0	32.6	40.5	20.1	18.8
Purchase obligations (2)	287.2	258.5	28.7	—	—
Other long-term liabilities (3)	602.7	60.7	119.1	117.3	305.6
Total	$6,078.7	$728.9	$752.3	$998.6	$3,598.9

(1) Operating leases include all lease payments through the end of the contractual lease terms, which includes elections for repurchase options. These commitments include machinery and equipment, commercial office and production facilities, vehicles and other assets.

(2) Purchase obligations represent our obligated purchase commitments for capital expenditures and related project expense.

(3) Other long-term liabilities primarily represent our estimated pension and other postretirement benefit obligations, net of GM cost sharing, that were actuarially determined through 2028.

CYCLICALITY AND SEASONALITY

Our operations are cyclical because they are directly related to worldwide automotive production, which is itself cyclical and dependent on general economic conditions and other factors. Our business is moderately seasonal as our major OEM customers historically have an extended shutdown of operations (typically 1-2 weeks) in conjunction with their model year changeover and an approximate one-week shutdown in December. Our major OEM customers also occasionally have longer shutdowns of operations (up to 6 weeks) for program changeovers. Accordingly, our quarterly results may reflect these trends.

LEGAL PROCEEDINGS

We are involved in various legal proceedings incidental to our business. Although the outcome of these matters cannot be predicted with certainty, we do not believe that any of these matters, individually or in the aggregate, will have a material adverse effect on our financial condition, results of operations or cash flows.

We are subject to various federal, state, local and foreign environmental and occupational safety and health laws, regulations and ordinances, including those regulating air emissions, water discharge, waste management and environmental cleanup. We closely monitor our environmental conditions to ensure that we are in compliance with applicable laws, regulations and ordinances. We have made, and anticipate continuing to make, capital and other expenditures, including recurring administrative costs, to comply with environmental requirements. Such expenditures were not significant in 2018, 2017 and 2016.

EFFECT OF NEW ACCOUNTING STANDARDS

See Note 1 - Organization and Summary of Significant Accounting Policies in Item 8, "Financial Statements and Supplementary Data" for discussion of new accounting standards and the effect on AAM.

CRITICAL ACCOUNTING ESTIMATES

In order to prepare consolidated financial statements in conformity with GAAP, we are required to make estimates and assumptions that affect the reported amounts and disclosures in our consolidated financial statements. These estimates are subject to an inherent degree of uncertainty and actual results could differ from our estimates.

Other items in our consolidated financial statements require estimation. In our judgment, they are not as critical as those disclosed below. We have discussed and reviewed our critical accounting estimates disclosure with the Audit Committee of our Board of Directors.

GOODWILL We record goodwill when the purchase price of acquired businesses exceeds the value of their identifiable net tangible and intangible assets acquired. We periodically evaluate goodwill for impairment in accordance with the accounting guidance for goodwill and other indefinite-lived intangibles that are not amortized. We review our goodwill for impairment annually during the fourth quarter. In addition, we review goodwill for impairment whenever adverse events or changes in circumstances indicate a possible impairment.

This review is performed at the reporting unit level, and involves a comparison of the fair value of the reporting unit with its carrying amount, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired. If the carrying amount of the reporting unit exceeds its fair value, an impairment loss is recognized in an amount equal to the excess carrying value over fair value.

In performing goodwill impairment testing, we utilize a third-party valuation specialist to assist management in determining the fair value of our reporting units. Fair value of each reporting unit is estimated based on a combination of discounted cash flows and the use of pricing multiples derived from an analysis of comparable public companies multiplied against historical and/or anticipated financial metrics of each reporting unit. These calculations contain uncertainties as they require management to make assumptions including, but not limited to, market comparables, future cash flows of the reporting units, and appropriate discount and long-term growth rates.

Subsequent to our acquisition of MPG in 2017, our business was organized into four business units: Driveline, Metal Forming, Powertrain, and Casting. Under the goodwill guidance, we determined that each of our business units represents a reporting unit. The determination of our reporting units and impairment indicators also require us to make significant judgments.

As a result of our test in the fourth quarter of 2018, we determined that the carrying values of our Powertrain and Casting reporting units were greater than their respective fair values. As such, we recorded non-cash goodwill impairment charges of $80.0 million associated with Powertrain and $405.5 million associated with Casting in 2018. As of December 31, 2018, the remaining carrying value of goodwill allocated to Powertrain was $377.3 million and there was no remaining goodwill associated with the Casting reporting unit. See Note 5 - Goodwill and Other Intangible Assets for further detail.

In 2019, we plan to initiate a new global restructuring program to further streamline our business by consolidating our four existing business units into three business units. This activity will occur through the disaggregation of our Powertrain business unit, with a portion moving into our Driveline business unit and a portion moving into our Metal Forming business unit. As a result of this activity, we expect to evaluate goodwill for impairment in the first quarter of 2019.

IMPAIRMENT OF LONG-LIVED ASSETS Long-lived assets, excluding goodwill and other indefinite-lived intangible assets, to be held and used are reviewed for impairment whenever adverse events or changes in circumstances indicate a possible impairment. Recoverability of each “held for use” asset group affected by impairment indicators is determined by comparing the forecasted undiscounted cash flows of the operations to which the assets relate to their carrying amount. If the carrying amount of an asset group exceeds the undiscounted cash flows and is therefore nonrecoverable, the assets in this group are written down to their estimated fair value. We estimate fair value based on market prices, when available, or on a discounted cash flow analysis. Long-lived assets held for sale are recorded at the lower of their carrying amount or fair value less cost to sell. Significant judgments and estimates used by management when evaluating long-lived assets for impairment include:

- An assessment as to whether an adverse event or circumstance has triggered the need for an impairment review;
- Determination of asset groups, the primary asset within each group, and the primary asset's average estimated useful life;
- Undiscounted future cash flows generated by the assets; and
- Determination of fair value when an impairment is deemed to exist, which may require assumptions related to future general economic conditions, future expected production volumes, product pricing and cost estimates, working capital and capital investment requirements, discount rates and estimated liquidation values.

PENSION AND OTHER POSTRETIREMENT BENEFITS In calculating our assets, liabilities and expenses related to pension and OPEB, key assumptions include the discount rate, expected long-term rates of return on plan assets, mortality projections and rates of increase in health care costs.

The discount rates used in the valuation of our U.S. pension and OPEB obligations were based on an actuarial review of a hypothetical portfolio of long-term, high quality corporate bonds matched against the expected payment stream for each of our plans. In 2018, the weighted-average discount rates determined on that basis were 4.30% for the valuation of our pension benefit obligations and 4.35% for the valuation of our OPEB obligations. The discount rate used in the valuation of our United Kingdom (U.K.) pension obligations were based on hypothetical yield curves developed from corporate bond yield information within each regional market. In 2018, the weighted-average discount rates determined on that basis were 2.95% for our U.K. plans. The expected weighted-average long-term rates of return on our plan assets were 7.50% for our U.S. plans, and 5.10% for our U.K. plans in 2018.

We developed these rates of return assumptions based on future capital market expectations for the asset classes represented within our portfolio and a review of long-term historical returns. The asset allocation for our plans was developed in consideration of the demographics of the plan participants and expected payment stream of the liability.

Our investment policy allocates approximately 30-55% of the U.S. plans' assets to equity securities, depending on the plan, with the remainder invested in fixed income securities, hedge fund investments and cash. The rates of increase in health care costs are based on current market conditions, inflationary expectations and historical information.

All of our assumptions were developed in consultation with our actuarial service providers. While we believe that we have selected reasonable assumptions for the valuation of our pension and OPEB obligations at year-end 2018, actual trends could result in materially different valuations.

The effect on our pension plans of a 0.5% decrease in both the discount rate and expected return on assets is shown below as of December 31, 2018, our valuation date.

	Discount Rate	Expected Return on Assets
	(in millions)	
Decline in funded status	$48.2	N/A
Increase in 2018 expense	$—	$ 3.3

No changes in benefit levels or in the amortization of gains or losses have been assumed.

For 2019, we assumed a weighted-average annual increase in the per-capita cost of covered health care benefits of 6.75% for OPEB. The rate is assumed to decrease gradually to 5.0% by 2026 and remain at that level thereafter. A 0.5% decrease in the discount rate for our OPEB would have decreased total expense in 2018 and increased the postretirement obligation, net of GM cost sharing, at December 31, 2018 by $0.7 million and $18.0 million, respectively. A 1.0% increase in the assumed health care trend rate would have increased total service and interest cost in 2018 and the postretirement obligation, net of GM cost sharing, at December 31, 2018 by $1.4 million and $31.0 million, respectively.

AAM and GM share in the cost of OPEB for eligible retirees proportionally based on the length of service an employee had with AAM and GM. We estimate the future cost sharing payments and present it as an asset on our Consolidated Balance Sheet. As of December 31, 2018, we estimated $232.9 million in future GM cost sharing. If, in the future, GM were unable to fulfill this financial obligation, our OPEB obligations could be different than our current estimates.

PRODUCT WARRANTY We record a liability and related charge to cost of goods sold for estimated warranty obligations at the dates our products are sold or when specific warranty issues are identified. Product warranties not expected to be paid within one year are recorded as a noncurrent liability on our Consolidated Balance Sheet. Our estimated warranty obligations for products sold are based on significant management estimates, with input from our warranty, sales, engineering, quality and legal departments. For products and customers with actual warranty payment experience, we estimate warranty costs principally based on past claims history. For certain products and customers, actual warranty payment experience does not exist or is not mature. In these cases, we estimate our costs based on the contractual arrangements with our customers, existing customers' warranty program terms and internal and external warranty data, which includes a determination of our responsibility for potential warranty issues or claims and estimates of repair costs. We actively study trends of our warranty claims and take action to improve product quality and minimize warranty claims. We continuously evaluate these estimates and our customers' administration of their warranty programs. We closely monitor actual warranty claim data and adjust the liability, as necessary, on a quarterly basis.

In addition to our ordinary warranty provisions with our customers, we may be responsible for certain costs associated with product recalls and field actions, which are recorded at the time our obligation is probable and can be reasonably estimated.

Our warranty accrual was $57.7 million as of December 31, 2018 and $49.5 million as of December 31, 2017. During 2018 and 2017, we made adjustments to our warranty accrual to reflect revised estimates regarding our projected future warranty obligations. Actual experience could differ from the amounts estimated requiring adjustments to these liabilities in future periods. It is possible that changes in our assumptions or future warranty issues could materially affect our financial position and results of operations.

VALUATION OF DEFERRED TAX ASSETS AND OTHER TAX LIABILITIES Because we operate in many different geographic locations, including several foreign, state and local tax jurisdictions, the evaluation of our ability to use all recognized deferred tax assets is complex. In accordance with the accounting guidance for income taxes, we review the likelihood that we will realize the benefit of deferred tax assets and estimate whether recoverability of our deferred tax assets is "more likely than not," based on forecasts of taxable income in the related tax jurisdictions. In determining the requirement for a valuation allowance, the historical results, projected future operating results based upon approved business plans, eligible carry forward periods, and tax planning opportunities are considered, along with other relevant positive and negative evidence. If, based upon available evidence, it is more likely than not the deferred tax assets will not be realized, a valuation allowance is recorded.

As of December 31, 2018, we have a valuation allowance of approximately $183.3 million related to net deferred tax assets in several foreign jurisdictions and U.S. state and local jurisdictions. As of December 31, 2017 and 2016, our valuation allowance was $180.4 million and $164.8 million, respectively.
If, in the future, we generate taxable income on a sustained basis in foreign and U.S. state and local jurisdictions for which we have recorded valuation allowances, our current estimate of the recoverability of our deferred tax assets could change and result in the future reversal of some or all of the valuation allowance. While we believe we have made appropriate valuations of our deferred tax assets, unforeseen changes in tax legislation, regulatory activities, audit results, operating results, financing strategies, organization structure and other related matters may result in material changes in our deferred tax asset valuation allowances or our tax liabilities.
We record uncertain tax positions on the basis of a two-step process whereby: (1) we determine whether it is "more likely than not" that the tax positions will be sustained based on the technical merits of the position: and (2) for those positions that meet the "more likely than not" recognition threshold, we recognize the largest amount of tax benefit that is greater than 50% likely to be realized upon ultimate settlement with the related tax authority. We record interest and penalties on uncertain tax positions in income tax expense (benefit).

As of December 31, 2018 and 2017, we had a liability for unrecognized income tax benefits and related interest and penalties of $45.6 million and $55.2 million, respectively. In 2018, we finalized an advance pricing agreement in a foreign jurisdiction, which resulted in a reduction of our liability for unrecognized tax benefits and related interest and penalties of approximately $20.0 million.

In January 2016, we completed negotiations with the Mexican tax authorities to settle 2007 through 2009 transfer pricing audits. We made a payment of $22.9 million in January 2016 that fully satisfied our obligations for transfer pricing issues for tax years 2007 through 2013. Including these settlements, we made payments of $28 million in 2016 to the Mexican tax authorities related to transfer pricing matters.

During the next 12 months, we may finalize another advance pricing agreement in a foreign jurisdiction, which could result in a cash payment to the relevant tax authorities and a reduction of our liability for unrecognized tax benefits and related interest and penalties. Although it is difficult to estimate with certainty the amount of any audit settlement, we do not expect any potential settlement to be materially different from what we have recorded in unrecognized tax benefits. Based on the status of ongoing tax audits, and the protocol of finalizing audits by the relevant tax authorities, it is not possible to estimate the impact of changes, if any, to previously recorded uncertain tax positions. We will continue to monitor the progress and conclusions of all ongoing audits and other communications with tax authorities and will adjust our estimated liability as necessary.

ACCOUNTING FOR ACQUISITIONS In 2017, we completed our acquisitions of MPG and USM Mexico. Upon successful consummation of these acquisitions, we were subject to the accounting guidance as prescribed by ASC 805 - Business Combinations. We were required to allocate the purchase price of the acquired businesses to the identifiable assets and liabilities based on fair value. The excess purchase price over the fair value of identifiable assets and liabilities was recorded as goodwill. Determining the fair values of assets acquired and liabilities assumed, especially with regard to intangible assets, requires significant levels of estimates and assumptions made by management. In order to assist management, we utilized third party valuation experts in determining the fair values.

Forward-Looking Statements

In this MD&A and elsewhere in this Form 10-K (Annual Report), we make statements concerning our expectations, beliefs, plans, objectives, goals, strategies, and future events or performance. Such statements are “forward-looking” statements within the meaning of the Private Securities Litigation Reform Act of 1995 and relate to trends and events that may affect our future financial position and operating results. The terms such as “will,” “may,” “could,” “would,” “plan,” “believe,” “expect,” “anticipate,” “intend,” “project,” "target," and similar words or expressions, as well as statements in future tense, are intended to identify forward-looking statements.

Forward-looking statements should not be read as a guarantee of future performance or results, and will not necessarily be accurate indications of the times at, or by, which such performance or results will be achieved. Forward-looking statements are based on information available at the time those statements are made and/or management’s good faith belief as of that time with respect to future events and are subject to risks and may differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- reduced purchases of our products by General Motors Company (GM), FCA US LLC (FCA), or other customers;
- our ability to respond to changes in technology, increased competition or pricing pressures;
- our ability to develop and produce new products that reflect market demand;
- our ability or our customers' and suppliers' ability to successfully launch new product programs on a timely basis;
- lower-than-anticipated market acceptance of new or existing products;
- our ability to attract new customers and programs for new products;
- an impairment of our goodwill, other intangible assets, or long-lived assets if our business or market conditions indicate that the carrying values of those assets exceed their fair values;
- reduced demand for our customers' products (particularly light trucks and sport utility vehicles (SUVs) produced by GM and FCA);
- risks inherent in our global operations (including tariffs and the potential consequences thereof to us, our suppliers, and our customers and their suppliers, adverse changes in trade agreements, such as NAFTA or USMCA, immigration policies, political stability, taxes and other law changes, potential disruptions of production and supply, and currency rate fluctuations);
- a significant disruption in operations at one or more of our key manufacturing facilities;
- global economic conditions;
- liabilities arising from warranty claims, product recall or field actions, product liability and legal proceedings to which we are or may become a party, or the impact of product recall or field actions on our customers;
- risks related to a failure of our information technology systems and networks, and risks associated with current and emerging technology threats and damage from computer viruses, unauthorized access, cyber attack and other similar disruptions;
- supply shortages or price increases in raw material and/or freight, utilities or other operating supplies for us or our customers as a result of natural disasters or otherwise;
- our ability to successfully integrate the business and information systems of MPG and to realize the anticipated benefits of the merger;
- negative or unexpected tax consequences;
- our ability to achieve the level of cost reductions required to sustain global cost competitiveness;
- our ability to realize the expected revenues from our new and incremental business backlog;
- our ability to maintain satisfactory labor relations and avoid work stoppages;
- our suppliers', our customers' and their suppliers' ability to maintain satisfactory labor relations and avoid work stoppages;
- price volatility in, or reduced availability of, fuel;
- potential liabilities or litigation relating to, or assumed in, the MPG merger;
-

potential adverse reactions or changes to business relationships resulting from the completion of the merger with MPG;
- our ability to protect our intellectual property and successfully defend against assertions made against us;
- our ability to attract and retain key associates;
- availability of financing for working capital, capital expenditures, research and development (R&D) or other general corporate purposes including acquisitions, as well as our ability to comply with financial covenants;
- our customers' and suppliers' availability of financing for working capital, capital expenditures, R&D or other general corporate purposes;
- changes in liabilities arising from pension and other postretirement benefit obligations;
- risks of noncompliance with environmental laws and regulations or risks of environmental issues that could result in unforeseen costs at our facilities or reputational damage;
- adverse changes in laws, government regulations or market conditions affecting our products or our customers' products;
- our ability or our customers' and suppliers' ability to comply with regulatory requirements and the potential costs of such compliance; and
- other unanticipated events and conditions that may hinder our ability to compete.

It is not possible to foresee or identify all such factors and we make no commitment to update any forward-looking statement or to disclose any facts, events or circumstances after the date hereof that may affect the accuracy of any forward-looking statement.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

MARKET RISK

Our business and financial results are affected by fluctuations in world financial markets, including currency exchange rates and interest rates. Our hedging policy has been developed to manage these risks to an acceptable level based on management's judgment of the appropriate trade-off between risk, opportunity and cost. We do not hold financial instruments for trading or speculative purposes.

CURRENCY EXCHANGE RISK From time to time, we use foreign currency forward and option contracts to reduce the effects of fluctuations in exchange rates relating to the Mexican Peso, Euro, Brazilian Real, British Pound Sterling, Thai Baht, Swedish Krona, Chinese Yuan, Polish Zloty and Indian Rupee. At December 31, 2018 and December 31, 2017, we had currency forward and option contracts with a notional amount of $185.8 million and $162.2 million outstanding, respectively. The potential decrease in fair value of foreign exchange contracts, assuming a 10% adverse change in the foreign currency exchange rates, would be approximately $17.1 million at December 31, 2018 and was approximately $14.7 million at December 31, 2017.

Future business operations and opportunities, including the expansion of our business outside North America, may further increase the risk that cash flows resulting from these global operations may be adversely affected by changes in currency exchange rates. If and when appropriate, we intend to manage these risks by creating natural hedges in the structure of our global operations, utilizing local currency funding of these expansions and various types of foreign exchange contracts.

INTEREST RATE RISK In 2017, we entered into a variable-to-fixed interest rate swap to reduce the variability of cash flows associated with interest payments on our variable rate debt. In the second quarter of 2018, we discontinued this variable-to-fixed interest rate swap, which was in an asset position of $5.6 million on the date that it was discontinued.

Also in the second quarter of 2018, we entered into a new variable-to-fixed interest rate swap to reduce the variability of cash flows associated with interest payments on our variable rate debt. As of December 31, 2018, we have the following notional amounts hedged in relation to our variable-to-fixed interest rate swap: $900.0 million through May 2019, $750.0 million through May 2020, $500.0 million through May 2021, $400.0 million through May 2022 and $400.0 million through May 2023.

The pre-tax earnings and cash flow impact of a one-percentage-point increase in interest rates (approximately 17% of our weighted-average interest rate at December 31, 2018) on our long-term debt outstanding at December 31, 2018 would be approximately $8.2 million and was approximately $9.2 million at December 31, 2017, on an annualized basis.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.

Item 8. Financial Statements and Supplementary Data

Consolidated Statements of Operations
Year Ended December 31,

	2018	2017	2016
	(in millions, except per share data)		
Net sales	$7,270.4	$6,266.0	$3,948.0
Cost of goods sold	6,130.0	5,146.9	3,221.9
Gross profit	1,140.4	1,119.1	726.1
Selling, general and administrative expenses	385.7	390.1	314.2
Amortization of intangible assets	99.4	75.3	5.0
Goodwill impairment	485.5	—	—
Restructuring and acquisition-related costs	78.9	110.7	26.2
Gain on sale of business	(15.5)	—	—
Operating income	106.4	543.0	380.7
Interest expense	(216.3)	(195.6)	(93.4)
Investment income	2.0	2.9	2.9
Other income (expense)			
Debt refinancing and redemption costs	(19.4)	(3.5)	—
Gain on settlement of capital lease	15.6	—	—
Other, net	(2.2)	(6.8)	8.8
Income (loss) before income taxes	(113.9)	340.0	299.0
Income tax expense (benefit)	(57.1)	2.5	58.3
Net income (loss)	$(56.8)	$337.5	$240.7
Net income attributable to noncontrolling interests	(0.7)	(0.4)	—
Net income (loss) attributable to AAM	$(57.5)	$337.1	$240.7
Basic earnings (loss) per share	$(0.51)	$3.22	$3.08
Diluted earnings (loss) per share	$(0.51)	$3.21	$3.06

See accompanying notes to consolidated financial statements

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.

Consolidated Statements of Comprehensive Income (Loss)
Year Ended December 31,

	2018	2017	2016
	(in millions)		
Net income (loss)	$(56.8)	$337.5	$240.7
Other comprehensive income (loss)			
Defined benefit plans, net of $(9.8) million, $3.4 million and $4.7 million of tax in 2018, 2017 and 2016, respectively	38.1	(8.5)	(19.6)
Foreign currency translation adjustments	(62.5)	88.3	(3.2)
Changes in cash flow hedges, net of tax of $0.5 and $(0.2) million in 2018 and 2017, respectively	5.5	17.1	(10.3)
Other comprehensive income (loss)	(18.9)	96.9	(33.1)
Comprehensive income (loss)	$(75.7)	$434.4	$207.6
Net income attributable to noncontrolling interests	(0.7)	(0.4)	—
Comprehensive income (loss) attributable to AAM	$(76.4)	$434.0	$207.6

See accompanying notes to consolidated financial statements

42

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.

Consolidated Balance Sheets
December 31,

	2018	2017
Assets	(in millions, except per share data)	
Current assets		
Cash and cash equivalents	$476.4	$376.8
Accounts receivable, net	966.5	1,035.9
Inventories, net	459.7	392.0
Prepaid expenses and other	127.2	140.3
Total current assets	2,029.8	1,945.0
Property, plant and equipment, net	2,514.4	2,402.9
Deferred income taxes	45.5	37.1
Goodwill	1,141.8	1,654.3
Other intangible assets, net	1,111.1	1,212.5
GM postretirement cost sharing asset	219.4	252.2
Other assets and deferred charges	448.7	378.8
Total assets	$7,510.7	$7,882.8
Liabilities and Stockholders' Equity		
Current liabilities		
Current portion of long-term debt	$121.6	$5.9
Accounts payable	840.2	799.0
Accrued compensation and benefits	179.0	200.0
Deferred revenue	44.3	34.1
Accrued expenses and other	171.7	177.4
Total current liabilities	1,356.8	1,216.4
Long-term debt, net	3,686.8	3,969.3
Deferred revenue	77.6	78.8
Deferred income taxes	92.6	101.7
Postretirement benefits and other long-term liabilities	810.6	976.6
Total liabilities	6,024.4	6,342.8
Stockholders' equity		
Series A junior participating preferred stock, par value $0.01 per share; 0.1 million shares authorized; no shares outstanding in 2018 or 2017	—	—
Preferred stock, par value $0.01 per share; 10.0 million shares authorized; no shares outstanding in 2018 or 2017	—	—
Series common stock, par value $0.01 per share; 40.0 million shares authorized; no shares outstanding in 2018 or 2017	—	—
Common stock, par value $0.01 per share; 150.0 million shares authorized; 118.9 million and 118.2 million shares issued as of December 31, 2018 and December 31, 2017, respectively	1.2	1.2
Paid-in capital	1,292.6	1,264.6
Retained earnings	703.5	761.0
Treasury stock at cost, 7.2 million shares in 2018 and 6.9 million shares in 2017	(201.8)	(198.1)
Accumulated other comprehensive loss		

Defined benefit plans, net of tax	(213.9)	(252.0)
Foreign currency translation adjustments	(96.6)	(34.1)
Unrecognized loss on cash flow hedges, net of tax	(1.1)	(6.6)
Total AAM stockholders' equity	1,483.9	1,536.0
Noncontrolling interests in subsidiaries	2.4	4.0
Total stockholders' equity	1,486.3	1,540.0
Total liabilities and stockholders' equity	$7,510.7	$7,882.8

See accompanying notes to consolidated financial statements

43

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.

Consolidated Statements of Cash Flows
Year Ended December 31,

	2018	2017	2016
	(in millions)		
Operating activities			
Net income (loss)	$(56.8)	$337.5	$240.7
Adjustments to reconcile net income (loss) to net cash provided by operating activities			
Depreciation and amortization	528.8	428.5	201.8
Impairment of property, plant and equipment	30.0	1.5	3.4
Impairment of goodwill	485.5	—	—
Deferred income taxes	(35.0)	(154.2)	33.2
Stock-based compensation	27.9	43.4	21.0
Pensions and other postretirement benefits, net of contributions	(9.9)	(6.0)	(12.6)
Gain on sale of business	(15.5)	—	—
(Gain) loss on disposal of property, plant and equipment, net	(3.2)	1.6	4.3
Debt refinancing and redemption costs and (gain) on settlement of capital lease	4.0	3.5	—
Changes in operating assets and liabilities, net of amounts acquired or disposed			
Accounts receivable	56.1	(44.9)	(19.3)
Inventories	(83.1)	2.5	12.2
Accounts payable and accrued expenses	7.5	(12.6)	(14.2)
Deferred revenue	10.7	14.8	7.2
Other assets and liabilities	(175.5)	31.4	(70.1)
Net cash provided by operating activities	771.5	647.0	407.6
Investing activities			
Purchases of property, plant and equipment	(524.7)	(477.7)	(223.0)
Proceeds from sale of property, plant and equipment	4.9	2.5	1.7
Purchase buyouts of leased equipment	(0.5)	(13.3)	(4.6)
Proceeds from sale of business, net	47.1	5.9	—
Acquisition of business, net of cash acquired	(1.3)	(895.5)	(5.6)
Investment in affiliates	(3.7)	—	—
Other, net	—	—	3.8
Net cash used in investing activities	(478.2)	(1,378.1)	(227.7)
Financing activities			
Net short-term proceeds from credit facilities	—	4.4	—
Proceeds from issuance of long-term debt	509.6	2,862.7	30.3
Payments of long-term debt, capital lease obligations and other	(681.2)	(2,154.4)	(7.0)
Debt issuance costs	(6.9)	(91.0)	—
Purchase of noncontrolling interest	(2.3)	—	—
Employee stock option exercises	—	0.9	0.3
Purchase of treasury stock	(3.7)	(7.0)	(5.2)
Net cash provided by (used in) financing activities	(184.5)	615.6	18.4
Effect of exchange rate changes on cash	(6.7)	11.1	0.4
Net increase (decrease) in cash, cash equivalents and restricted cash	102.1	(104.4)	198.7
Cash, cash equivalents and restricted cash at beginning of year	376.8	481.2	282.5

Cash, cash equivalents and restricted cash at end of year	$478.9	$376.8	$481.2
Supplemental cash flow information			
Interest paid	$199.7	$182.7	$87.2
Income taxes paid, net	$46.0	$31.9	$48.6
Non-cash investing activities: AAM common shares issued for acquisition of MPG	$—	$576.7	$—

See accompanying notes to consolidated financial statements

44

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.

Consolidated Statements of Stockholders' Equity

	Common Stock Shares Outstanding	Par Value	Paid-in Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Noncontrolling Interest in Subsidiaries
	(in millions)						
Balance at January 1, 2016	76.1	$ 0.8	$ 638.9	$ 178.4	$ (185.9)	$ (356.5)	$ —
Net income				240.7			
Changes in cash flow hedges						(10.3)	
Foreign currency translation adjustments						(3.2)	
Defined benefit plans, net						(19.6)	
Exercise of stock options and vesting of restricted stock units and performance shares	0.7	0.1	0.2				
Stock-based compensation			21.0				
Modified-retrospective application of ASU 2016-09				4.8			
Purchase of treasury stock	(0.3)				(5.2)		
Balance at December 31, 2016	76.5	$ 0.9	$ 660.1	$ 423.9	$ (191.1)	$ (389.6)	$ —
Net income				337.1			0.4
Changes in cash flow hedges						17.1	
Foreign currency translation adjustments						88.3	
Defined benefit plans, net						(8.5)	
Acquisition of MPG	34.3	0.3	579.6		(1.7)		3.6
Exercise of stock options and vesting of restricted stock units and performance shares	0.8		0.9				
Stock-based compensation			24.0				
Purchase of treasury stock	(0.3)				(5.3)		
Balance at December 31, 2017	111.3	$ 1.2	$ 1,264.6	$ 761.0	$ (198.1)	$ (292.7)	$ 4.0
Net income (loss)				(57.5)			0.7
Changes in cash flow hedges						5.5	
Foreign currency translation adjustments						(62.5)	
Defined benefit plans, net						38.1	
Purchase of noncontrolling interest							(2.3)
Exercise of stock options and vesting of restricted stock units and performance shares	0.7		0.1				
Stock-based compensation			27.9				
Purchase of treasury stock	(0.3)				(3.7)		
Balance at December 31, 2018	111.7	$ 1.2	$ 1,292.6	$ 703.5	$ (201.8)	$ (311.6)	$ 2.4

See accompanying notes to consolidated financial statements

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. ORGANIZATION AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

ORGANIZATION On April 6, 2017, Alpha SPV I, Inc., a wholly-owned subsidiary of American Axle & Manufacturing Holdings, Inc. (Holdings), merged with and into Metaldyne Performance Group, Inc. (MPG) with MPG as the surviving corporation in the merger. Upon consummation of the merger, MPG became a wholly-owned subsidiary of Holdings.

We are a global Tier I supplier to the automotive, commercial and industrial markets. We design, engineer, validate and manufacture driveline, metal forming, powertrain and casting products, employing over 25,000 associates, operating at nearly 90 facilities in 17 countries, to support our customers on global and regional platforms with a continued focus on delivering operational excellence, technology leadership and quality.

PRINCIPLES OF CONSOLIDATION We include the accounts of Holdings and its subsidiaries in our consolidated financial statements. We eliminate the effects of all intercompany transactions, balances and profits in our consolidation.

REVENUE RECOGNITION We are obligated under our contracts with customers to manufacture and supply products for use in our customers' operations. We satisfy these performance obligations at the point in time that the customer obtains control of the products, which is the point in time that the customer is able to direct the use of, and obtain substantially all of the remaining benefits from, the products. This typically occurs upon shipment to the customer in accordance with purchase orders and delivery releases issued by our customers. There is judgment involved in determining when the customer obtains control of the products and we have utilized the following indicators of control in our assessment:

- We have the present right to payment for the asset;
- The customer has legal title to the asset;
- We have transferred physical possession of the asset;
- The customer has the significant risks and rewards of ownership of the asset; and
- The customer has accepted the asset.

See Note 2 - Revenue from Contracts with Customers for more detail on our revenue.

RESEARCH AND DEVELOPMENT (R&D) COSTS We expense R&D, as incurred, in selling, general and administrative expenses on our Consolidated Statements of Operations. R&D spending was $146.2 million, $161.5 million and $139.8 million in 2018, 2017 and 2016, respectively.

CASH AND CASH EQUIVALENTS Cash and cash equivalents include all cash balances, savings accounts, sweep accounts, and highly liquid investments in money market funds and certificates of deposit with maturities of 90 days or less at the time of purchase.

ACCOUNTS RECEIVABLE The majority of our accounts receivable are due from original equipment manufacturers (OEMs) in the automotive industry and are past due when payment is not received within the terms stated within the contract. Trade accounts receivable for our customers are generally due within approximately 50 days from the date our customers receive our product.

Amounts due from customers are stated net of allowances for doubtful accounts. We determine our allowances by considering factors such as the length of time accounts are past due, our previous loss history, the customer's ability to pay its obligation to us, and the condition of the general economy and the industry as a whole. The allowance for doubtful accounts was $8.4 million and $7.0 million as of December 31, 2018 and 2017, respectively. We write-off accounts receivable when they become uncollectible.

CUSTOMER TOOLING AND PRE-PRODUCTION COSTS RELATED TO LONG-TERM SUPPLY AGREEMENTS Engineering, R&D, and other pre-production design and development costs for products sold on long-term supply arrangements are expensed as incurred unless we have a contractual guarantee for reimbursement from the customer. Reimbursements received for pre-production costs relating to awarded programs are deferred and recognized into revenue over the life of the associated program. Reimbursements

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

received for pre-production costs relating to future programs that have not been awarded, or amounts received for programs that become discontinued prior to production, are recorded as a reduction of expense.

Costs for tooling used to make products sold on long-term supply arrangements for which we have either title to the assets or the noncancelable right to use the assets during the term of the supply arrangement are capitalized in property, plant and equipment. Reimbursable costs for tooling assets for which our customer has title and we do not have a noncancelable right to use during the term of the supply arrangement, are recorded in accounts receivable in our consolidated balance sheets. The reimbursement for the customer-owned tooling is recorded as a reduction of accounts receivable upon collection. Capitalized items and customer receipts in excess of tooling costs specifically related to a supply arrangement are amortized over the shorter of the term of the arrangement or over the estimated useful lives of the related assets.

INVENTORIES We state our inventories at the lower of cost or net realizable value. The cost of our inventories is determined using the FIFO method. When we determine that our gross inventories exceed usage requirements, or if inventories become obsolete or otherwise not saleable, we record a provision for such loss as a component of our inventory accounts.

Inventories consist of the following:

	December 31,	
	2018	2017
	(in millions)	
Raw materials and work-in-progress	$375.1	$319.7
Finished goods	99.0	89.6
Gross inventories	474.1	409.3
Inventory valuation reserves	(14.4)	(17.3)
Inventories, net	$459.7	$392.0

PROPERTY, PLANT AND EQUIPMENT We state property, plant and equipment, including amortizable tooling, at historical cost, as adjusted for impairments. Construction in progress includes costs incurred for the construction of buildings and building improvements, and machinery and equipment in process. Repair and maintenance costs that do not extend the useful life or otherwise improve the utility of the asset beyond its existing useful state are expensed in the period incurred.

We record depreciation and tooling amortization using the straight-line method over the estimated useful lives of the depreciable assets. Depreciation and tooling amortization amounted to $367.0 million, $301.6 million and $160.4 million in 2018, 2017 and 2016, respectively.

Property, plant and equipment consists of the following:

	Estimated	December 31,	
	Useful Lives	2018	2017
	(years)	(in millions)	
Land	Indefinite	$53.6	$58.0
Land improvements	10-15	22.0	20.8
Buildings and building improvements	15-40	501.5	465.8
Machinery and equipment	3-12	3,342.8	2,962.8
Construction in progress		511.1	567.7
		4,431.0	4,075.1
Accumulated depreciation and amortization		(1,916.6)	(1,672.2)

Property, plant and equipment, net	$2,514.4	$2,402.9

As of December 31, 2018, 2017 and 2016, we had unpaid purchases of plant and equipment in our accounts payable of $84.1 million, $103.0 million and $19.0 million, respectively.

47

IMPAIRMENT OF LONG-LIVED ASSETS When impairment indicators exist, we evaluate the carrying value of long-lived assets for potential impairment. We consider projected future undiscounted cash flows, trends and other circumstances in making such estimates and evaluations. If impairment is deemed to exist, the carrying amount of the asset is adjusted based on its fair value. Recoverability of assets "held for use" is determined by comparing the forecasted undiscounted cash flows of the operations to which the assets relate to their carrying amount. When the carrying value of an asset group exceeds its fair value and is therefore nonrecoverable, those assets are written down to fair value. Fair value is determined based on market prices, when available, or a discounted cash flow analysis is performed using management estimates.

GOODWILL We record goodwill when the purchase price of acquired businesses exceeds the value of their identifiable net tangible and intangible assets acquired. We test our goodwill annually as of October 1, or more frequently if necessary, for impairment in accordance with the accounting guidance for goodwill and other indefinite-lived intangibles. See Note 5 - Goodwill and Other Intangible Assets, for more detail on our goodwill.

OTHER INTANGIBLE ASSETS In connection with our acquisitions of USM Mexico Manufacturing LLC (USM Mexico) and MPG, we recognized $1,254.8 million of amortizable intangible assets for customer platforms, customer relationships, developed technology and licensing agreements. These intangible assets were assigned useful lives ranging from five to 17 years from the dates of the acquisitions. The intangible assets were valued using primarily the relief from royalty method or the multi-period excess earnings method, both of which utilize significant unobservable inputs. These inputs are defined in the fair value hierarchy as Level 3 inputs, which require management to make estimates and assumptions regarding certain financial measures using forecasted or projected information. See Note 5 - Goodwill and Other Intangible Assets, for more detail on our intangible assets.

DEBT ISSUANCE COSTS The costs related to the issuance or modification of long-term debt are deferred and amortized into interest expense over the expected life of the borrowings. As of December 31, 2018 and December 31, 2017, our unamortized debt issuance costs were $80.7 million and $93.1 million, respectively. Debt issuance costs associated with our senior unsecured notes, as well as our Term Loan A Facility and Term Loan B Facility (as defined in Note 6 - Long-Term Debt and Lease Obligations), are recorded as a reduction to the related debt liability. Debt issuance costs of $13.6 million and $17.5 million related to our Revolving Credit Facility (also as defined in Note 6 - Long-Term Debt and Lease Obligations), are classified as Other assets and deferred charges on our Consolidated Balance Sheets as of December 31, 2018 and December 31, 2017, respectively. Unamortized debt issuance costs that exist upon the extinguishment of debt are expensed and classified as Debt refinancing and redemption costs on our Consolidated Statements of Operations.

DERIVATIVES We recognize all derivatives on the balance sheet at fair value and we are not subject to master netting agreements. If a derivative qualifies under the accounting guidance as a hedge, depending on the nature of the hedge, changes in the fair value of the derivative are either offset against the change in fair value of the hedged asset, liability or firm commitment through earnings or recognized in other comprehensive income until the hedged item is recognized in earnings. Changes in the fair value of derivatives that do not qualify as hedges, are immediately recognized in earnings. See Note 7 - Derivatives and Risk Management, for more detail on our derivatives.

CURRENCY TRANSLATION AND REMEASUREMENT We translate the assets and liabilities of our foreign subsidiaries to U.S. dollars at end-of-period exchange rates. We translate the income statement elements of our foreign subsidiaries to U.S. dollars at average-period exchange rates. We report the effect of translation for our foreign subsidiaries that use the local currency as their functional currency as a separate component of stockholders' equity. Gains and losses resulting from the remeasurement of assets and liabilities in a currency other than the functional currency of a subsidiary are reported in current period income. We also report any gains and losses arising from transactions denominated in a currency other than the functional currency of a subsidiary in current period income. These foreign currency gains and losses resulted in net losses of $0.2 million and $7.3 million for the years 2018 and 2017, respectively, and a net gain of $5.8 million for 2016, in Other income (expense).

PENSION AND OTHER POSTRETIREMENT DEFINED BENEFIT PLANS Net pension and postretirement benefit expenses and the related liabilities are determined on an actuarial basis. These plan expenses and obligations are dependent on management's assumptions developed in consultation with our actuaries. We review

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

these actuarial assumptions at least annually and make modifications when appropriate. See Note 9 - Employee Benefit Plans, for more detail on our pension and other postretirement defined benefit plans.

STOCK-BASED COMPENSATION We have stock-based compensation in the form of restricted stock units (RSUs) and performance shares. For non-performance based awards, the grant date fair value is measured as the stock price at the date of grant. For performance based awards, fair value is estimated using valuation techniques that require management to use estimates and assumptions. Certain awards require that management's estimates and assumptions be evaluated at each reporting date to determine if compensation expense related to the award should be adjusted, both on a catch-up and go-forward basis. Compensation expense is recognized over the period during which the requisite service is provided, referred to as the vesting period. See Note 10 - Stock-Based Compensation, for more detail on our accounting for stock-based compensation.

DEFERRED INCOME TAX ASSETS AND LIABILITIES AND VALUATION ALLOWANCES Our deferred income tax assets and liabilities reflect the impact of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the basis of such assets and liabilities as measured by tax laws.

In accordance with the accounting guidance for income taxes, we review the likelihood that we will realize the benefit of deferred tax assets and estimate whether recoverability of our deferred tax assets is “more likely than not,” based on forecasts of taxable income in the related tax jurisdictions. In determining the requirement for a valuation allowance, the historical results, projected future operating results based upon approved business plans, eligible carry forward periods, and tax planning opportunities are considered, along with other relevant positive and negative evidence. If, based upon available evidence, it is more likely than not the deferred tax assets will not be realized, a valuation allowance is recorded.

We record uncertain tax positions on the basis of a two-step process whereby: (1) we determine whether it is "more likely than not" that the tax positions will be sustained based on the technical merits of the position: and (2) for those positions that meet the "more likely than not" recognition threshold, we recognize the largest amount of tax benefit that is greater than 50% likely to be realized upon ultimate settlement with the related tax authority. We record interest and penalties on uncertain tax positions in income tax expense (benefit).

See Note 11 - Income Taxes, for more detail on our accounting for income taxes.

EARNINGS (LOSS) PER SHARE (EPS) We present EPS using the two-class method. This method allocates undistributed earnings between common shares and non-vested share based payment awards that entitle the holder to non-forfeitable dividend rights. Our participating securities include non-vested restricted stock units. See Note 12 - Earnings (Loss) Per Share (EPS), for more detail on our accounting for EPS.

SHARE REPURCHASE PROGRAM In 2016, AAM's Board of Directors authorized a share repurchase program of up to $100 million of AAM's common shares as part of AAM's overall capital allocation strategy. The program expired on December 31, 2018. We repurchased a total of $1.5 million of shares under the share repurchase program and there were no share repurchases under the program during 2018.

PRODUCT WARRANTY See Note 13 - Commitments and Contingencies, for detail on our accounting for product warranties.

USE OF ESTIMATES In order to prepare consolidated financial statements in conformity with accounting principles generally accepted in the United States of America (GAAP), we are required to make estimates and assumptions that affect the reported amounts and disclosures in our consolidated financial statements. Actual results could differ from those estimates.

EFFECT OF NEW ACCOUNTING STANDARDS

Accounting Standards Update 2018-15

On August 15, 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2018-15 - Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement that is a Service Contract (Topic 350-40). ASU 2018-15 aligns the requirements for capitalizing implementation costs incurred in a cloud computing or hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. This guidance becomes effective at the beginning of our 2020 fiscal year, and early adoption is permitted for financial statements which have not yet been issued. This guidance may be applied either retrospectively or prospectively and we are currently assessing the impact that this standard will have on our consolidated financial statements.

Accounting Standards Update 2018-02

On February 14, 2018, the FASB issued ASU 2018-02 - Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income (Topic 220). ASU 2018-02 allows companies the option to reclassify disproportionate tax effects in accumulated other comprehensive income (AOCI) caused by the 2017 Tax Cuts and Jobs Act, also known as stranded tax effects, to retained earnings. ASU 2018-02 also requires expanded disclosures related to disproportionate income tax effects from AOCI, some of which are applicable to all companies regardless of whether the option to reclassify the stranded tax effects is exercised. The guidance becomes effective at the beginning of our 2019 fiscal year, and we expect to record an adjustment to AOCI and Retained earnings of approximately $28 million associated with the adoption of this guidance.

Accounting Standards Update 2017-12

On August 28, 2017, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2017-12 - Targeted Improvements to Accounting for Hedging Activities (Topic 815). ASU 2017-12 is intended to better align the risk management activities of a company with the company's financial reporting for hedging relationships. This guidance expands and refines several aspects of hedge accounting. The most applicable changes to AAM as a result of the new guidance are as follows: 1) the concept of risk component hedging is introduced in ASU 2017-12, which could allow us to hedge contractually specified components in a contract; 2) the guidance now allows entities to utilize a 31-day period in assessing whether the critical terms of a forecasted transaction match the maturity of the hedging derivative, which could allow for expanded use of hedging instruments for certain sales and purchases; and 3) we may now qualitatively assess hedge effectiveness on a quarterly basis when the facts and circumstances related to the hedging relationship have not changed significantly. This guidance becomes effective at the beginning of our 2019 fiscal year, however early adoption is permitted, and we have adopted this guidance effective January 1, 2018. The adoption of this guidance did not have any impact on the measurement or presentation of our existing hedging relationships. See Note 7 - Derivatives and Risk Management for additional detail on our hedging instruments.

Accounting Standards Update 2017-07

On March 10, 2017, the FASB issued ASU 2017-07 - Compensation - Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. The amendments in this update require that an employer disaggregate the service cost component from the other components of defined benefit pension cost and postretirement benefit cost (net benefit cost). Subsequent to the adoption of this guidance, only the service cost component of net benefit cost is included in the subtotal Operating income in our Consolidated

Statements of Operations and only the service cost component is eligible for capitalization. This guidance became effective at the beginning of our 2018 fiscal year and required a retrospective transition method for the income statement classification of the net benefit cost components and a prospective transition method for the capitalization of the service cost component in assets. The adoption of this guidance did not have a material impact on our consolidated financial statements.

Accounting Standards Update 2017-04

On January 26, 2017, the FASB issued ASU 2017-04 - Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment. The amendments in this update modify the concept of impairment from the condition that exists when the carrying amount of goodwill exceeds its implied fair value to the condition that exists when the carrying amount of a reporting unit exceeds its fair value. An entity no longer will determine goodwill impairment by calculating the implied fair value of goodwill by assigning the fair value of a reporting unit to all of its assets and liabilities as if that reporting unit had been acquired in a business combination, or what is referred to under existing guidance as "Step 2." Instead, under the amendments in this update, an entity should perform its annual, or interim, goodwill impairment test by comparing the fair value of a reporting unit with its carrying amount. An entity should recognize an impairment charge for the amount by which the carrying amount exceeds the reporting unit's fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. Additionally, an entity should consider income tax effects from any tax deductible goodwill on the carrying amount of the reporting unit when measuring the goodwill impairment loss, if applicable. This guidance becomes effective at the beginning of our 2020 fiscal year, however early adoption is permitted and we elected to early adopt this guidance in conjunction with our annual goodwill impairment test that was conducted in the fourth quarter of 2018. See Note 5 - Goodwill and Other Intangible Assets for further discussion regarding the results of our annual goodwill impairment test for 2018.

Accounting Standards Update 2016-16

On October 24, 2016, the FASB issued Accounting Standards Update (ASU) 2016-16 - Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory. Existing income tax guidance prohibits the recognition of current and deferred income taxes for an intra-entity asset transfer until the asset has been sold to an outside party. This existing guidance is deemed an exception to the principle of comprehensive recognition of current and deferred income taxes under accounting principles generally accepted in the United States of America (GAAP). Due to the limited authoritative guidance about this exception, diversity in practice exists. ASU 2016-16 eliminates this exception for intra-entity transfers of assets other than inventory and requires that entities recognize the income tax consequences when the transfers occur. This guidance was effective January 1, 2018 and required a modified retrospective transition method. The adoption of this guidance did not have a significant impact on our consolidated financial statements.

Accounting Standards Update 2016-02

On February 25, 2016, the FASB issued ASU 2016-02 - Leases (Topic 842), and has subsequently issued ASU 2017-13 - Revenue Recognition (Topic 605), Revenue from Contracts with Customers (Topic 606), Leases (Topic 840) and Leases (Topic 842) (collectively the Lease ASUs) which supersede the existing lease accounting guidance and establish new criteria for recognizing lease assets and liabilities. The most significant impact of these updates, to AAM, is that a lessee will be required to recognize a "right-of-use" asset and lease liability for operating lease agreements that were not previously included on the balance sheet under the existing lease guidance. Expense recognition in the statement of income along with cash flow statement classification for both financing (capital) and operating leases under the new standard will not be significantly changed from existing lease guidance. This guidance becomes effective for AAM at the beginning of our 2019 fiscal year.

We are finalizing the inputs to our calculations and expect to record right-of-use assets and lease liabilities in the range of $85 million to $95 million as a result of implementing this guidance. We plan to elect the package of practical expedients that will allow us to 1) not reassess whether existing or expired contracts contain or contained a lease; 2) not reassess the classification (operating or financing) of our existing leases; and 3) not reassess initial direct costs for existing leases. We also plan to elect the optional transition method that will allow us to not retrospectively revise prior period balance sheets to include operating leases. We plan to also elect the practical expedient that will allow us to exclude recognition of a right-of-use asset and associated liability for lease terms of 12 months or less. Finally, we plan to elect the practical expedient to not separate lease and non-lease components in contracts that contain both, and will account for these types of contracts entirely as a single lease component.

Accounting Standards Update 2014-09

In 2014, the FASB issued ASU 2014-09 - Revenue from Contracts with Customers (Topic 606), and has subsequently issued ASUs 2015-14 - Revenue from Contracts with Customers (Topic 606): Deferral of the Effective Date, 2016-08 - Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations (Reporting Revenue Gross Versus Net), 2016-10 - Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing, 2016-12 - Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients, 2016-20 - Revenue from Contracts with Customers (Topic 606):

Technical Corrections and Improvements to Topic 606 and 2017-13 - Revenue Recognition (Topic 605), Revenue from Contracts with Customers (Topic 606), Leases (Topic 840) and Leases (Topic 842) (collectively, the Revenue Recognition ASUs).

The Revenue Recognition ASUs outline a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersede most current revenue recognition guidance, including industry-specific guidance. The guidance is based on the principle that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The guidance also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to fulfill a contract. This guidance became effective for AAM on January 1, 2018 and we have adopted this guidance using the modified retrospective approach. See Note 2 - Revenue from Contracts with Customers for more detail.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

2. REVENUE FROM CONTRACTS WITH CUSTOMERS

On January 1, 2018, we adopted new accounting guidance under Accounting Standards Codification Topic 606 (ASC 606) Revenue from Contracts with Customers. ASC 606 outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most prior revenue recognition guidance, including industry-specific guidance. The guidance is based on the principle that an entity should recognize revenue to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. We elected to adopt this guidance utilizing the modified retrospective transition method. No adjustment to retained earnings was required as of January 1, 2018 as there was no impact to previously reported revenue or expenses associated with adopting ASC 606.

We are obligated under our contracts with customers to manufacture and supply products for use in our customers' operations. We satisfy these performance obligations at the point in time that the customer obtains control of the products, which is the point in time that the customer is able to direct the use of, and obtain substantially all of the remaining benefits from, the products. This typically occurs upon shipment to the customer in accordance with purchase orders and delivery releases issued by our customers. There is judgment involved in determining when the customer obtains control of the products and we have utilized the following indicators of control in our assessment:

- We have the present right to payment for the asset;
- The customer has legal title to the asset;
- We have transferred physical possession of the asset;
- The customer has the significant risks and rewards of ownership of the asset; and
- The customer has accepted the asset.

Our product offerings by segment are as follows:

- Driveline products consist primarily of axles, driveshafts, power transfer units, rear drive modules, transfer cases, and electric and hybrid driveline products and systems for light trucks, sport utility vehicles (SUVs), crossover vehicles, passenger cars and commercial vehicles;
- Metal Forming products consist primarily of axle and transmission shafts, ring and pinion gears, differential gears, transmission gears, and suspension components for Original Equipment Manufacturers and Tier 1 automotive suppliers;
- The Powertrain segment products consist primarily of transmission module and differential assemblies, transmission valve bodies, connecting rod forging and assemblies, torsional vibration dampers, and variable valve timing products for Original Equipment Manufacturers and Tier 1 automotive suppliers; and
- The Casting segment produces both thin wall castings and high strength ductile iron casting, as well as differential cases, steering knuckles, control arms, brackets, and turbo charger housings for the global light vehicle, commercial and industrial markets.

Our contracts with customers generally state the terms of the sale, including the quantity and price of each product purchased. Trade accounts receivable from our customers are generally due approximately 50 days from the date our customers receive our product. Our contracts typically do not contain variable consideration as the contracts include stated prices. We provide our customers with assurance type warranties, which are not separate performance obligations and are outside the scope of ASC 606. Refer to Note 13 - Commitments and Contingencies for further information on our product warranties.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Disaggregation of Net Sales

Net sales recognized from contracts with customers, disaggregated by segment and geographical location, are presented in the following table for the years ended December 31, 2018, December 31, 2017 and December 31, 2016. Net sales are attributed to regions based on the location of production. Intersegment sales have been excluded from the table.

	Twelve Months Ended December 31, 2018				
	Driveline	Metal Forming	Powertrain	Casting	Total
North America	$3,435.4	$824.9	$ 775.7	$804.3	$5,840.3
Asia	557.8	6.0	114.5	—	678.3
Europe	135.9	266.5	219.7	—	622.1
South America	124.9	—	4.8	—	129.7
Total	$4,254.0	$1,097.4	$ 1,114.7	$804.3	$7,270.4

	Twelve Months Ended December 31, 2017				
	Driveline	Metal Forming	Powertrain	Casting	Total
North America	$3,400.2	$644.2	$ 564.7	$589.7	$5,198.8
Asia	409.4	3.3	99.8	—	512.5
Europe	97.4	182.5	141.6	—	421.5
South America	132.7	—	0.5	—	133.2
Total	$4,039.7	$830.0	$ 806.6	$589.7	$6,266.0

	Twelve Months Ended December 31, 2016				
	Driveline	Metal Forming	Powertrain	Casting	Total
North America	$3,283.1	$217.3	$ —	$—	$3,500.4
Asia	265.9	—	—	—	265.9
Europe	83.5	—	—	—	83.5
South America	98.2	—	—	—	98.2
Total	$3,730.7	$217.3	$ —	$—	$3,948.0

Contract Assets and Liabilities

The following table summarizes our beginning and ending balances for accounts receivable and contract liabilities associated with our contracts with customers:

	Accounts Receivable, Net	Contract Liabilities (Current)	Contract Liabilities (Long-term)
December 31, 2017	$ 1,035.9	$ 34.1	$ 78.8
December 31, 2018	966.5	44.3	77.6
Increase/(decrease)	$ (69.4)	$ 10.2	$ (1.2)

Contract liabilities relate to deferred revenue associated with various settlements and commercial agreements for which we have future performance obligations to the customer. We recognize this deferred revenue into revenue over the life of the associated program as we satisfy our performance obligations to the customer. We do not have contract assets as defined in ASC 606.

For the twelve months ended December 31, 2018, we recognized contract liabilities of $56.9 million. During the twelve months ended December 31, 2018, we also amortized $47.9 million of previously recorded contract liabilities into revenue as we satisfied performance obligations with our customers.

Sales and Other Taxes

ASC 606 provides a practical expedient that allows companies to exclude from the transaction price any amounts collected from customers for all sales (and other similar) taxes. We do not include sales and other taxes in our transaction price and thus do not recognize these amounts as revenue.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

3. RESTRUCTURING AND ACQUISITION-RELATED COSTS

In 2016, AAM initiated actions under a global restructuring program (the 2016 Program) focused on creating a more streamlined organization in addition to reducing our cost structure and preparing for acquisition and integration activities. Since the inception of the 2016 Program, we have incurred severance charges totaling $2.8 million and implementation costs totaling $29.6 million. We do not expect to incur any additional restructuring charges in future periods related to the 2016 Program.

A summary of our restructuring activity for the years 2018, 2017 and 2016 is shown below:

	Severance Charges	Implementation Costs	Asset Impairment Charges	Total
	(in millions)			
Accrual at January 1, 2016	$—	$ —	$ —	$—
Charges	0.6	10.2	4.5	15.3
Cash utilization	—	(1.0)	—	(1.0)
Non-cash utilization	—	—	(4.5)	(4.5)
Accrual at December 31, 2016	0.6	9.2	—	9.8
Charges	2.0	13.9	1.5	17.4
Cash utilization	(2.3)	(23.1)	—	(25.4)
Non-cash utilization	—	—	(1.5)	(1.5)
Accrual at December 31, 2017	0.3	—	—	0.3
Charges	2.5	11.7	30.0	44.2
Cash utilization	(0.4)	(10.1)	—	(10.5)
Non-cash utilization	—	—	(30.0)	(30.0)
Accrual at December 31, 2018	$2.4	$ 1.6	$ —	$4.0

In addition to costs incurred under the 2016 program, we initiated actions in 2018 to exit operations at manufacturing facilities in our Driveline, Metal Forming and Powertrain segments. As part of our total restructuring actions, we incurred severance charges of approximately $2.5 million, as well as implementation costs, including professional expenses, of approximately $11.7 million, and asset impairment charges of $30.0 million to impair long-lived assets that were not to be redeployed to other AAM facilities.

In 2017, we incurred severance charges of approximately $2.0 million, as well as other implementation costs, including professional fees, of approximately $13.9 million, and asset impairment charges of $1.5 million. In 2016, severance charges were approximately $0.6 million, while implementation costs were $10.2 million and asset impairment charges were $4.5 million.

In 2019, we plan to initiate a new global restructuring program (the 2019 Program) to further streamline our business by consolidating our four existing business units into three business units. This activity will occur through the disaggregation of our Powertrain business unit, with a portion moving into our Driveline business unit and a portion moving into our Metal Forming business unit. The primary objectives of this consolidation are to finalize the integration of MPG in a timely manner, align AAM's product and process technologies, and to achieve efficiencies within our corporate and business unit support teams to reduce cost in our business. We did not incur any charges under the 2019 Program during 2018. We expect to incur approximately $25 million to $35 million of total restructuring charges in 2019, including costs incurred under the 2019 Program.

Also in 2017, we completed our acquisitions of MPG and USM Mexico. The following table represents a summary of charges incurred in 2018 related to these acquisitions:

	Acquisition-Related Costs	Severance Charges	Integration Expenses	Total
	(in millions)			
Charges	$1.2	$ 0.5	$ 33.0	$34.7

Total restructuring and acquisition-related charges in 2018	$78.9

56

Acquisition-related costs primarily consist of advisory, legal, accounting, valuation and certain other professional or consulting fees incurred. Integration expenses reflect costs incurred for information technology systems, ongoing operational activities, and consulting fees incurred in conjunction with the acquisitions. In 2017, there were $40.7 million of acquisition-related costs, $7.2 million of severance charges and $45.4 million of integration expenses, as compared to $9.5 million of acquisition-related costs and $1.4 million of integration expenses in 2016, related to the acquisitions of MPG and USM Mexico.

Total restructuring charges and acquisition-related charges of $78.9 million, $110.7 million and $26.2 million are shown on a separate line item titled "Restructuring and Acquisition-Related Costs" in our Consolidated Statements of Operations for 2018, 2017 and 2016, respectively.

4. BUSINESS COMBINATIONS

Acquisition of MPG

On April 6, 2017, AAM completed our acquisition of 100% of the equity interests of MPG for a total purchase price of approximately $1.5 billion plus the assumption of approximately $1.7 billion in net debt (comprised of approximately $1.9 billion in debt less approximately $0.2 billion of MPG cash and cash equivalents). Under the terms of the agreement and plan of merger (Merger Agreement), each share of MPG common stock (other than MPG excluded shares as defined in the Merger Agreement) was converted into the right to receive (a) $13.50 in cash, without interest, and (b) 0.5 of a share of AAM common stock (Merger Consideration). Further, MPG stock options outstanding immediately prior to the effective time of the merger were accelerated and holders of the stock options received in cash the Merger Consideration less the per share exercise price of the MPG stock options. All MPG restricted shares and restricted stock unit awards outstanding under an MPG equity plan were also accelerated and each holder thereof received the Merger Consideration for each restricted share or restricted stock unit award of MPG common stock.

MPG provides highly-engineered components for use in powertrain and safety-critical platforms for the global light, commercial and industrial markets. MPG produces these components using complex metal-forming manufacturing technologies and processes for a global customer base of OEMs and Tier I suppliers, which help their customers meet fuel economy, performance and safety standards. Our acquisition of MPG contributes significantly to diversifying our global customer base and end markets, while also allowing us to expand our presence as a global Tier I supplier to the commercial and industrial markets, in addition to our existing presence as a global Tier I supplier to the automotive industry.

The aggregate cash consideration for our acquisition of MPG was financed using (i) net proceeds from the issuance in March 2017 by AAM of $1.2 billion of new senior notes consisting of $700.0 million aggregate principal amount of 6.25% senior notes due 2025, and $500.0 million aggregate principal amount of 6.50% senior notes due 2027, and on April 6, 2017: (ii) borrowings by AAM of $100.0 million under the Term Loan A that matures in 2022, (iii) borrowings by AAM of $1.55 billion under the Term Loan B that matures in 2024, and (iv) cash on hand.

Our acquisition of MPG was accounted for under the acquisition method under Accounting Standards Codification 805 Business Combinations (ASC 805) with the purchase price allocated to the identifiable assets and liabilities of the acquired company based on the respective fair values of the assets and liabilities.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following represents the final fair values of the assets acquired and liabilities assumed resulting from the acquisition, as well as the calculation of goodwill:

(in millions)	April 6, 2017
Cash consideration	$953.5
Share consideration	576.7
Total consideration transferred	$1,530.2
Fair value of MPG noncontrolling interests	3.6
Total fair value of MPG	$1,533.8
Cash and cash equivalents	$202.1
Accounts receivable	403.1
Inventories	199.0
Prepaid expenses and other long-term assets	119.9
Property, plant and equipment	971.8
Intangible assets	1,223.1
Total assets acquired	$3,119.0
Accounts payable	287.8
Accrued expenses and other	137.7
Deferred income tax liabilities	580.2
Debt	1,918.7
Postretirement benefits and other long-term liabilities	54.1
Net assets acquired	$140.5
Goodwill	$1,393.3

Under the guidance in ASC 805, estimated amounts that are designated as provisional may be adjusted during a period referred to as the "measurement period." The measurement period is a period not to exceed one year from the acquisition date during which we may adjust estimated or provisional amounts recorded during purchase accounting if new information is obtained about facts and circumstances that existed as of the acquisition date that, if known, would have resulted in revised estimated values of those assets or liabilities as of that date. Measurement period adjustments are recorded in the period identified with an offsetting entry to goodwill. Any adjustments to amounts recorded in purchase accounting that do not qualify as measurement period adjustments are included in earnings in the period identified.

We finalized the valuation of the assets and liabilities of MPG in the first quarter of 2018. In doing so, we made measurement period adjustments to reflect changes to facts and circumstances that existed as of the acquisition date, which resulted in a net increase in Goodwill of $0.9 million. These adjustments related to Property, plant and equipment, as well as the corresponding impact on Deferred income tax liabilities, as a result of customary post-closing reviews.

Goodwill resulting from the acquisition is primarily attributable to anticipated synergies and economies of scale from which we expect to benefit as a combined entity. None of the goodwill is deductible for tax purposes.

We recognized $1,223.1 million of amortizable intangible assets for customer platforms, customer relationships, developed technology and licensing agreements as a result of our acquisition of MPG. These intangible assets were assigned useful lives ranging from five to 17 years. The intangible assets were valued using primarily the relief from royalty method or the multi-period excess earnings method, both of which utilize significant unobservable inputs. These inputs are defined in the fair value hierarchy as Level 3 inputs, which require management to make estimates and assumptions regarding certain financial measures using forecasted or projected information.

AAM had an existing accounts payable balance of $12.4 million with MPG as of the date of acquisition. As a result of the acquisition, this pre-existing accounts payable balance was settled and AAM accounted for this settlement separately from the acquisition. This resulted in a $12.4 million reduction in the purchase price and this portion of the cash paid to acquire MPG has been reflected as an operating cash outflow in our Consolidated Statement of Cash Flows for the year ended December 31, 2017.

Included in Net sales and Net income attributable to AAM for the period from the acquisition date on April 6, 2017 through December 31, 2017 was $2,022 million and approximately $320 million, respectively, attributable to MPG. The $320 million of Net income attributable to MPG in 2017 included a tax benefit of approximately $227 million as a result of remeasuring our net deferred tax liabilities in the U.S. subsequent to the enactment of the Tax Cuts and Jobs Act. For the year ended December 31, 2017, AAM's consolidated income before income taxes was $340.0 million, of which $93.5 million related to MPG.

Unaudited Pro Forma Financial Information

Pro forma net sales for AAM, on a combined basis with MPG for the years ended December 31, 2017 and December 31, 2016, were $7.0 billion and $6.6 billion, respectively, excluding MPG sales to AAM during those periods. Pro forma net income amounts for the years ended December 31, 2017 and December 31, 2016 were approximately $400 million and $220 million, respectively. Pro forma earnings per share amounts for the years ended December 31, 2017 and December 31, 2016 were $3.51 per share and $1.95 per share, respectively.

The pro forma net income amounts for the years ended December 31, 2017 and December 31, 2016 have been adjusted by approximately $20 million for a one-time charge for MPG stock-based compensation that was accelerated and settled on the date of acquisition, approximately $25 million related to the step-up of inventory to fair value as a result of the acquisition, and approximately $55 million in acquisition-related costs. This adjustment resulted in a reclassification of approximately $65 million, net of tax, from pro forma net income for 2017 into pro forma net income for 2016, as we are required to disclose the pro forma amounts as if our acquisition of MPG had been completed on January 1, 2016.

The disclosure of pro forma net sales and earnings is for informational purposes only and does not purport to indicate the results that would actually have been obtained had the merger been completed on the assumed date for the periods presented, or which may be realized in the future.

Acquisition of USM Mexico

On March 1, 2017, AAM completed our acquisition of 100% of USM Mexico, a former subsidiary of U.S. Manufacturing Corporation (USM). The purchase price was funded with available cash and the acquisition was accounted for under the acquisition method.

USM Mexico includes USM's operations in Guanajuato, Mexico, which has historically been one of the largest suppliers to AAM's Guanajuato Manufacturing Complex. This acquisition allows AAM to vertically integrate the supply chain and helps ensure continuity of supply for certain parts to our largest manufacturing facility.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following represents the final fair value of the assets acquired and liabilities assumed resulting from the acquisition, as well as the calculation of goodwill:

(in millions)	March 1, 2017
Contractual purchase price	$162.5
Adjustment to contractual purchase price for working capital settlement	2.5
Adjustments to contractual purchase price for capital equipment	4.9
Adjustment to contractual purchase price for settlement of existing accounts payable balance	(22.8)
Cash acquired	(0.5)
Adjusted purchase price, net of cash acquired	$146.6
Accounts receivable	1.1
Inventories	4.8
Prepaid expenses and other	3.6
Property, plant and equipment	38.4
Intangible assets	31.7
Total assets acquired	$79.6
Accounts payable	10.8
Accrued expenses and other	2.7
Deferred income tax liabilities	1.2
Net assets acquired	$64.9
Goodwill	$81.7

The purchase agreement specified a period of time subsequent to the acquisition date for calculating the final working capital amount of USM Mexico as of the acquisition date, which was finalized in the first quarter of 2018. None of the goodwill is deductible for tax purposes.

AAM had an existing accounts payable balance of $22.8 million with USM Mexico as of the date of acquisition. As a result of our acquisition, this pre-existing accounts payable balance was settled and AAM accounted for this settlement separately from our acquisition. This resulted in a $22.8 million reduction in the purchase price and this portion of the cash paid to acquire USM Mexico has been reflected as an operating cash outflow in our Consolidated Statement of Cash Flows for the year ended December 31, 2017.

The operating results of USM Mexico for the period from our acquisition date through December 31, 2017, were insignificant to AAM's Consolidated Statement of Income for this period. Further, we have not disclosed pro forma revenue and earnings for the years ended December 31, 2017 and December 31, 2016, as the operating results of USM Mexico would be insignificant to AAM's consolidated results for these periods.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

5. GOODWILL AND OTHER INTANGIBLE ASSETS

Goodwill The following table provides a reconciliation of changes in goodwill for the year ended December 31, 2018 and the year ended December 31, 2017:

	Driveline	Metal Forming	Powertrain	Casting	Consolidated
	(in millions)				
Balance as of January 1, 2017	$130.1	$23.9	$ —	$—	$ 154.0
Acquisition of MPG	—	515.3	471.6	405.5	1,392.4
Acquisition of USM Mexico	80.4	—	—	—	80.4
Foreign currency translation	0.6	19.7	7.2	—	27.5
Balance as of December 31, 2017	$211.1	$558.9	$ 478.8	$405.5	$ 1,654.3
Acquisition of MPG	—	0.9	—	—	0.9
Acquisition of USM Mexico	1.3	—	—	—	1.3
Impairment charge	—	—	(80.0)	(405.5)	(485.5)
Sale of business	—	—	(15.1)	—	(15.1)
Foreign currency translation	(0.3)	(7.4)	(6.4)	—	(14.1)
Balance as of December 31, 2018	$212.1	$552.4	$ 377.3	$—	$ 1,141.8

We conduct our annual goodwill impairment test in the fourth quarter of each year. In performing this test, we utilize a third-party valuation specialist to assist management in determining the fair value of our reporting units. Fair value of each reporting unit is estimated based on a combination of discounted cash flows and the use of pricing multiples derived from an analysis of comparable public companies multiplied against historical and/or anticipated financial metrics of each reporting unit. These calculations contain uncertainties as they require management to make assumptions including, but not limited to, market comparables, future cash flows of the reporting units, and appropriate discount and long-term growth rates. This fair value determination is categorized as Level 3 within the fair value hierarchy.

As a result of our test in the fourth quarter of 2018, we determined that the carrying values of our Powertrain and Casting reporting units were greater than their respective fair values. As such, we recorded non-cash goodwill impairment charges of $80.0 million associated with Powertrain and $405.5 million associated with Casting in 2018. These impairments were primarily the result of a general contraction of pricing multiples associated with capital intensive businesses such as the business conducted by our Powertrain and Casting reporting units, as well as a decline in the projected cash flows of these reporting units under our long-range plan completed in the fourth quarter of 2018, as compared to the long-range plan completed in the fourth quarter of 2017.

The decline in projected cash flows for the Powertrain reporting unit was primarily the result of decreased contribution margin on lower production volumes for certain passenger car programs that we support. The decline in projected cash flows for the Casting reporting unit was primarily the result of a projected increase in labor costs in an effort to address workforce shortages at certain locations, as well as an increase in other maintenance and capital requirements. At December 31, 2018, accumulated goodwill impairment losses were $485.5 million and there were no such accumulated goodwill impairment losses as of December 31, 2017.

In 2019, we plan to initiate a new global restructuring program to further streamline our business by consolidating our four existing business units into three business units. This activity will occur through the disaggregation of our Powertrain business unit, with a portion moving into our Driveline business unit and a portion moving into our Metal

Forming business unit. As a result of this activity, we expect to evaluate goodwill for impairment in the first quarter of 2019.

These goodwill impairment charges represented a triggering event for testing the recoverability of other long-lived assets, including property, plant and equipment and amortizable intangible assets associated with our Powertrain and Casting segments. No further impairments were identified.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

In the second quarter of 2018, we completed the sale of the aftermarket business associated with our Powertrain segment. We allocated $15.1 million of goodwill to the sold business, which represents the fair value of the business sold relative to the fair value of the associated reporting unit.

Other Intangible Assets As a result of our acquisitions of MPG and USM Mexico, AAM identified and recognized $1,254.8 million of intangible assets that are subject to amortization. These intangible assets were assigned useful lives ranging from five to 17 years and the weighted-average amortization period for all intangible assets recognized as a result of these acquisitions is 13.6 years from the dates of the acquisitions. The intangible assets were valued using primarily the relief from royalty method or the multi-period excess earnings method, both of which utilize significant unobservable inputs. These inputs are defined in the fair value hierarchy as Level 3 inputs, which require management to make estimates and assumptions regarding certain financial measures using forecasted or projected information.

The following table provides a reconciliation of the gross carrying amount and associated accumulated amortization for AAM's total intangible assets, which are all subject to amortization, as of December 31, 2018 and December 31, 2017:

	December 31, 2018			December 31, 2017		
	Gross Carrying Amount (in millions)	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Capitalized computer software	$38.0	$ (20.1)	$17.9	$35.6	$ (14.3)	$21.3
Customer platforms	952.2	(123.5)	828.7	952.2	(52.9)	899.3
Customer relationships	147.0	(16.5)	130.5	151.8	(7.3)	144.5
Technology and other	156.2	(22.2)	134.0	150.8	(9.3)	141.5
Total	$1,293.4	$ (182.3)	$1,111.1	$1,290.4	$ (83.8)	$1,206.6

As a result of the acquisition of MPG in 2017, we recorded intangible assets related to aftermarket customer relationships that were associated with the Powertrain aftermarket business that we sold in the second quarter of 2018. As such, during 2018 we reduced the gross carrying amount of our customer relationships by $4.8 million, and reduced the associated accumulated amortization by $0.3 million.

Amortization expense for our intangible assets was $99.4 million for the year ended December 31, 2018, $75.3 million for the year ended December 31, 2017, and $5.0 million for the year ended December 31, 2016. The increase in amortization expense in 2018, as compared to 2017, was primarily attributable to the impact of twelve months of amortization on the MPG intangibles in 2018, as compared to nine months of amortization in 2017. The increase in amortization expense in 2017, as compared to 2016, was attributable to the increase in intangible assets as a result of the MPG and USM Mexico acquisitions in 2017. Estimated amortization expense is approximately $100 million per year for each of the years 2019 through 2023.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

6. LONG-TERM DEBT AND LEASE OBLIGATIONS

Long-term debt, net consists of the following:

	December 31,	
	2018	2017
	(in millions)	
Revolving credit facility	$—	$—
Term Loan A Facility	83.8	92.5
Term Loan B Facility	1,511.2	1,526.8
7.75% Notes due 2019	100.0	200.0
6.625% Notes due 2022	450.0	550.0
6.50% Notes due 2027	500.0	500.0
6.25% Notes due 2026	400.0	—
6.25% Notes due 2025	700.0	700.0
6.25% Notes due 2021	—	400.0
Foreign credit facilities	127.1	53.2
Capital lease obligations	3.4	28.3
Debt	3,875.5	4,050.8
Less: Current portion of long-term debt	121.6	5.9
Long-term debt	3,753.9	4,044.9
Less: Debt issuance costs	67.1	75.6
Long-term debt, net	$3,686.8	$3,969.3

SENIOR SECURED CREDIT FACILITIES In 2017, Holdings and American Axle & Manufacturing, Inc. (AAM Inc.) entered into a credit agreement (the Credit Agreement). In connection with the Credit Agreement, Holdings, AAM, Inc. and certain of their restricted subsidiaries entered into a Collateral Agreement and Guarantee Agreement with the financial institutions party thereto as collateral agent and administrative agent. The Credit Agreement includes a $100.0 million term loan A facility (the Term Loan A Facility), a $1.55 billion term loan B facility (the Term Loan B Facility) and a $932 million multi-currency revolving credit facility (the Revolving Credit Facility, and together with the Term Loan A Facility and the Term Loan B Facility, the Senior Secured Credit Facilities). The proceeds of the Revolving Credit Facility are used for general corporate purposes. We incurred debt issuance costs of $54.0 million in 2017 related to the Senior Secured Credit Facilities.

As of December 31, 2018, we have prepaid $8.8 million of the outstanding principal on our Term Loan A Facility and $15.5 million of the outstanding principal on our Term Loan B Facility. These payments satisfy our obligation for principal payments under the Term Loan A Facility and Term Loan B Facility for the next four quarters. As a result, there are no amounts related to the Term Loan A Facility or Term Loan B Facility in the Current portion of long-term debt line item in our Consolidated Balance Sheet as of December 31, 2018.

At December 31, 2018, $894.7 million was available under the Revolving Credit Facility. This availability reflects a reduction of $37.3 million for standby letters of credit issued against the facility.

The Senior Secured Credit Facilities provide back-up liquidity for our foreign credit facilities. We intend to use the availability of long-term financing under the Senior Secured Credit Facilities to refinance any current maturities related to such debt agreements that are not otherwise refinanced on a long-term basis in their local markets, except where otherwise reclassified to Current portion of long-term debt on our Consolidated Balance Sheet.

6.25% NOTES DUE 2026 In the first quarter of 2018, we issued $400.0 million in aggregate principal amount of 6.25% senior notes due 2026 (the 6.25% Notes due 2026). Proceeds from the 6.25% Notes due 2026 were used primarily to fund the tender offer for the 6.25% senior notes due 2021 (the 6.25% Notes due 2021) described below. We paid debt issuance costs of $6.6 million during 2018 related to the 6.25% Notes due 2026.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

TENDER OFFER OF 6.25% NOTES DUE 2021 Also during the first quarter of 2018, we made a tender offer for our 6.25% Notes due 2021. Under this tender offer, we retired the $400.0 million of the 6.25% Notes due 2021 and expensed $2.5 million for the write-off of the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $8.0 million in tender premiums.

REDEMPTION OF 6.625% NOTES DUE 2022 In the second quarter of 2018, we voluntarily redeemed a portion of our 6.625% Notes due 2022. This resulted in a principal payment of $100.0 million, and a payment of $0.8 million in accrued interest. During 2018, we expensed $0.8 million for the write-off of a portion of the remaining unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing and $3.3 million for an early redemption premium.

REDEMPTION OF 7.75% NOTES DUE 2019 In the fourth quarter of 2018, we voluntarily redeemed a portion of our 7.75% Notes due 2019. This resulted in a principal payment of $100.0 million and $3.9 million in accrued interest. We also expensed approximately $0.3 million for the write-off of a portion of the unamortized debt issuance costs that we had been amortizing over the expected life of the borrowing, and approximately $4.5 million for an early redemption premium.

6.50% NOTES DUE 2027 AND 6.25% NOTES DUE 2025 During the first quarter of 2017, we issued $700.0 million in aggregate principal amount of 6.25% senior notes due 2025 and $500.0 million in aggregate principal amount of 6.50% senior notes due 2027 (the Notes). Proceeds from the Notes were used primarily to fund the cash consideration related to our acquisition of MPG, related fees and expenses, refinance certain existing indebtedness of MPG and borrowings under our previous revolving credit facility, which has been replaced by our new Revolving Credit Facility, together with borrowings under the Senior Secured Credit Facilities. We incurred debt issuance costs of $37.2 million in 2017 related to the Notes.

REPAYMENT OF MPG INDEBTEDNESS Upon our acquisition of MPG in 2017, we assumed approximately $1.9 billion of existing MPG indebtedness, which we repaid in its entirety on the date of acquisition. This indebtedness was comprised of approximately $0.2 billion of a Euro denominated term loan, approximately $1.0 billion of a U.S. dollar denominated term loan and approximately $0.7 billion of outstanding MPG bonds. Upon settlement of the debt, we paid approximately $24.6 million of accrued interest. In addition, we expensed $2.7 million of prepayment premiums related to the extinguishment of MPG's debt, which has been presented in the Debt refinancing and redemption costs line item within our Consolidated Statements of Operations for the year ended December 31, 2017.

LEASES We lease certain facilities and furniture under capital leases expiring at various dates. The gross asset cost of our capital leases was $10.5 million and $10.1 million at December 31, 2018 and 2017, respectively. The net book value included in property, plant and equipment, net on the balance sheet was $3.4 million and $5.3 million at December 31, 2018 and 2017, respectively. The weighted-average interest rate on these capital lease obligations at December 31, 2018 was 7.9%.

In the second quarter of 2018, we reached a settlement agreement related to a capital lease obligation that we had recognized as part of the acquisition of MPG, and as a result we recorded a gain of $15.6 million, which is recorded in the Gain on settlement of capital lease line item of the Consolidated Statements of Operations. During 2018, we paid $11.4 million related to this settlement agreement.

We also lease certain manufacturing machinery and equipment, commercial office and production facilities, vehicles and other assets under operating leases expiring at various dates. Future minimum payments under non-cancelable operating leases are as follows: $32.6 million in 2019, $24.3 million in 2020, $16.2 million in 2021, $12.6 million in

2022, and $7.5 million in 2023. Our total expense relating to operating leases was $36.9 million, $28.6 million and $26.9 million in 2018, 2017 and 2016, respectively.

FOREIGN CREDIT FACILITIES We utilize local currency credit facilities to finance the operations of certain foreign subsidiaries. These credit facilities, some of which are guaranteed by Holdings and/or AAM, Inc., expire at various dates through January 2021. At December 31, 2018, $127.1 million was outstanding under these facilities and an additional $78.2 million was available. At December 31, 2017, $53.2 million was outstanding under these facilities and an additional $159.7 million was available.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

DEBT MATURITIES Aggregate maturities of long-term debt are as follows (in millions):

2019	$152.2
2020	37.0
2021	91.5
2022	530.0
2023	15.5
Thereafter	3,049.3
Total	$3,875.5

INTEREST EXPENSE AND INVESTMENT INCOME Interest expense was $216.3 million in 2018, $195.6 million in 2017 and $93.4 million in 2016. The change in interest expense in 2018, as compared to 2017, is primarily attributable to additional interest expense incurred on borrowings outstanding under our Senior Secured Credit Facilities entered into in April 2017, as well as on $700.0 million aggregate principal amount of 6.25% senior notes due 2025 and $500.0 million in aggregate principal amount of 6.50% senior notes due 2027, which were issued in March 2017. The change in interest expense in 2017, as compared to 2016, primarily reflects the interest incurred on these additional borrowings in 2017.

We capitalized interest of $28.4 million in 2018, $18.3 million in 2017 and $6.5 million in 2016. The weighted-average interest rate of our long-term debt outstanding at December 31, 2018 was 5.9% as compared to 5.7% and 6.6% at December 31, 2017 and 2016, respectively.

Investment income was $2.0 million in 2018 and $2.9 million in 2017 and 2016. Investment income includes interest earned on cash and cash equivalents and realized and unrealized gains and losses on our short-term investments during the period.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

7. DERIVATIVES AND RISK MANAGEMENT

DERIVATIVE FINANCIAL INSTRUMENTS In the normal course of business, we are exposed to market risk associated with changes in foreign currency exchange rates and interest rates. To manage a portion of these inherent risks, we may purchase certain types of derivative financial instruments based on management's judgment of the trade-off between risk, opportunity and cost. We do not hold or issue derivative financial instruments for trading or speculative purposes. The impact of hedge ineffectiveness was not significant in any of the periods presented.

CURRENCY DERIVATIVE CONTRACTS From time to time, we use foreign currency forward and option contracts to reduce the effects of fluctuations in exchange rates relating to the Mexican Peso, Euro, Brazilian Real, British Pound Sterling, Thai Baht, Swedish Krona, Chinese Yuan, Polish Zloty and Indian Rupee. We had currency forward and option contracts outstanding with a notional amount of $185.8 million and $162.2 million at December 31, 2018 and 2017, respectively, that hedge our exposure to changes in foreign currency exchange rates for certain payroll expenses into the third quarter of 2021 and the purchase of certain direct and indirect inventory and other working capital items into the fourth quarter of 2019.

VARIABLE-TO-FIXED INTEREST RATE SWAP In 2017, we entered into a variable-to-fixed interest rate swap to reduce the variability of cash flows associated with interest payments on our variable rate debt. In the second quarter of 2018, we discontinued this variable-to-fixed interest rate swap, which was in an asset position of $5.6 million on the date that it was discontinued.

Also in the second quarter of 2018, we entered into a new variable-to-fixed interest rate swap to reduce the variability of cash flows associated with interest payments on our variable rate debt. As of December 31, 2018, we have the following notional amounts hedged in relation to our variable-to-fixed interest rate swap: $900.0 million through May 2019, $750.0 million through May 2020, $500.0 million through May 2021, $400.0 million through May 2022 and $400.0 million through May 2023.

The following table summarizes the reclassification of pre-tax derivative gains (losses) into net income (loss) from accumulated other comprehensive income (loss) for those derivative instruments designated as cash flow hedges under Accounting Standards Codification 815 - Derivatives and Hedging (ASC 815):

	Location of Gain (Loss) Reclassified into Net Income (Loss)	Gain (Loss) Reclassified During the Twelve Months Ended December 31,			Total of Financial Statement Line Item	Gain Expected to be Reclassified During the Next 12 Months
		2018	2017	2016	2018	
		(in millions)				
Currency forward contracts	Cost of Goods Sold	$(2.8)	$(5.3)	$(10.5)	$6,130.0	$ 0.4
Variable-to-fixed interest rate swap	Interest Expense	3.2	—	—	(216.3)	2.6

See Note 14 - Reclassifications Out of Accumulated Other Comprehensive Income (Loss) for amounts recognized in other comprehensive income (loss) during the years ended December 31, 2018, December 31, 2017 and December 31, 2016.

67

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table summarizes the amount and location of gains (losses) recognized in the Consolidated Statements of Operations for those derivative instruments not designated as hedging instruments under ASC 815:

	Location of Gain/(Loss) Recognized in Net Income (Loss)	Gain/(Loss) Recognized During the Twelve Months Ended December 31,			Total of Financial Statement Line Item
		2018	2017	2016	2018
		(in millions)			
Currency forward contracts	Cost of Goods Sold	$1.6	$2.7	$(5.8)	6,130.0
Currency forward contracts	Other Income (Expense), Net	1.4	(0.1)	(0.7)	(2.2)
Currency option contracts	Cost of Goods Sold	—	0.8	—	6,130.0

CONCENTRATIONS OF CREDIT RISK   In the normal course of business, we provide credit to customers. We periodically evaluate the creditworthiness of our customers and we maintain reserves for potential credit losses.

Sales to GM were approximately 41% of our consolidated net sales in 2018, 47% in 2017, and 67% in 2016. Accounts and other receivables due from GM were $353.7 million at year-end 2018 and $466.8 million at year-end 2017. Sales to FCA US LLC (FCA), were approximately 13% of our consolidated net sales in 2018, 14% in 2017 and 18% in 2016. Accounts and other receivables due from FCA were $176.0 million at year-end 2018 and $129.0 million at year-end 2017. No other single customer accounted for more than 10% of our consolidated net sales in any year presented.

In addition, our total GM postretirement cost sharing asset was $232.9 million as of December 31, 2018 and $265.5 million as of December 31, 2017. See Note 9 - Employee Benefit Plans for more detail on this cost sharing asset.

We diversify the concentration of invested cash and cash equivalents among different financial institutions and we monitor the selection of counterparties to other financial instruments to avoid unnecessary concentrations of credit risk.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

8. FAIR VALUE

The fair value accounting guidance defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." The definition is based on an exit price rather than an entry price, regardless of whether the entity plans to hold or sell the asset. This guidance also establishes a fair value hierarchy to prioritize inputs used in measuring fair value as follows:

- Level 1: Observable inputs such as quoted prices 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.

FINANCIAL INSTRUMENTS The estimated fair values of our financial assets and liabilities that are recognized at fair value on a recurring basis, using available market information and other observable data are as follows:

	December 31, 2018		December 31, 2017		
	Carrying Amount	Fair Value	Carrying Amount	Fair Value	Input
	(in millions)				
Balance Sheet Classification					
Cash equivalents	$44.0	$44.0	$72.8	$72.8	Level 1
Prepaid expenses and other					
Cash flow hedges - currency forward contracts	1.3	1.3	0.1	0.1	Level 2
Cash flow hedges - variable-to-fixed interest rate swap	0.9	0.9	1.3	1.3	Level 2
Nondesignated - currency forward contracts	0.6	0.6	—	—	Level 2
Other assets and deferred charges					
Cash flow hedges - currency forward contracts	0.4	0.4	0.2	0.2	Level 2
Cash flow hedges - variable-to-fixed interest rate swap	1.6	1.6	0.9	0.9	Level 2
Accrued expenses and other					
Cash flow hedges - currency forward contracts	0.8	0.8	6.0	6.0	Level 2
Cash flow hedges - variable-to-fixed interest rate swap	0.7	0.7	—	—	Level 2
Nondesignated - currency forward contracts	0.4	0.4	2.8	2.8	Level 2
Postretirement benefits and other long-term liabilities					
Cash flow hedges - currency forward contracts	0.9	0.9	2.6	2.6	Level 2
Cash flow hedges - variable-to-fixed interest rate swap	6.9	6.9	0.3	0.3	Level 2

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The carrying values of our cash, accounts receivable, accounts payable and accrued liabilities approximate their fair values due to the short-term maturities of these instruments. The carrying values of our borrowings under the foreign credit facilities approximate their fair values due to the frequent resetting of the interest rates. We estimated the fair value of our outstanding debt using available market information and other observable data to be as follows:

	December 31, 2018		December 31, 2017		
	Carrying Amount	Fair Value	Carrying Amount	Fair Value	Input
	(in millions)				
Revolving Credit Facility	$ —	$ —	$ —	$ —	Level 2
Term Loan A Facility	83.8	79.5	92.5	92.5	Level 2
Term Loan B Facility	1,511.2	1,420.6	1,526.8	1,528.7	Level 2
7.75% Notes due 2019	100.0	102.1	200.0	217.5	Level 2
6.625% Notes due 2022	450.0	444.4	550.0	570.2	Level 2
6.50% Notes due 2027	500.0	446.3	500.0	527.5	Level 2
6.25% Notes due 2026	400.0	358.0	—	—	Level 2
6.25% Notes due 2025	700.0	636.7	700.0	736.8	Level 2
6.25% Notes due 2021	—	—	400.0	410.0	Level 2

Investments in our defined benefit pension plans are stated at fair value. See Note 9 - Employee Benefit Plans for additional fair value disclosures of our pension plan assets.

LONG-LIVED ASSETS During the years ended December 31, 2018 and December 31, 2017, we recorded asset impairment charges as a result of restructuring actions initiated during these periods. See Note 3 - Restructuring and Acquisition-Related Costs for further detail.

The following table summarizes the impairments of long-lived assets measured at fair value on a nonrecurring basis subsequent to initial recognition:

Balance Sheet Classification	December 31, 2018		December 31, 2017	
	Fair Value	Asset Impairment	Fair Value	Asset Impairment
	(in millions)			
Property, plant and equipment, net	$ —	$ 28.8	$ —	$ 1.5
Other assets and deferred charges	—	1.2	—	—

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

9. EMPLOYEE BENEFIT PLANS

PENSION AND OTHER POSTRETIREMENT DEFINED BENEFIT PLANS We sponsor various qualified and non-qualified defined benefit pension plans for our eligible associates. We also maintain hourly and salaried benefit plans that provide postretirement medical, dental, vision and life insurance benefits (OPEB) to our eligible retirees and their dependents in the U.S.

Actuarial valuations of our benefit plans were made as of December 31, 2018 and 2017. The primary weighted-average assumptions used in the year-end valuation of our principal plans appear in the following table. The U.S. discount rates are based on an actuarial review of a hypothetical portfolio of long-term, high quality corporate bonds matched against the expected payment stream for each of our plans. The U.K. discount rates are based on hypothetical yield curves developed from corporate bond yield information within each regional market. The assumptions for expected return on plan assets are based on future capital market expectations for the asset classes represented within our portfolios and a review of long-term historical returns. The rates of increase in compensation and health care costs are based on current market conditions, inflationary expectations and historical information.

	Pension Benefits						OPEB		
	2018		2017		2016		2018	2017	2016
	U.S.	U.K.	U.S.	U.K.	U.S.	U.K.			
Discount rate	4.30%	2.95%	3.65%	2.75%	4.15%	2.70%	4.35%	3.65%	4.20%
Expected return on plan assets	7.50%	5.10%	7.45%	5.10%	7.50%	5.00%	N/A	N/A	N/A
Rate of compensation increase	4.00%	3.40%	4.00%	3.40%	4.00%	3.45%	4.00%	4.00%	4.00%

The accumulated benefit obligation for all defined benefit pension plans was $732.5 million and $807.9 million at December 31, 2018 and December 31, 2017, respectively. As of December 31, 2018, the accumulated benefit obligation for our underfunded defined benefit pension plans was $623.2 million, the projected benefit obligation was $623.2 million and the fair value of assets for these plans was $488.1 million.

AAM and GM share proportionally in the cost of OPEB for eligible retirees based on the length of service an employee had with AAM and GM. We have included in our OPEB obligation the amounts expected to be received pursuant to this agreement of $232.9 million and $265.5 million at December 31, 2018 and December 31, 2017, respectively. We have also recorded a corresponding asset for these amounts on our Consolidated Balance Sheet, $13.5 million that is classified as a current asset and $219.4 million that is classified as a noncurrent asset as of December 31, 2018.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table summarizes the changes in projected benefit obligations and plan assets and reconciles the funded status of the benefit plans, which is the net benefit plan liability:

	Pension Benefits		OPEB	
	December 31,		December 31,	
	2018	2017	2018	2017
	(in millions)			
Change in benefit obligation				
Benefit obligation at beginning of year	$824.0	$717.6	$613.3	$571.7
Service cost	2.6	3.6	0.4	0.3
Interest cost	27.3	28.9	12.4	13.3
Plan amendments	4.3	0.5	(2.3)	—
Actuarial loss (gain)	(63.2)	28.1	(43.8)	22.6
Change in GM portion of OPEB obligation	—	—	(32.6)	16.5
Participant contributions	0.3	0.3	—	—
Curtailments	(11.6)	—	(0.2)	—
Settlements	(0.6)	(14.3)	—	—
Benefit payments	(39.7)	(40.8)	(9.9)	(12.5)
MPG acquisition / business combination	—	82.3	—	1.4
Currency fluctuations	(9.4)	17.8	—	—
Other	0.5	—	—	—
Net change	(89.5)	106.4	(76.0)	41.6
Benefit obligation at end of year	$734.5	$824.0	$537.3	$613.3
Change in plan assets				
Fair value of plan assets at beginning of year	$702.2	$611.3	$—	$—
Actual return on plan assets	(31.0)	74.9	—	—
Employer contributions	4.4	4.4	9.9	12.5
Participant contributions	0.3	0.3	—	—
Benefit payments	(39.8)	(40.8)	(9.9)	(12.5)
Settlements	(0.6)	(14.3)	—	—
MPG acquisition / business combination	—	49.9	—	—
Currency fluctuations	(9.7)	16.5	—	—
Net change	(76.4)	90.9	—	—
Fair value of plan assets at end of year	$625.8	$702.2	$—	$—

Amounts recognized in our Consolidated Balance Sheets are as follows:

	Pension Benefits		OPEB	
	December 31,		December 31,	
	2018	2017	2018	2017
	(in millions)			
Noncurrent assets	$26.4	$18.9	$—	$—
Current liabilities	(6.5)	(6.0)	(30.8)	(30.3)
Noncurrent liabilities	(128.6)	(134.7)	(506.5)	(583.0)
Net liability	$(108.7)	$(121.8)	$(537.3)	$(613.3)

72

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Pre-tax amounts recorded in accumulated other comprehensive income (loss) (AOCI), not yet recognized in net periodic benefit cost (credit) as of December 31, 2018 and 2017, consists of:

	Pension Benefits		OPEB	
	December 31,		December 31,	
	2018	2017	2018	2017
	(in millions)			
Net actuarial gain (loss)	$(230.6)	$(237.4)	$31.3	$(13.5)
Net prior service credit (cost)	(1.2)	(0.1)	6.2	7.2
Total amounts recorded	$(231.8)	$(237.5)	$37.5	$(6.3)

The components of net periodic benefit cost (credit) are as follows:

	Pension Benefits			OPEB		
	2018	2017	2016	2018	2017	2016
	(in millions)					
Service cost	$2.6	$3.6	$2.9	$0.4	$0.3	$0.3
Interest cost	27.3	28.9	28.8	12.4	13.3	14.0
Expected asset return	(45.8)	(44.0)	(42.1)	—	—	—
Amortized actuarial loss	7.8	7.1	5.5	0.8	0.6	0.5
Amortized prior service credit	0.1	(0.1)	(0.1)	(2.7)	(2.7)	(2.7)
Curtailment loss (gain)	3.2	—	—	(0.6)	—	—
Settlement charge	0.4	3.2	—	—	—	—
Net periodic benefit cost (credit)	$(4.4)	$(1.3)	$(5.0)	$10.3	$11.5	$12.1

Our postretirement cost sharing asset from GM is measured on the same basis as the portion of the obligation to which it relates. The actuarial gains and losses related to the GM portion of the OPEB obligation are recognized immediately in the Consolidated Statements of Operations as an offset against the gains and losses related to the change in the corresponding GM postretirement cost sharing asset. These items are presented net in the change in benefit obligation and net periodic benefit cost components disclosed above. Remaining actuarial gains and losses are deferred and amortized over the expected future service periods of the active participants or the remaining life expectancy of the inactive participants.

The estimated net actuarial loss and prior service cost for the defined benefit pension plans that is expected to be amortized from AOCI into net periodic benefit credit in 2019 are $6.3 million and $0.1 million, respectively. The estimated net actuarial loss and prior service credit for the other defined benefit postretirement plans that is expected to be amortized from AOCI into net periodic benefit cost in 2019 are $0.1 million and $1.5 million, respectively.

For measurement purposes, a weighted average annual increase in the per-capita cost of covered health care benefits of 6.75% was assumed for 2019. The rate was assumed to decrease gradually to 5.00% by 2026 and to remain at that level thereafter. Health care cost trend rates may have a significant effect on the amounts reported for the health care plans. A 1.0% increase in the assumed health care cost trend rate would have increased total service and interest cost in 2018 and the postretirement obligation, net of GM cost sharing, at December 31, 2018 by $1.4 million and $31.0 million, respectively. A 1.0% decrease in the assumed health care cost trend rate would have decreased total service and interest cost in 2018 and the postretirement obligation, net of GM cost sharing, at December 31, 2018 by $1.2 million and $26.1 million, respectively.

The expected future pension and other postretirement benefits to be paid, net of GM cost sharing, for each of the next five years and in the aggregate for the succeeding five years thereafter are as follows: $60.7 million in 2019; $59.0 million in 2020; $60.1 million in 2021; $58.4 million in 2022; $58.9 million in 2023 and $305.6 million for

73

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

2024 through 2028. These amounts were estimated using the same assumptions that were used to measure our 2018 year-end pension and OPEB obligations and include an estimate of future employee service.

Contributions We contributed $2.2 million to our pension trusts in 2018. Due to the availability of our pre-funded pension balances (previous contributions in excess of prior required pension contributions) related to certain of our U.S. pension plans, we expect our regulatory pension funding requirements in 2019 to be approximately $2.2 million. We expect our cash payments, net of GM cost sharing, for OPEB to be approximately $17.7 million in 2019.

Pension plan assets The weighted-average asset allocations of our pension plan assets at December 31, 2018 and 2017 appear in the following table. The asset allocation for our plans is developed in consideration of the demographics of the plan participants and expected payment stream of the benefit obligation.

	U.S.			U.K.		
	2018	2017	Target Allocation	2018	2017	Target Allocation
Equity securities	31.9 %	42.7 %	30% - 55%	19.0 %	28.6 %	25% - 35%
Fixed income securities	57.5	47.5	40% - 60%	68.3	57.9	55% - 65%
Alternative assets	10.0	8.2	5% - 10%	10.5	11.2	5% - 15%
Cash	0.6	1.6	0% - 5%	2.2	2.3	0% - 5%
Total	100.0%	100.0%		100.0%	100.0%	

The primary objective of our pension plan assets is to provide a source of retirement income for participants and beneficiaries. Our primary financial objectives for the pension plan assets have been established in conjunction with a comprehensive review of our current and projected financial requirements. These objectives include having the ability to pay all future benefits and expenses when due, maintaining flexibility and minimizing volatility. These objectives are based on a long-term investment horizon.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Defined Benefit Pension Plan Assets   Investments in our defined benefit plans are stated at fair value. Level 1 assets are valued using quoted market prices that represent the asset value of the shares held by the trusts. The level 2 assets are investments in pooled funds, which are valued using a model to reflect the valuation of their underlying assets that are publicly traded with observable values. The fair values of our pension plan assets are as follows:

December 31, 2018

Asset Categories	Level 1	Level 2	Level 3	Total
	(in millions)			
Cash and Cash Equivalents	$3.5	$3.2	$ —	$6.7
Equity				
U.S. Large Cap	72.5	3.4	—	75.9
U.S. Small/Mid Cap	17.4	0.1	—	17.5
World Equity	79.5	5.3	—	84.8
Fixed Income Securities				
Government & Agencies	86.5	54.3	—	140.8
Corporate Bonds - Investment Grade	177.2	2.7	—	179.9
Corporate Bonds - Non-investment Grade	19.8	1.5	—	21.3
Emerging Market Debt	18.0	0.9	—	18.9
Other	6.9	8.9	—	15.8
Other				
Property Funds [a]	—	—	—	56.0
Liquid Alternatives Fund [a]	—	—	—	2.5
Structured Credit Fund [a]	—	—	—	5.7
Multi Strategy Hedge Fund [a]	—	—	—	—
Total Plan Assets	$481.3	$80.3	$ —	$625.8

December 31, 2017

Asset Categories	Level 1	Level 2	Level 3	Total
	(in millions)			
Cash and Cash Equivalents	$10.1	$2.8	$ —	$12.9
Equity				
U.S. Large Cap	92.0	6.3	—	98.3
U.S. Small/Mid Cap	44.0	1.2	—	45.2
World Equity	123.5	6.2	—	129.7
Fixed Income Securities				
Government & Agencies	81.3	46.4	—	127.7
Corporate Bonds - Investment Grade	150.5	4.2	—	154.7
Corporate Bonds - Non-investment Grade	24.8	1.8	—	26.6
Emerging Market Debt	25.2	1.2	—	26.4
Other	8.7	8.1	—	16.8
Other				
Property Funds [a]	—	—	—	52.4
Liquid Alternatives Fund [a]	—	—	—	4.6
Structured Credit Fund [a]	—	—	—	6.0
Multi Strategy Hedge Fund [a]	—	—	—	0.9
Total Plan Assets	$560.1	$78.2	$ —	$702.2

(a) In accordance with ASC 810-10, certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the Consolidated Balance Sheets.

DEFINED CONTRIBUTION PLANS   Most of our salaried and hourly U.S. associates, including certain UAW represented associates at our legacy U.S. locations, are eligible to participate in voluntary savings plans. Our maximum match is 50% of eligible associates' contribution up to 10% of their eligible salary. Matching contributions amounted to $12.4 million in 2018, $10.0 million in 2017 and $5.6 million in 2016. Certain U.S. associates are eligible annually to receive an additional AAM Retirement Contribution (ARC) benefit between 3% to 5% of eligible salary, depending on years of service. We made ARC contributions of $7.3 million, $7.1 million and $7.7 million in 2018, 2017 and 2016, respectively.

DEFERRED COMPENSATION PLAN Certain U.S. associates are eligible to participate in a non-qualified deferred compensation plan. Payments of $0.7 million, $0.6 million and $0.5 million have been made in 2018, 2017 and 2016, respectively, to eligible associates that have elected distributions. At December 31, 2018 and 2017, our deferred compensation liability was $5.8 million and $6.0 million, respectively.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

10. STOCK-BASED COMPENSATION

At December 31, 2018, we had stock-based awards outstanding under stock incentive compensation plans approved by our stockholders. Under these plans, shares have been authorized for issuance to our directors, officers and certain other associates in the form of unvested restricted stock units, performance shares or other awards that are based on the value of our common stock. Shares available for future grants at December 31, 2018 were 5.3 million. The current stock plan will expire in May 2028.

RESTRICTED STOCK UNITS We have awarded restricted stock units (RSUs). Compensation expense associated with RSUs settled in stock is recorded to paid-in-capital ratably over the three-year vesting period.

The following table summarizes activity relating to our RSUs:

	Number of Shares/Units	Weighted-Average Grant Date Fair Value per Share/Unit
	(in millions, except per share data)	
Outstanding at January 1, 2016	1.7	$ 18.19
Granted	0.9	15.41
Vested	(0.7)	13.23
Canceled	(0.1)	18.75
Outstanding at December 31, 2016	1.8	$ 18.70
Granted	1.3	18.09
Vested	(0.4)	19.70
Canceled	(0.2)	16.79
Outstanding at December 31, 2017	2.5	$ 18.35
Granted	1.7	14.57
Vested	(0.4)	24.16
Canceled	(0.3)	15.84
Outstanding at December 31, 2018	3.5	$ 16.00

As of December 31, 2018, unrecognized compensation cost related to unvested RSUs totaled $22.9 million. The weighted average period over which this cost is expected to be recognized is approximately two years. In 2018 and 2017, the total fair market value of RSUs vested was $6.1 million and $8.8 million, respectively.

PERFORMANCE SHARES As of December 31, 2018, we have performance shares (PS) outstanding under our 2012 Omnibus Incentive Plan. We grant performance shares payable in stock to officers which vest in full over a three-year performance period. In 2018, these grants were based equally on a total shareholder return (TSR) measure, and AAM's three-year cumulative free cash flow. In 2017 and 2016, these grants were based equally on a TSR measure and AAM's three-year adjusted earnings before interest, taxes, depreciation and amortization (EBITDA) margin. The TSR metric compares our TSR over the three-year performance period relative to the TSR of our pre-defined competitor peer group. Based on these EBITDA, free cash flow and relative TSR performance metrics, the number of performance shares that will vest will be between 0% and 200% of the grant date amount. Share price appreciation and dividends paid are measured over the performance period to determine TSR. As these awards are settled in stock, the compensation expense is recorded ratably over the vesting period to paid-in-capital.

77

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table summarizes activity relating to our performance shares:

	Number of Shares	Weighted Average Grant Date Fair Value per Share
EBITDA Awards	(in millions, except per share data)	
Outstanding at January 1, 2016	0.3	$ 32.27
Granted	0.2	28.04
Vested	—	—
Canceled	—	—
Outstanding at December 31, 2016	0.5	$ 30.19
Granted	0.2	39.01
Vested	(0.1)	27.73
Canceled	—	—
Outstanding at December 31, 2017	0.6	$ 33.91
Granted	—	—
Vested	(0.1)	37.67
Canceled	—	—
Outstanding at December 31, 2018	0.5	$ 34.49
TSR Awards		
Outstanding at January 1, 2016	0.3	$ 25.77
Granted	0.2	13.16
Vested	—	—
Canceled	—	—
Outstanding at December 31, 2016	0.5	$ 19.55
Granted	0.2	24.58
Vested	(0.1)	22.78
Canceled	—	—
Outstanding at December 31, 2017	0.6	$ 20.93
Granted	0.3	13.91
Vested	(0.1)	31.21
Canceled	—	—
Outstanding at December 31, 2018	0.8	$ 16.25
Free Cash Flow Awards		
Outstanding at January 1, 2018	—	$ —
Granted	0.3	14.28
Vested	—	—
Canceled	—	—
Outstanding at December 31, 2018	0.3	$ 14.28

We estimate the fair value of our EBITDA performance shares on the date of grant using our estimated three-year adjusted EBITDA margin, based on AAM's budget and long-range plan assumptions at that time, and adjust quarterly as necessary. We estimate the fair value of our TSR performance shares on the date of grant using the Monte Carlo simulation approach. The Monte Carlo simulation approach utilizes inputs on volatility assumptions, risk free rates, the price of the Company’s and our competitor peer group's common stock and their correlation as of each valuation date. Volatility assumptions are based on historical and implied volatility measurements. We estimate the fair value of our free cash flow performance shares on the date of grant using our estimated three-year cumulative free cash flow, based on AAM's budget and long-range plan assumptions at the time, and adjust quarterly as necessary.

Based on the current fair value, the estimated unrecognized compensation cost related to unvested PS totaled $10.8 million, as of December 31, 2018. The weighted-average period over which this cost is expected to be recognized is approximately two years.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

11. INCOME TAXES

The components of income (loss) before income taxes are as follows:

	2018	2017	2016
	(in millions)		
U.S. income (loss)	$(549.4)	$(37.1)	$90.0
Non - U.S. income	435.5	377.1	209.0
Total income (loss) before income taxes	$(113.9)	$340.0	$299.0

The following is a summary of the components of our provision for income taxes:

	2018	2017	2016
	(in millions)		
Current			
Federal	$(81.5)	$87.1	$0.4
State and local	3.2	(0.7)	—
Foreign	46.5	62.4	27.5
Total current	$(31.8)	$148.8	$27.9
Deferred			
Federal	$(5.1)	$(122.3)	$31.2
State and local	(6.7)	(17.0)	—
Foreign	(13.5)	(7.0)	(0.8)
Total deferred	(25.3)	(146.3)	30.4
Total income tax expense (benefit)	$(57.1)	$2.5	$58.3

The following is a reconciliation of income taxes calculated at the U.S. federal statutory income tax rate of 21% in 2018 and 35% in 2017 and 2016 to our provision for income taxes:

	2018	2017	2016
Federal statutory	$(23.9)	$119.0	$104.7
Foreign income taxes	(39.7)	(96.3)	(61.3)
Change in enacted tax rate	(8.3)	(107.6)	(0.7)
Transition tax	5.8	108.3	—
State and local	(12.8)	(6.3)	—
Tax credits	(20.1)	(8.8)	(3.3)
Valuation allowance	12.9	(6.1)	1.1
Goodwill impairment	21.6	—	—
Withholding taxes	6.6	4.7	1.2
U.S. tax on unremitted foreign earnings	4.1	(18.6)	0.6
Global intangible low-taxed income	8.0	—	—
Uncertain tax positions	(9.8)	13.5	1.6
Other	(1.5)	0.7	14.4
Effective income tax expense (benefit)	$(57.1)	$2.5	$58.3

In 2018, our income tax benefit is higher than the tax benefit computed at the U.S. federal statutory rate, and in 2017 and 2016 our income tax expense was lower than tax expense computed at the U.S. federal statutory rate, primarily due to the impact of favorable foreign tax rates, and the impact of income tax credits, partially offset by our inability to realize an income tax benefit for losses incurred in certain foreign and state jurisdictions. In addition,

80

during 2018, we finalized an advance pricing agreement in a foreign jurisdiction and settled various other matters, which resulted in an income tax benefit and a reduction of our liability for unrecognized tax benefits and related interest and penalties of approximately $20 million. We also recorded an income tax benefit of approximately $85 million in 2018 as a result of the goodwill impairment charge, partially offset by a discrete tax expense related to the sale of the aftermarket business associated with our Powertrain segment.

Our income tax expense and effective income tax rate for 2017 were lower than our income tax expense and effective income tax rate for 2016 primarily as a result of an increase in the proportionate share of earnings attributable to lower tax rate jurisdictions. In addition, subsequent to the acquisition of MPG, we re-evaluated our valuation allowance position with regard to jurisdictions in which consolidated state tax returns are filed and recorded an income tax benefit for the year ended December 31, 2017. This was partially offset by a discrete tax adjustment related to certain non-deductible transaction and acquisition-related costs. Additionally, we recognized a net tax benefit of approximately $20 million in 2017 related to accounting for the various provisions of the Tax Cuts and Jobs Act (the 2017 Act) under U.S. tax reform.

The 2017 Act was enacted on December 22, 2017 in the United States. The following is a summary of the key provisions of the 2017 Act:

- Reduces the U.S. federal statutory income tax rate for corporations from 35% to 21%
- Requires companies to pay a one-time transition tax (Transition Tax) on certain foreign earnings for which U.S. income tax was previously deferred
- Generally eliminates U.S. federal income taxes on dividends from foreign subsidiaries
- Requires a current inclusion in U.S. federal taxable income of certain earnings of controlled foreign corporations referred to as global intangible low-taxed income (GILTI)
- Eliminates the corporate alternative minimum tax (AMT) and changes how existing AMT credits can be realized
- Creates a new limitation on deductible net interest expense incurred by U.S. corporations
- Allows for immediate expensing of certain capital investments in the U.S. for the period September 27, 2017 through December 31, 2022
- Creates a new base erosion anti-abuse minimum tax (BEAT)
- Allows for a current deduction for a portion of foreign derived intangible income (FDII)

Following the enactment of the 2017 Act, the Securities and Exchange Commission issued Staff Accounting Bulletin (SAB) 118 to provide guidance on the accounting and reporting impacts of the 2017 Act. SAB 118 stated that companies should have accounted for changes related to the 2017 Act in the period of enactment if all information was available and the accounting could have been completed. In situations where companies did not have enough information to complete the accounting in the period of enactment, the company either 1) recorded an estimated provisional amount if the impact of the change was reasonably estimable; or 2) continued to apply the accounting guidance that was in effect immediately prior to the 2017 Act if the impact of the change could not be reasonably estimated. If estimated provisional amounts were recorded, SAB 118 provided a measurement period of no longer than one year during which companies should adjust those amounts as additional information became available.

In connection with our analysis of the impacts of the 2017 Act, we recorded estimated provisional amounts under SAB 118, resulting in a discrete net tax benefit of approximately $20 million for the year ended December 31, 2017. This net benefit primarily consisted of a benefit of approximately $110 million for the remeasurement of our net deferred tax liabilities as a result of the change in tax rate and a benefit of $18 million related to the reduction of a previously recorded deferred tax liability on certain foreign earnings, partially offset by expense of approximately $108 million related to the Transition Tax. These were provisional amounts at December 31, 2017 under SAB 118 because we had not yet completed our accounting for all of the enactment-date income tax effects of the 2017 Act. As of December 31, 2018, we have now completed our accounting for all of the enactment-date income tax effects of the 2017 Act.

Upon further analysis of the 2017 Act, and based on notices and regulations issued and proposed by the U.S. Department of Treasury and the Internal Revenue Service, we finalized our calculations of the Transition Tax liability during 2018 and adjusted our December 31, 2017 provisional amount by an additional tax expense of $5.8 million. Also, based on finalizing our calculations during 2018 related to the remeasurement of certain deferred tax assets and liabilities, we adjusted our December 31, 2017 provisional amount by an additional tax benefit of $8.3 million.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

These adjustments to our provisional amounts resulted in a net income tax benefit of $2.5 million, which is included as a component of Income tax expense (benefit) in our Consolidated Statement of Operations for the year ended December 31, 2018. Also as part of the completion of our SAB 118 analysis, the balance of the 2018 Transition Tax liability was determined to be satisfied with existing U.S. tax attributes resulting in no current income tax payable.

Finally, the 2017 Act subjects a U.S. shareholder to tax on GILTI earned by certain foreign subsidiaries. Under GAAP, we must make an accounting policy election to either recognize deferred taxes for temporary basis differences expected to reverse as GILTI in future years, or to provide for the tax expense related to GILTI in the year the tax is incurred as period expense. As we were evaluating the provisions of GILTI at December 31, 2017, we recorded no deferred amounts related to GILTI in 2017. We have elected to account for GILTI in the year the tax is incurred.

As of December 31, 2018, we have refundable income taxes of $9.8 million classified as Prepaid expenses and other on our Consolidated Balance Sheet. At December 31, 2017, we had refundable income taxes of $30.0 million, of which $9.6 million was classified as Prepaid expenses and other, and $20.4 million was classified as Other assets and deferred charges on our Consolidated Balance Sheet. We also have income taxes payable of $10.0 million and $11.6 million classified as Accrued expenses and other on our Consolidated Balance Sheets as of December 31, 2018 and 2017, respectively.

The approximate tax effect of each significant type of temporary difference and carryforward that results in a deferred tax asset or liability is as follows:

	December 31,	
	2018	2017
	(in millions)	
Deferred tax assets		
Employee benefits	$152.9	$155.9
Inventory	22.9	20.8
Net operating loss (NOL) carryforwards	166.0	172.4
Tax credit carryforwards	44.3	96.4
Capital allowance carryforwards	10.0	11.2
Fixed assets	4.7	5.1
Deferred revenue	7.4	14.7
Capitalized expenditures	25.9	35.4
Other	35.2	26.9
Valuation allowances	(183.3)	(180.4)
Deferred tax assets	$286.0	$358.4
Deferred tax liabilities		
U.S. tax on unremitted foreign earnings	(6.5)	(2.4)
Other intangible assets	(176.0)	(281.6)
Fixed assets	(141.9)	(120.3)
Other	(8.7)	(18.7)
Deferred tax liabilities	$(333.1)	$(423.0)
Deferred tax asset (liability), net	$(47.1)	$(64.6)

82

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Deferred tax assets and liabilities recognized in our Consolidated Balance Sheets are as follows:

	December 31,	
	2018	2017
	(in millions)	
U.S. federal and state deferred tax liability, net	$(76.6)	$(79.4)
Other foreign deferred tax asset, net	29.5	14.8
Deferred tax liability, net	$(47.1)	$(64.6)

DEFERRED INCOME TAX ASSETS AND LIABILITIES AND VALUATION ALLOWANCES The deferred income tax assets and liabilities summarized above reflect the impact of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the basis of such assets and liabilities as measured by tax laws. ASC 740 - Income Taxes states that companies must measure deferred tax amounts at the rate at which they are expected to be realized.

As of December 31, 2018 and December 31, 2017, we had deferred tax assets from domestic and foreign net operating loss and tax credit carryforwards of $220.3 million and $280.0 million, respectively. Approximately $106.0 million of the deferred tax assets at December 31, 2018 relate to NOL and tax credits that can be carried forward indefinitely with the remainder expiring between 2019 and 2038.

Accounting guidance for income taxes requires a deferred tax liability to be established for the U.S. tax impact of undistributed earnings of foreign subsidiaries unless it can be shown that these earnings will be permanently reinvested outside the U.S. We have provided deferred income taxes for the estimated U.S. federal income tax, foreign income tax, and applicable withholding taxes on earnings of subsidiaries expected to be distributed. As a result of the enactment of the 2017 Act in the fourth quarter of 2017, we recognized a one-time transition tax expense related to certain foreign earnings for which U.S. tax had been previously deferred, and remeasured our deferred tax liability related to foreign earnings. In general, the 2017 Act allows for a dividends received deduction for the repatriation of foreign earnings to the U.S. and, as such, no additional U.S. federal income tax is expected.

In accordance with the accounting guidance for income taxes, we review the likelihood that we will realize the benefit of deferred tax assets and estimate whether recoverability of our deferred tax assets is “more likely than not,” based on forecasts of taxable income in the related tax jurisdictions. In determining the requirement for a valuation allowance, the historical results, projected future operating results based upon approved business plans, eligible carry forward periods, and tax planning opportunities are considered, along with other relevant positive and negative evidence. If, based upon available evidence, it is more likely than not the deferred tax assets will not be realized, a valuation allowance is recorded.

During 2018, we recorded a net tax expense of $16.0 million resulting from net losses in certain foreign and U.S. state and local jurisdictions with no corresponding tax benefit due to increases in our valuation allowance. This was partially offset by a net tax benefit of $3.1 million resulting from changes in determinations relating to the potential realization of deferred tax assets and the resulting reversal of a valuation allowance in a foreign jurisdiction. In 2016, we released a valuation allowance in China resulting in a $5.4 million tax benefit in our provision for income taxes.

As of December 31, 2018 and December 31, 2017, we have a valuation allowance of $183.3 million and $180.4 million, respectively, related to net deferred tax assets in several foreign jurisdictions and U.S. state and local jurisdictions.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

UNRECOGNIZED INCOME TAX BENEFITS To the extent that we have uncertain tax positions, a determination is made as to whether such positions meet the “more likely than not” threshold. This threshold must be met in order to record any tax benefit and, to the extent that an uncertain tax position meets the "more likely than not" threshold, we have measured and recorded the highest probable benefit, and have established appropriate reserves for benefits that exceed the amount likely to be sustained upon examination.

A reconciliation of the beginning and ending amounts of unrecognized income tax benefits is as follows:

	Unrecognized Income Tax Benefits	Interest and Penalties
	(in millions)	
Balance at January 1, 2016	$41.6	$ 6.9
Increase in prior year tax positions	0.4	2.0
Decrease in prior year tax positions	(2.5)	(0.5)
Increase in current year tax positions	9.3	—
Settlement	(17.3)	(5.6)
Foreign currency remeasurement adjustment	(3.3)	(0.3)
Balance at December 31, 2016	$28.2	$ 2.5
Increase in prior year tax positions	1.5	3.1
Decrease in prior year tax positions	(0.4)	—
Increase in current year tax positions	10.5	—
Increase from acquisitions	8.3	1.9
Settlement	(1.2)	(0.1)
Foreign currency remeasurement adjustment	0.8	0.1
Balance at December 31, 2017	$47.7	$ 7.5
Increase in prior year tax positions	5.6	3.5
Decrease in prior year tax positions	(16.9)	(2.5)
Increase in current year tax positions	6.0	—
Settlement	(3.7)	(1.6)
Balance at December 31, 2018	$38.7	$ 6.9

At December 31, 2018 and December 31, 2017, we had $38.7 million and $47.7 million of gross unrecognized income tax benefits, respectively. The decrease in unrecognized income tax benefits at December 31, 2018, as compared to December 31, 2017, is primarily attributable to finalizing an advance pricing agreement in a foreign jurisdiction, which resulted in a reduction of our liability for unrecognized tax benefits and related interest and penalties of approximately $20.0 million.

In January 2016, we completed negotiations with the Mexican tax authorities to settle 2007 through 2009 transfer pricing audits. We made a payment of $22.9 million in January 2016 that fully satisfied our obligations for transfer pricing issues for tax years 2007 through 2013. Including these settlements, we made payments of approximately $28 million in 2016 to the Mexican tax authorities related to transfer pricing matters.

In 2018, 2017, and 2016, we recognized expense of $1.0 million, $3.1 million and $1.5 million, respectively, related to interest and penalties in Income tax expense (benefit) on our Consolidated Statements of Operations. We have a liability of $6.9 million and $7.5 million related to the estimated future payment of interest and penalties at December 31, 2018 and 2017, respectively. The amount of the unrecognized income tax benefits, including interest and penalties, as of December 31, 2018 that, if recognized, would affect the effective tax rate is $42.4 million.

We operate in multiple jurisdictions throughout the world and the income tax returns of several subsidiaries in various tax jurisdictions are currently under examination. We are currently under a U.S. federal income tax examination for our legacy AAM business for the years 2014 and 2015, and are under a U.S. federal income tax examination for our legacy MPG business for 2015. U.S. federal income tax examinations for the years 2012 and 2013 were settled in January 2017, resulting in no cash payment or reduction in our liability for unrecognized

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

income tax benefits. We are no longer subject to U.S. federal, state and local, or non-U.S. income tax examinations by tax authorities for years prior to 2012.

During the next 12 months, we may finalize another advance pricing agreement in a foreign jurisdiction, which could result in a cash payment to the relevant tax authorities and a reduction of our liability for unrecognized tax benefits and related interest and penalties. Although it is difficult to estimate with certainty the amount of any audit settlement, we do not expect any potential settlement to be materially different from what we have recorded in unrecognized tax benefits. Based on the status of ongoing tax audits, and the protocol of finalizing audits by the relevant tax authorities, it is not possible to estimate the impact of changes, if any, to previously recorded uncertain tax positions. We will continue to monitor the progress and conclusions of all ongoing audits and other communications with tax authorities and will adjust our estimated liability as necessary.

12. EARNINGS (LOSS) PER SHARE (EPS)

We present EPS using the two-class method. This method allocates undistributed earnings between common shares and non-vested share based payment awards that entitle the holder to nonforfeitable dividend rights. Our participating securities include non-vested restricted stock units.

The following table sets forth the computation of our basic and diluted EPS available to shareholders of common stock (excluding participating securities):

	2018	2017	2016
	(in millions, except per share data)		
Numerator			
Net income (loss) attributable to AAM	$(57.5)	$337.1	$240.7
Less: Net income allocated to participating securities	—	(7.5)	(5.5)
Net income (loss) attributable to common shareholders - Basic and Dilutive	$(57.5)	$329.6	$235.2
Denominators			
Basic common shares outstanding -			
Weighted-average shares outstanding	115.0	104.6	78.2
Less: Participating securities	(3.4)	(2.3)	(1.8)
Weighted-average common shares outstanding	111.6	102.3	76.4
Effect of dilutive securities -			
Dilutive stock-based compensation	—	0.5	0.5
Diluted shares outstanding -			
Adjusted weighted-average shares after assumed conversions	111.6	102.8	76.9
Basic EPS	$(0.51)	$3.22	$3.08
Diluted EPS	$(0.51)	$3.21	$3.06

Basic and diluted loss per share are the same in 2018 because the effect of 0.8 million dilutive stock options and performance shares would have been antidilutive.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

13. COMMITMENTS AND CONTINGENCIES

PURCHASE COMMITMENTS Obligated purchase commitments for capital expenditures and related project expenses were approximately $287.2 million at December 31, 2018 and $356.4 million at December 31, 2017.

LEGAL PROCEEDINGS We are involved in various legal proceedings incidental to our business. Although the outcome of these matters cannot be predicted with certainty, we do not believe that any of these matters, individually or in the aggregate, will have a material effect on our financial condition, results of operations or cash flows.

We are subject to various federal, state, local and foreign environmental and occupational safety and health laws, regulations and ordinances, including those regulating air emissions, water discharge, waste management and environmental cleanup. We will continue to closely monitor our environmental conditions to ensure that we are in compliance with all laws, regulations and ordinances. We have made, and anticipate continuing to make, capital and other expenditures to comply with environmental requirements, including recurring administrative costs. Such expenditures were not significant during 2018, 2017 and 2016.

ENVIRONMENTAL OBLIGATIONS Due to the nature of our manufacturing operations, we have legal obligations to perform asset retirement activities pursuant to federal, state, and local requirements. The process of estimating environmental liabilities is complex. Significant uncertainty may exist related to the timing and method of the settlement of these obligations. Therefore, these liabilities are not reasonably estimable until a triggering event occurs that allows us to estimate a range and assess the probabilities of potential settlement dates and the potential methods of settlement.

In the future, we will update our estimated costs and potential settlement dates and methods and their associated probabilities based on available information. Any update may change our estimate and could result in a material adjustment to this liability.

PRODUCT WARRANTIES We record a liability for estimated warranty obligations at the dates our products are sold. These estimates are established using sales volumes and internal and external warranty data where there is no payment history and historical information about the average cost of warranty claims for customers with prior claims. We estimate our costs based on the contractual arrangements with our customers, existing customer warranty terms and internal and external warranty data, which includes a determination of our warranty claims and actions taken to improve product quality and minimize warranty claims. We continuously evaluate these estimates and our customers' administration of their warranty programs. We closely monitor actual warranty claim data and adjust the liability, as necessary, on a quarterly basis.

During 2018 and 2017, we also made adjustments to our warranty accrual to reflect revised estimates regarding our projected future warranty obligations. The following table provides a reconciliation of changes in the product warranty liability:

	December 31,	
	2018	2017
	(in millions)	
Beginning balance	$49.5	$42.9
Accruals	19.1	20.6
Settlements	(10.7)	(5.6)
Adjustments to prior period accruals	0.4	(9.2)
Foreign currency translation	(0.6)	0.8
Ending balance	$57.7	$49.5

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

14. RECLASSIFICATIONS OUT OF ACCUMULATED OTHER COMPREHENSIVE INCOME (LOSS)

Reclassification adjustments and other activity impacting accumulated other comprehensive income (loss) (AOCI) during the year ended December 31, 2018, December 31, 2017 and December 31, 2016 are as follows (in millions):

	Defined Benefit Plans	Foreign Currency Translation Adjustments	Unrecognized Loss on Cash Flow Hedges	Total
Balance at January 1, 2016	$(223.9)	$ (119.2)	$ (13.4)	$(356.5)
Other comprehensive loss before reclassifications	(27.5)	(3.2)	(20.8)	(51.5)
Income tax effect of other comprehensive loss before reclassifications	5.8	—	—	5.8
Amounts reclassified from accumulated other comprehensive loss into net income	3.2 (a)	—	10.5 (b)	13.7
Income taxes reclassified into net income	(1.1)	—	—	(1.1)
Net current period other comprehensive loss	(19.6)	(3.2)	(10.3)	(33.1)
Balance at December 31, 2016	$(243.5)	$ (122.4)	$ (23.7)	$(389.6)
Other comprehensive income (loss) before reclassifications	(20.1)	88.3	12.0	80.2
Income tax effect of other comprehensive income (loss) before reclassifications	5.5	—	(0.2)	5.3
Amounts reclassified from accumulated other comprehensive loss into net income	8.2 (a)	—	5.3 (b)	13.5
Income taxes reclassified into net income	(2.1)	—	—	(2.1)
Net current period other comprehensive income (loss)	(8.5)	88.3	17.1	96.9
Balance at December 31, 2017	$(252.0)	$ (34.1)	$ (6.6)	$(292.7)
Other comprehensive income (loss) before reclassifications	41.9	(62.7)	5.4	(15.4)
Income tax effect of other comprehensive income (loss) before reclassifications	(8.4)	—	(0.2)	(8.6)
Amounts reclassified from accumulated other comprehensive loss into net income	6.0 (a)	0.2	(0.4) (b)	5.8
Income taxes reclassified into net income	(1.4)	—	0.7	(0.7)
Net current period other comprehensive income (loss)	38.1	(62.5)	5.5	(18.9)
Balance at December 31, 2018	$(213.9)	$ (96.6)	$ (1.1)	$(311.6)

(a) The amount reclassified from AOCI included $6.0 million in cost of goods sold (COGS) for the year ended December 31, 2018, $8.7 million in COGS and $(0.5) million in SG&A for the year ended December 31, 2017 and $4.4 million in COGS and $(1.2) million in SG&A for the year ended December 31, 2016.

(b) The amounts reclassified from AOCI included $2.8 million in COGS and $(3.2) million in interest expense for the year ended December 31, 2018, $5.3 million in COGS for the year ended December 31, 2017, and $10.5 million in COGS for the year ended December 31, 2016.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

15. SEGMENT AND GEOGRAPHIC INFORMATION

Our business is organized into four business units, each representing a reportable segment under ASC 280 Segment Reporting. The four segments are Driveline, Metal Forming, Powertrain, and Casting. The results of each segment are regularly reviewed by the chief operating decision maker to assess the performance of the segment and make decisions regarding the allocation of resources to the segments.

Our product offerings by segment are as follows:

- Driveline products consist primarily of axles, driveshafts, power transfer units, rear drive modules, transfer cases, and electric and hybrid driveline products and systems for light trucks, sport utility vehicles (SUVs), crossover vehicles, passenger cars and commercial vehicles;
- Metal Forming products consist primarily of axle and transmission shafts, ring and pinion gears, differential gears, transmission gears, and suspension components for Original Equipment Manufacturers and Tier 1 automotive suppliers;
- The Powertrain segment products consist primarily of transmission module and differential assemblies, transmission valve bodies, connecting rod forging and assemblies, torsional vibration dampers, and variable valve timing products for Original Equipment Manufacturers and Tier 1 automotive suppliers; and
- The Casting segment produces both thin wall castings and high strength ductile iron casting, as well as differential cases, steering knuckles, control arms, brackets, and turbo charger housings for the global light vehicle, commercial and industrial markets.

We use Segment Adjusted EBITDA as the measure of earnings to assess the performance of each segment and determine the resources to be allocated to the segments. Segment Adjusted EBITDA is defined as earnings before interest expense, income taxes, depreciation and amortization for our reportable segments, excluding the impact of restructuring and acquisition-related costs, debt refinancing and redemption costs, gain on the sale of a business, goodwill impairments and non-recurring items.

	Year Ended December 31, 2018					
	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$4,254.8	$1,515.4	$ 1,128.5	$919.8	$ —	$7,818.5
Less: Intersegment sales	0.8	418.0	13.8	115.5	—	548.1
Net external sales	$4,254.0	$1,097.4	$ 1,114.7	$804.3	$ —	$7,270.4
Segment adjusted EBITDA	$660.7	$285.9	$ 163.7	$73.6	$ —	$1,183.9
Depreciation and amortization	$211.7	$118.6	$ 120.9	$77.6	$ —	$528.8
Capital Expenditures	$283.3	$102.2	$ 97.6	$41.6	$ —	$524.7
Total Assets	$2,463.5	$2,143.1	$ 1,679.6	$664.7	$ 559.8	$7,510.7

Year Ended December 31, 2017

	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$4,040.8	$1,242.6	$ 816.5	$676.4	$ —	$6,776.3
Less: Intersegment sales	1.1	412.6	9.9	86.7	—	510.3
Net external sales	$4,039.7	$830.0	$ 806.6	$589.7	$ —	$6,266.0
Segment adjusted EBITDA	$692.3	$232.3	$ 131.1	$47.0	$ —	$1,102.7
Depreciation and amortization	$189.4	$95.1	$ 81.7	$50.8	$ 11.5	$428.5
Capital Expenditures	$296.9	$65.2	$ 84.7	$30.9	$ —	$477.7
Total Assets	$2,303.0	$2,175.3	$ 1,824.0	$984.3	$ 596.2	$7,882.8

Year Ended December 31, 2016

	Driveline	Metal Forming	Powertrain	Casting	Corporate and Eliminations	Total
Sales	$3,735.6	$ 552.2	$ —	$ —	$ —	$4,287.8
Less: Intersegment sales	4.9	334.9	—	—	—	339.8
Net external sales	$3,730.7	$ 217.3	$ —	$ —	$ —	$3,948.0
Segment adjusted EBITDA	$515.8	$ 103.6	$ —	$ —	$ —	$619.4
Depreciation and amortization	$160.8	$ 24.1	$ —	$ —	$ 16.9	$201.8
Capital Expenditures	$159.0	$ 22.9	$ —	$ —	$ 41.1	$223.0
Total Assets	$2,183.9	$ 410.3	$ —	$ —	$ 828.1	$3,422.3

Assets included in the Corporate and Eliminations column of the tables above represent AAM corporate assets, as well as eliminations of intercompany assets.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

The following table represents a reconciliation of Segment Adjusted EBITDA to consolidated income (loss) before income taxes for the years ended December 31, 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
Segment adjusted EBITDA	$1,183.9	$1,102.7	$619.4
Interest expense	(216.3)	(195.6)	(93.4)
Depreciation and amortization	(528.8)	(428.5)	(201.8)
Goodwill impairment	(485.5)	—	—
Restructuring and acquisition-related costs	(78.9)	(110.7)	(26.2)
Pension settlement	—	(3.2)	—
Gain on sale of business	15.5	—	—
Gain on settlement of capital lease	15.6	—	—
Acquisition-related fair value inventory adjustment	—	(24.9)	—
Impact of change in accounting principle	—	3.7	—
Debt refinancing and redemption costs	(19.4)	(3.5)	—
Other	—	—	1.0
Income (loss) before income taxes	$(113.9)	$340.0	$299.0

Financial information relating to our operations by geographic area is presented in the following table. Net sales are attributed to countries based upon location of production. We have retrospectively reclassified 2017 and 2016 to present net sales based upon location of production as these amounts were previously presented based upon location of customer. Long-lived assets exclude deferred income taxes.

	December 31,		
	2018	2017	2016
	(in millions)		
Net sales			
United States	$3,293.2	$2,742.7	$1,321.7
Mexico	2,547.1	2,456.1	2,178.7
South America	129.7	133.2	98.2
China	373.4	318.6	137.3
All other Asia	304.9	193.9	128.6
Europe	622.1	421.5	83.5
Total net sales	$7,270.4	$6,266.0	$3,948.0
Long-lived assets			
United States	$3,612.3	$4,253.8	$831.0
Mexico	1,117.9	993.8	529.2
South America	70.6	61.4	61.5
China	177.6	180.9	129.8
All other Asia	101.0	103.4	92.0
Europe	356.0	307.4	111.7
Total long-lived assets	$5,435.4	$5,900.7	$1,755.2

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

16. UNAUDITED QUARTERLY FINANCIAL DATA

	Three Months Ended,			
	March 31	June 30	September 30	December 31
	(in millions, except per share data)			
2018				
Net sales	$1,858.4	$1,900.9	$1,817.0	$1,694.1
Gross profit	316.3	331.4	267.4	225.3
Net income (loss)	89.5	151.3	64.0	(361.6)(2)
Net income (loss) attributable to AAM	89.4	151.1	63.8	(361.8)(2)
Basic EPS (1)	$0.78	$1.31	$0.55	$(3.24)(2)
Diluted EPS (1)	$0.78	$1.30	$0.55	$(3.24)(2)
2017				
Net sales	$1,049.9	$1,757.8	$1,724.4	$1,733.9
Gross profit	210.7	316.4	297.7	294.3
Net income	78.4	66.3	86.3	106.5
Net income attributable to AAM	78.4	66.2	86.2	106.3
Basic EPS (1)	$1.00	$0.59	$0.76	$0.93
Diluted EPS (1)	$0.99	$0.59	$0.75	$0.93

(1) Full year basic and diluted EPS will not necessarily agree to the sum of the four quarters because each quarter is a separate calculation.

(2) In the fourth quarter of 2018, we recorded a goodwill impairment charge of approximately $400 million, net of tax, associated with the annual goodwill impairment test for our Powertrain and Casting segments. See Note 5 - Goodwill and Other Intangible Assets for further detail.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

17. SUPPLEMENTAL GUARANTOR CONDENSED CONSOLIDATING FINANCIAL STATEMENTS

Holdings has no significant assets other than its 100% ownership in AAM, Inc. and Metaldyne Performance Group, Inc. (MPG Inc.), and no direct subsidiaries other than AAM, Inc. and MPG Inc. The 7.75% Notes, 6.625% Notes, 6.50% Notes, 6.25% Notes (due 2026) and 6.25% Notes (due 2025) are senior unsecured obligations of AAM Inc.; all of which are fully and unconditionally guaranteed, on a joint and several basis, by Holdings, MPG Inc., and substantially all domestic subsidiaries of AAM, Inc. and MPG Inc.

These Condensed Consolidating Financial Statements are prepared under the equity method of accounting whereby the investments in subsidiaries are recorded at cost and adjusted for the parent's share of the subsidiaries' cumulative results of operations, capital contributions and distributions, and other equity changes.

Condensed Consolidating Statements of Operations

2018	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
	(in millions)					
Net sales						
External	$—	$1,088.4	$ 2,204.8	$ 3,977.2	$—	$ 7,270.4
Intercompany	—	4.2	294.8	41.9	(340.9)	—
Total net sales	—	1,092.6	2,499.6	4,019.1	(340.9)	7,270.4
Cost of goods sold	—	1,033.8	2,249.0	3,188.1	(340.9)	6,130.0
Gross profit	—	58.8	250.6	831.0	—	1,140.4
Selling, general and administrative expenses	—	210.3	81.4	94.0	—	385.7
Amortization of intangible assets	—	5.1	90.8	3.5	—	99.4
Goodwill impairment	—	—	485.5	—	—	485.5
Restructuring and acquisition-related costs	—	34.2	40.4	4.3	—	78.9
Gain on sale of business	—	—	(15.5)	—	—	(15.5)
Operating income (loss)	—	(190.8)	(432.0)	729.2	—	106.4
Non-operating income (expense), net	—	(260.6)	15.6	24.7	—	(220.3)
Income (loss) before income taxes	—	(451.4)	(416.4)	753.9	—	(113.9)
Income tax expense (benefit)	—	(34.2)	(55.4)	32.5	—	(57.1)
Earnings (loss) from equity in subsidiaries	(57.5)	(168.3)	168.0	—	57.8	—
Net income (loss) before royalties	(57.5)	(585.5)	(193.0)	721.4	57.8	(56.8)
Royalties	—	276.6	3.4	(280.0)	—	—
Net income (loss) after royalties	(57.5)	(308.9)	(189.6)	441.4	57.8	(56.8)
Net income attributable to noncontrolling interests	—	—	—	(0.7)	—	(0.7)
Net income (loss) attributable to AAM	$(57.5)	$(308.9)	$ (189.6)	$ 440.7	$57.8	$ (57.5)
Other comprehensive income (loss), net of tax	(18.9)	9.4	(51.6)	(44.2)	86.4	(18.9)
Comprehensive income (loss)	$(76.4)	$(299.5)	$ (241.2)	$ 396.5	$144.2	$ (76.4)

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

2017	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Net sales						
External	$—	$1,074.6	$ 1,668.2	$ 3,523.2	$—	$ 6,266.0
Intercompany	—	2.4	285.2	27.5	(315.1)	—
Total net sales	—	1,077.0	1,953.4	3,550.7	(315.1)	6,266.0
Cost of goods sold	—	996.6	1,730.9	2,734.5	(315.1)	5,146.9
Gross profit	—	80.4	222.5	816.2	—	1,119.1
Selling, general and administrative expenses	—	223.2	63.9	103.0	—	390.1
Amortization of intangible assets	—	5.6	67.5	2.2	—	75.3
Restructuring and acquisition-related costs	—	105.2	1.9	3.6	—	110.7
Operating income (loss)	—	(253.6)	89.2	707.4	—	543.0
Non-operating income (expense), net	—	(210.0)	18.6	(11.6)	—	(203.0)
Income (loss) before income taxes	—	(463.6)	107.8	695.8	—	340.0
Income tax expense (benefit)	—	194.1	(247.0)	55.4	—	2.5
Earnings (loss) from equity in subsidiaries	337.1	289.5	76.1	—	(702.7)	—
Net income (loss) before royalties	337.1	(368.2)	430.9	640.4	(702.7)	337.5
Royalties	—	317.3	3.6	(320.9)	—	—
Net income (loss) after royalties	337.1	(50.9)	434.5	319.5	(702.7)	337.5
Net income attributable to noncontrolling interests	—	—	—	(0.4)	—	(0.4)
Net income (loss) attributable to AAM	$ 337.1	$(50.9)	$ 434.5	$ 319.1	$(702.7)	$ 337.1
Other comprehensive income (loss), net of tax	96.9	40.1	87.3	102.6	(230.0)	96.9
Comprehensive income (loss)	$ 434.0	$(10.8)	$ 521.8	$ 421.7	$(932.7)	$ 434.0

2016	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Net sales						
External	$—	$1,109.6	$ 212.2	$ 2,626.2	$—	$ 3,948.0
Intercompany	—	8.3	241.6	16.1	(266.0)	—
Total net sales	—	1,117.9	453.8	2,642.3	(266.0)	3,948.0
Cost of goods sold	—	1,063.8	375.4	2,048.7	(266.0)	3,221.9
Gross profit	—	54.1	78.4	593.6	—	726.1
Selling, general and administrative expenses	—	243.6	—	70.6	—	314.2
Amortization of intangible assets	—	5.0	—	—	—	5.0
Restructuring and acquisition-related costs	—	21.1	—	5.1	—	26.2
Operating income (loss)	—	(215.6)	78.4	517.9	—	380.7
Non-operating income (expense), net	—	(96.6)	10.9	4.0	—	(81.7)
Income (loss) before income taxes	—	(312.2)	89.3	521.9	—	299.0
Income tax expense	—	27.4	4.2	26.7	—	58.3
Earnings (loss) from equity in subsidiaries	240.7	267.4	(16.7)	—	(491.4)	—
Net income (loss) before royalties	240.7	(72.2)	68.4	495.2	(491.4)	240.7
Royalties	—	312.9	—	(312.9)	—	—
Net income after royalties	240.7	240.7	68.4	182.3	(491.4)	240.7
Net income attributable to noncontrolling interests	—	—	—	—	—	—
Net income attributable to AAM	$ 240.7	$240.7	$ 68.4	$ 182.3	$(491.4)	$ 240.7

Other comprehensive loss, net of tax	(33.1)	(33.1)	(1.2)	(12.1)	46.4	(33.1)
Comprehensive income	$ 207.6	$ 207.6	$ 67.2	$ 170.2	$ (445.0)	$ 207.6

94

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Condensed Consolidating Balance Sheets

2018	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Assets	(in millions)					
Current assets						
Cash and cash equivalents	$—	$36.7	$ 0.2	$ 439.5	$—	$ 476.4
Accounts receivable, net	—	122.7	287.7	556.1	—	966.5
Intercompany receivables	—	3,337.2	2,356.3	93.5	(5,787.0)	—
Inventories, net	—	42.5	157.7	259.5	—	459.7
Other current assets	—	34.4	6.0	86.8	—	127.2
Total current assets	—	3,573.5	2,807.9	1,435.4	(5,787.0)	2,029.8
Property, plant and equipment, net	—	275.8	758.6	1,480.0	—	2,514.4
Goodwill	—	—	719.0	422.8	—	1,141.8
Other intangible assets, net	—	18.6	1,059.6	32.9	—	1,111.1
Intercompany notes and accounts receivable	—	1,316.8	144.5	—	(1,461.3)	—
Other assets and deferred charges	—	319.8	126.4	267.4	—	713.6
Investment in subsidiaries	2,790.5	2,241.5	1,748.7	—	(6,780.7)	—
Total assets	$2,790.5	$7,746.0	$ 7,364.7	$ 3,638.5	$(14,029.0)	$ 7,510.7
Liabilities and stockholders' equity						
Current liabilities						
Current portion of long-term debt	$—	$100.0	$ —	$ 21.6	$—	$ 121.6
Accounts payable	—	94.2	246.5	499.5	—	840.2
Intercompany payables	—	2,050.0	3,615.7	121.3	(5,787.0)	—
Other current liabilities	—	169.0	35.8	190.2	—	395.0
Total current liabilities	—	2,413.2	3,898.0	832.6	(5,787.0)	1,356.8
Intercompany notes and accounts payable	1,304.2	12.5	—	144.6	(1,461.3)	—
Long-term debt, net	—	3,578.3	3.0	105.5	—	3,686.8
Other long-term liabilities	—	508.9	271.7	200.2	—	980.8
Total liabilities	1,304.2	6,512.9	4,172.7	1,282.9	(7,248.3)	6,024.4
Total AAM stockholders' equity	1,483.9	1,233.1	3,192.0	2,353.2	(6,778.3)	1,483.9
Noncontrolling interests in subsidiaries	2.4	—	—	2.4	(2.4)	2.4
Total stockholders' equity	1,486.3	1,233.1	3,192.0	2,355.6	(6,780.7)	1,486.3
Total liabilities and stockholders' equity	$2,790.5	$7,746.0	$ 7,364.7	$ 3,638.5	$(14,029.0)	$ 7,510.7

2017	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Assets						
Current assets						
Cash and cash equivalents	$—	$91.9	$ 0.1	$ 284.8	$—	$ 376.8
Accounts receivable, net	—	138.9	287.9	609.1	—	1,035.9
Intercompany receivables	—	3,475.2	479.9	7.5	(3,962.6)	—
Inventories, net	—	37.2	147.4	207.4	—	392.0
Other current assets	—	40.4	9.9	90.0	—	140.3
Total current assets	—	3,783.6	925.2	1,198.8	(3,962.6)	1,945.0
Property, plant and equipment, net	—	250.9	786.8	1,365.2	—	2,402.9
Goodwill	—	—	1,218.4	435.9	—	1,654.3
Other intangible assets, net	—	21.0	1,155.6	35.9	—	1,212.5

Intercompany notes and accounts receivable	11.7	—	243.5	—	(255.2)	—
Other assets and deferred charges	—	349.1	122.8	196.2	—	668.1
Investment in subsidiaries	2,841.3	1,955.2	1,280.1	—	(6,076.6)	—
Total assets	$2,853.0	$6,359.8	$ 5,732.4	$ 3,232.0	$(10,294.4)	$ 7,882.8
Liabilities and stockholders' equity						
Current liabilities						
Current portion of long-term debt	$—	$—	$ —	$ 5.9	$—	$ 5.9
Accounts payable	—	139.0	204.6	455.4	—	799.0
Intercompany payables	1,313.0	563.7	2,017.7	68.2	(3,962.6)	—
Other current liabilities	—	181.6	52.4	177.5	—	411.5
Total current liabilities	1,313.0	884.3	2,274.7	707.0	(3,962.6)	1,216.4
Intercompany notes and accounts payable	—	11.7	—	243.5	(255.2)	—
Long-term debt, net	—	3,894.6	4.4	70.3	—	3,969.3
Other long-term liabilities	—	639.1	333.2	184.8	—	1,157.1
Total liabilities	1,313.0	5,429.7	2,612.3	1,205.6	(4,217.8)	6,342.8
Total AAM stockholders' equity	1,536.0	930.1	3,120.1	2,022.4	(6,072.6)	1,536.0
Noncontrolling interests in subsidiaries	4.0	—	—	4.0	(4.0)	4.0
Total stockholders' equity	$1,540.0	$930.1	$ 3,120.1	$ 2,026.4	$(6,076.6)	$ 1,540.0
Total liabilities and stockholders' equity	$2,853.0	$6,359.8	$ 5,732.4	$ 3,232.0	$(10,294.4)	$ 7,882.8

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

Condensed Consolidating Statements of Cash Flows

2018	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
	(in millions)					
Net cash provided by operating activities	$ —	$ 262.0	$ 145.5	$ 364.0	$ —	$ 771.5
Investing activities						
Purchases of property, plant and equipment	—	(63.2)	(163.8)	(297.7)	—	(524.7)
Proceeds from sale of property, plant and equipment	—	—	4.3	0.6	—	4.9
Purchase buyouts of leased equipment	—	—	(0.5)	—	—	(0.5)
Proceeds from sale of business	—	—	42.7	4.4	—	47.1
Acquisition of business, net of cash acquired	—	—	—	(1.3)	—	(1.3)
Investment in affiliates	—	(3.0)	—	(0.7)	—	(3.7)
Intercompany activity	—	—	(44.1)	44.1	—	—
Net cash used in investing activities	—	(66.2)	(161.4)	(250.6)	—	(478.2)
Financing activities						
Net debt activity	—	(240.4)	(0.7)	69.5	—	(171.6)
Debt issuance costs	—	(6.9)	—	—	—	(6.9)
Purchase of treasury stock	(3.7)	—	—	—	—	(3.7)
Purchase of noncontrolling interest	—	—	(2.3)	—	—	(2.3)
Intercompany activity	3.7	(3.7)	21.5	(21.5)	—	—
Net cash provided by (used in) financing activities	—	(251.0)	18.5	48.0	—	(184.5)
Effect of exchange rate changes on cash	—	—	—	(6.7)	—	(6.7)
Net increase (decrease) in cash, cash equivalents and restricted cash	—	(55.2)	2.6	154.7	—	102.1
Cash, cash equivalents and restricted cash at beginning of period	—	91.9	0.1	284.8	—	376.8
Cash, cash equivalents and restricted cash at end of period	$ —	$ 36.7	$ 2.7	$ 439.5	$ —	$ 478.9

2017	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Net cash provided by operating activities	$ —	$ 410.4	$ 33.1	$ 203.5	$ —	$ 647.0
Investing activities						
Purchases of property, plant and equipment	—	(69.1)	(100.4)	(308.2)	—	(477.7)
Proceeds from sale of property, plant and equipment	—	0.3	0.3	1.9	—	2.5
Purchase buyouts of leased equipment	—	(13.3)	—	—	—	(13.3)
Proceeds from sale of business	—	7.5	(1.6)	—	—	5.9
Acquisition of business, net of cash acquired	—	(953.5)	64.6	(6.6)	—	(895.5)
Net cash used in investing activities	—	(1,028.1)	(37.1)	(312.9)	—	(1,378.1)
Financing activities						
Net debt activity	—	725.6	(0.7)	(12.2)	—	712.7
Debt issuance costs	—	(91.0)	—	—	—	(91.0)
Employee stock option exercises	—	0.9	—	—	—	0.9
Purchase of treasury stock	(7.0)	—	—	—	—	(7.0)
Intercompany activity	7.0	(10.2)	3.2	—	—	—
Net cash provided by (used in) financing activities	—	625.3	2.5	(12.2)	—	615.6
Effect of exchange rate changes on cash	—	—	—	11.1	—	11.1
	—	7.6	(1.5)	(110.5)	—	(104.4)

Net increase (decrease) in cash, cash equivalents and restricted cash						
Cash, cash equivalents and restricted cash at beginning of period	—	84.3	1.6	395.3	—	481.2
Cash, cash equivalents and restricted cash at end of period	$—	$91.9	$ 0.1	$ 284.8	$ —	$ 376.8

96

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (CONTINUED)

2016	Holdings	AAM Inc.	Guarantor Subsidiaries	Non-Guarantor Subsidiaries	Elims	Consolidated
Net cash provided by operating activities	$ —	$78.3	$ 25.3	$ 304.0	$ —	$ 407.6
Investing activities						
Purchases of property, plant and equipment	—	(36.8)	(18.0)	(168.2)	—	(223.0)
Proceeds from sale of property, plant and equipment	—	—	0.3	1.4	—	1.7
Purchase buyouts of leased equipment	—	(4.6)	—	—	—	(4.6)
Acquisition of business, net of cash acquired	—	—	(5.6)	—	—	(5.6)
Other, net	—	1.0	—	2.8	—	3.8
Net cash used in investing activities	—	(40.4)	(23.3)	(164.0)	—	(227.7)
Financing activities						
Net debt activity	—	(0.7)	(0.4)	24.4	—	23.3
Employee stock option exercises	—	0.3	—	—	—	0.3
Purchase of treasury stock	(5.2)	—	—	—	—	(5.2)
Intercompany activity	5.2	(5.2)	—	—	—	—
Net cash provided by (used in) financing activities	—	(5.6)	(0.4)	24.4	—	18.4
Effect of exchange rate changes on cash	—	—	—	0.4	—	0.4
Net increase in cash, cash equivalents and restricted cash	—	32.3	1.6	164.8	—	198.7
Cash, cash equivalents and restricted cash at beginning of period	—	52.0	—	230.5	—	282.5
Cash, cash equivalents and restricted cash at end of period	$ —	$84.3	$ 1.6	$ 395.3	$ —	$ 481.2

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of American Axle and Manufacturing Holdings, Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of American Axle and Manufacturing Holdings, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), cash flows and stockholders' equity, for each of the three years in the period ended December 31, 2018, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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

Basis for Opinions

The Company's management is responsible for these 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 the accompanying Management Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these financial statements and an opinion 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 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 financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. 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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Deloitte & Touche LLP

Detroit, Michigan
February 15, 2019
We have served as the Company's auditor since 1998.

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

None

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Under the direction of our Chief Executive Officer and Chief Financial Officer, we evaluated our disclosure controls and procedures and internal control over financial reporting and concluded that our disclosure controls and procedures (as defined in Rules 13a - 15(e) or 15d - 15(e) under the Securities Exchange Act of 1934 (the “Exchange Act”)) were effective as of December 31, 2018.

Management Report on Internal Control over Financial Reporting

We are responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control system was designed to provide reasonable assurance to our management and Board of Directors regarding the preparation and fair presentation of our consolidated financial statements.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2018. In making this assessment, we used criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our assessment, management concluded that, as of December 31, 2018, our internal control over financial reporting was effective based on those criteria.

The attestation report of our independent registered public accounting firm regarding internal control over financial reporting is included in Item 8, ”Financial Statements and Supplementary Data.”

Change in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the fourth quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None

Part III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by Item 401(b), (d) (e) and (f) of Regulation S-K about our executive officers is furnished in Part I of this Form 10-K, Annual Report under the caption “Executive Officers of the Registrant.” All other information required by Item 10 is incorporated herein by reference from our Proxy Statement which we expect to file on or about March 21, 2019.

We have adopted a code of ethics that applies to our Chief Executive Officer and Chief Financial Officer and the senior financial executives who report directly to our Chief Financial Officer. This code of ethics is available on our website at www.aam.com. We will post on our website any amendment to or waiver from the provisions of the code of ethics or our code of business conduct that applies to executive officers or directors of the Company.

Item 11. Executive Compensation

The information required by Item 11 is incorporated by reference from our Proxy Statement.

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

The information required by Item 12 is incorporated by reference from our Proxy Statement.

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

The information required by Item 13 under Items 404 and 407(a) of Regulation S-K is incorporated by reference from our Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required by Item 9(e) of Schedule 14A is incorporated by reference from our Proxy Statement.

Part IV

Item 15. Exhibits and Financial Statement Schedules

The following documents are filed as a part of this report:

1. All Financial Statements

Consolidated Statements of Operations
Consolidated Statements of Comprehensive Income
Consolidated Balance Sheets
Consolidated Statements of Cash Flows
Consolidated Statement of Stockholders' Equity
Notes to Consolidated Financial Statements
Report of Independent Registered Public Accounting Firm

2. Financial Statement Schedules

Schedule II - Valuation and Qualifying Accounts for the years ended December 31, 2018, 2017 and 2016 is filed as part of this Form 10-K.

All other schedules have been omitted because they are not applicable or not required.

3. Exhibits

The following exhibits were previously filed unless otherwise indicated:

Number	Description of Exhibit
2.1	Agreement and Plan of Merger by and among American Axle & Manufacturing Holdings, Inc., ALPHA SPV I, Inc. and Metaldyne Performance Group Inc. (Incorporated by reference to Exhibit 2.1 of Current Report on Form 8-K dated November 8, 2016.)
3.01	Amended and Restated Certificate of Incorporation of American Axle & Manufacturing Holdings, Inc. (Incorporated by reference to Exhibit 3.2 filed with American Axle & Manufacturing Holdings, Inc. Registration Statement on Form S-8 (Registration No. 333-220300).)
3.02	Third Amended and Restated Bylaws of American Axle & Manufacturing Holdings, Inc. (Incorporated by reference to Exhibit 3.04 filed of Current Report on Form 8-K dated February 13, 2018.)
4.01	Specimen Certificate for shares of the Company's Common Stock (Incorporated by reference to Exhibit 4.01 filed with American Axle & Manufacturing Holdings, Inc. Registration Statement on Form S-1 (Registration No. 333-53491).)
4.02	Form of Indenture, among American Axle & Manufacturing, Inc., American Axle & Manufacturing Holdings, Inc., as guarantor, certain subsidiary guarantors and U.S. Bank National Association, as trustee (Incorporated by reference to Exhibit 4.3 of Registration Statement on Form S-3 dated July 12, 2011.)
4.03	Indenture, dated as of November 3, 2011, among American Axle & Manufacturing, Inc., the Guarantors and U.S. Bank National Association, as trustee

(Incorporated by Reference to Exhibit 4.1 of Current Report on Form 8-K dated October 31, 2011.)

Number	Description of Exhibit
4.04	Form of 7.75% Senior Notes due 2019 (Incorporated by Reference to Exhibit 4.2 of Current Report on Form 8-K dated October 31, 2011.)
4.05	Form of 6.625% Notes due 2022 (Incorporated by Reference to Exhibit 4.1 of Current Report on Form 8-K dated September 17, 2012.)
4.06	Form of 6.25% Notes due 2021 (Incorporated by Reference to Exhibit 4.1 of Current Report on Form 8-K dated February 28, 2013.)
4.07	Form of 5.125% Notes due 2019 (Incorporated by Reference to Exhibit 4.1 of Current Report on Form 8-K dated November 12, 2013.)
4.08	Form of 6.25% Notes due 2025 (Incorporated by Reference to Exhibit 4.2 of Current Report on Form 8-K dated March 23, 2017.)
4.09	Form of 6.50% Notes due 2027 (Incorporated by Reference to Exhibit 4.3 of Current Report on Form 8-K dated March 23, 2017.)
4.10	First Supplemental Indenture, dated March 23, 2017 among American Axle & Manufacturing, Inc., Alpha SPV I, Inc., American Axle & Manufacturing Holdings, Inc., certain subsidiary guarantors and U.S. Bank National Association, as trustee (Incorporated by reference to Exhibit 4.1 of Current Report on Form 8-K dated March 23, 2017.)
4.11	Second Supplemental Indenture, dated May 17, 2017 among American Axle & Manufacturing, Inc., Metaldyne Performance Group Inc., American Axle & Manufacturing Holdings, Inc. certain subsidiary guarantors and U.S. Bank National Association, as trustee (Incorporated by reference to Exhibit 4.1 of Current Report on Form 8-K dated May 17, 2017.)
4.12	Registration Rights Agreement, dated as of March 23, 2017, among American Axle & Manufacturing, Inc., certain subsidiary guarantors and J.P. Morgan Securities LLC, as representative of the Initial Purchasers, in respect of the 6.25% Senior Notes due 2025 (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated March 23, 2017.)
4.13	Registration Rights Agreement, dated as of March 23, 2017, among American Axle & Manufacturing, Inc., certain subsidiary guarantors and J.P. Morgan Securities LLC, as representative of the Initial Purchasers, in respect of the 6.50% Senior Notes due 2027 (Incorporated by reference to Exhibit 10.2 of Current Report on Form 8-K dated March 23, 2017.)
4.14	Third Supplemental Indenture, dated March 23, 2018 among American Axle & Manufacturing, Inc., American Axle & Manufacturing Holdings, Inc., certain subsidiary guarantors signatory thereto and U.S. Bank National Association, as trustee (Incorporated by reference to Exhibit 4.1 of Current Report on Form 8-K dated March 26, 2018.)
4.15	Form of 6.25% Notes due 2026 (Incorporated by reference to Exhibit 4.1 of Current Report on Form 8-K dated March 27, 2018.)

Number	Description of Exhibit
10.01	Asset Purchase Agreement, dated February 18, 1994, between AAM, Inc. and GM, and all amendments thereto (Incorporated by reference to Exhibit 10.01 filed with American Axle & Manufacturing Holdings, Inc. Registration Statement on Form S-1 (Registration No. 333-53491).)
10.02	Lifetime Program Contract for GMT-900 Products, between GM and AAM, Inc. (Incorporated by reference to Exhibit 10.51 filed with American Axle & Manufacturing Holdings, Inc. Form 10-Q for the quarterly period ended June 30, 2003.)
++10.03	Letter Agreement dated April 22, 2004 by and between DaimlerChrysler Corporation and AAM, Inc. (Incorporated by reference to Exhibit 10.43 filed with American Axle & Manufacturing Holdings, Inc. Form 10-Q for the quarterly period ended June 30, 2004.)
++10.04	Letter Agreement between General Motors Corporation and American Axle & Manufacturing, Inc. dated June 29, 2007 (Incorporated by reference to Exhibit 99.1 of Current Report on Form 8-K dated June 29, 2007.)
10.05	Agreement between General Motors Corporation and American Axle & Manufacturing, Inc. dated May 3, 2008, as amended May 16, 2008 (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated May 23, 2008.)
++10.06	Settlement and Commercial Agreement, dated as of September 16, 2009, among General Motors Company, American Axle & Manufacturing Holdings, Inc. and American Axle & Manufacturing, Inc. (Incorporated by reference to Exhibit 10.62 of Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2009.)
‡10.07	Form of Nonqualified Stock Option Award Agreement under the 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 10.2 of Current Report on Form 8-K dated May 1, 2012.)
10.08	Amendment and Restatement Agreement dated as of September 13, 2013, among American Axle & Manufacturing Holdings, Inc., JPMorgan Chase Bank, N.A., as Administrative Agent and as Collateral Agent, and each financial institution party thereto as a lender, including as Exhibit A thereto, the Amended and Restated Credit Agreement dated as of January 9, 2004 and amended and restated as of September 13, 2013 among American Axle & Manufacturing, Inc., American Axle & Manufacturing Holdings, Inc., the Lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated September 16, 2013.)
10.09	Guarantee Agreement dated as of January 9, 2004, as amended and restated as of September 13, 2013, among American Axle & Manufacturing, Inc., American Axle & Manufacturing Holdings, Inc., certain subsidiaries of American Axle & Manufacturing, Inc. identified therein, and JPMorgan Chase Bank, N.A. as Administrative Agent for the lenders referred to therein (Incorporated by reference to Exhibit 10.2 of Current Report on Form 8-K dated September 16, 2013.)
‡10.10	Form of Restricted Stock Unit Award Agreement for Board of Directors under the 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 10.1 of Quarterly Report on Form 10-Q dated May 2, 2014.)
‡10.11	

Amended and Restated Employment Agreement dated February 19, 2015 by and between the Company and David C. Dauch
(Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated February 26, 2015.)

104

Number	Description of Exhibit
‡10.12	Amended and Restated American Axle & Manufacturing Holdings, Inc. 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 4.1 filed with American Axle & Manufacturing Holdings, Inc. Registration Statement on Form S-8 (Registration No. 333-220300).)
‡10.13	Employment Agreement dated as of August 1, 2015 by and between the Company and Michael K. Simonte (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated July 31, 2015.)
‡10.14	Second Amended and Restated American Axle & Manufacturing, Inc. Incentive Compensation Plan for Executive Officers effective as of January 1, 2016 (Incorporated by reference to Exhibit 10.38 of Annual Report on Form 10-K dated February 12, 2016.)
‡10.15	Voting Agreement (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated November 8, 2016.)
10.16	Credit Agreement dated as of April 6, 2017 among American Axle & Manufacturing Holdings, Inc., American Axle & Manufacturing, Inc., each financial institution party thereto as a lender and JPMorgan Chase Bank, N.A., as Administrative Agent (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated April 12, 2017.)
10.17	Collateral Agreement dated as of April 6, 2017 among American Axle & Manufacturing Holdings, Inc., American Axle & Manufacturing, Inc., certain subsidiaries of American Axle & Manufacturing Holdings, Inc. identified therein and JPMorgan Chase Bank, N.A., as Collateral Agent (Incorporated by reference to Exhibit 10.2 of Current Report on Form 8-K dated April 12, 2017.)
10.18	Guarantee Agreement dated as of April 6, 2017 among American Axle & Manufacturing Holdings, Inc., American Axle & Manufacturing, Inc., certain subsidiaries identified therein and JPMorgan Chase Bank, N.A., as Administrative Agent (Incorporated by reference to Exhibit 99.1 of Current Report on Form 8-K dated April 12, 2017.)
10.19	Stockholders' Agreement, dated as of April 6, 2017, among American Axle & Manufacturing Holdings, Inc., ASP MD Investco L.P. and American Securities LLC (Incorporated by reference to Exhibit 10.1 of Current Report on Form 8-K dated April 6, 2017).
‡10.20	Amended and Restated American Axle & Manufacturing Holdings, Inc. 2012 Omnibus Incentive Plan - 2018 Incentive Compensation Program for Executive Officers (Incorporated by reference to Exhibit 10.39 of Annual Report on Form 10-K dated February 16, 2018.)
‡10.21	Amendment to American Axle & Manufacturing Holdings, Inc. Executive Deferred Compensation Plan (as amended and restated effective January 1, 2005, and as further amended prior to the date hereof) (Incorporated by reference to Exhibit 10.2 of Current Report on Form 8-K dated April 16, 2018.)

Number	Description of Exhibit
‡10.22	Amendments to the Amended and Restated Employment Agreement dated February 15, 2015 by and between the Company and David C. Dauch (Incorporated by reference to Exhibit 10.5 of Current Report on Form 8-K dated April 16, 2018.)
‡10.23	Amendment to the Employment Agreement dated August 1, 2015 by and between the Company and Michael K. Simonte (Incorporated by reference to Exhibit 10.6 of Current Report on Form 8-K dated April 16, 2018.)
‡10.24	Form of Performance Share Award (Relative TSR) for Executive Officers under the 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 10.1 of Quarterly Report on Form 10-Q dated May 4, 2018.)
‡10.25	Form of Performance Share Award (Free Cash Flow) for Executive Officers under the 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 10.2 of Quarterly Report on Form 10-Q dated May 4, 2018.)
‡10.26	Form of Restricted Stock Unit Award Agreement (Cliff Vesting) for Executive Officers under the 2012 Omnibus Incentive Plan (Incorporated by reference to Exhibit 10.3 of Quarterly Report on Form 10-Q dated May 4, 2018.)
‡10.27	American Axle & Manufacturing Holdings, Inc. 2018 Omnibus Incentive Plan (Incorporated by reference to Exhibit 4.1 filed with American Axle & Manufacturing Holdings, Inc. Registration Statement on Form S-8 (Registration No. 333-225468).)
‡10.28	American Axle & Manufacturing Holdings, Inc. Change in Control Plan (Incorporated by reference to Exhibit 10.1 of Quarterly Report on Form 10-Q dated August 3, 2018.)
‡*10.29	American Axle & Manufacturing, Inc. Amended and Restated Supplemental Executive Retirement Program Document
‡*10.30	American Axle & Manufacturing Holdings, Inc. Executive Retirement Savings Plan
‡*10.31	American Axle & Manufacturing Holdings, Inc. Executive Officer Severance Plan
*21	Subsidiaries of the Registrant
*23	Consent of Independent Registered Public Accounting Firm
*31.1	Certification of Chief Executive Officer Pursuant to Rule 13a-14(a) of the Securities Exchange Act
*31.2	Certification of Chief Financial Officer Pursuant to Rule 13a-14(a) of the Securities Exchange Act
*32	Certifications of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

Number	Description of Exhibit
**101.INS	XBRL Instance Document
**101.SCH	XBRL Taxonomy Extension Schema Document
**101.PRE	XBRL Extension Presentation Linkbase Document
**101.LAB	XBRL Taxonomy Extension Label Linkbase Document
**101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
**101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
	(All other exhibits are not applicable.)

++ Confidential Treatment Request Granted by the SEC
‡ Reflects Management or Compensatory Contract
* Shown only in the original filed with the Securities and Exchange Commission
** Submitted electronically with the original filed with the Securities and Exchange Commission

Schedule II - VALUATION AND QUALIFYING ACCOUNTS

	Balance at Beginning of Period	Additions - Charged to Costs and Expenses	Acquisitions and Other (a)	Deductions - See Notes Below		Balance At End of Period
	(in millions)					
Year Ended December 31, 2016:						
Allowance for doubtful accounts	$4.3	$ 0.4	$ —	$ 1.6	(1)	$ 3.1
Allowance for deferred taxes	167.3	18.4	—	20.9	(3)	164.8
Inventory valuation allowance	17.1	7.5	—	9.8	(2)	14.8
Year Ended December 31, 2017:						
Allowance for doubtful accounts	3.1	4.6	2.1	2.8	(1)	7.0
Allowance for deferred taxes	164.8	26.6	13.7	24.7	(4)	180.4
Inventory valuation allowance	14.8	39.1	9.2	45.8	(2)	17.3
Year Ended December 31, 2018:						
Allowance for doubtful accounts	7.0	6.6	—	5.2	(1)	8.4
Allowance for deferred taxes	180.4	12.9	—	10.0	(5)	183.3
Inventory valuation allowance	17.3	22.2	—	25.1	(2)	14.4

(a) Amounts represent reserves recognized in conjunction with our acquisitions in 2017.

(1) Uncollectible accounts charged off net of recoveries.

(2) Primarily relates to write-offs of excess and obsolete inventories, as well as adjustments for physical quantity discrepancies.

(3) Primarily reflects a reduction in deferred tax assets at various foreign locations due to foreign currency translation, as well as the reversal of the valuation allowance of $5.4 million against our deferred tax assets in China.

(4) Reflects an increase related to valuation allowances of MPG that existed as of the acquisition date and the impact of tax reform resulting from the 2017 Act. This was partially offset by the reversal of certain state valuation allowances as a result of re-evaluating our state valuation allowances subsequent to the acquisition of MPG.

(5) Primarily reflects a reduction in deferred tax assets at various foreign locations due to foreign currency translation.

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.

AMERICAN AXLE & MANUFACTURING HOLDINGS, INC.
(Registrant)

/s/ Christopher J. May
Christopher J. May
Vice President & Chief Financial Officer
(Chief Accounting Officer)

Date: February 15, 2019

109

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

Signature	Title	Date
/s/ David C. Dauch David C. Dauch	Chairman of the Board & Chief Executive Officer	February 15, 2019
/s/ Christopher J. May Christopher J. May	Vice President & Chief Financial Officer	February 15, 2019
/s/ Elizabeth A. Chappell Elizabeth A. Chappell	Director	February 15, 2019
/s/ William L. Kozyra William L. Kozyra	Director	February 15, 2019
/s/ Peter D. Lyons Peter D. Lyons	Director	February 15, 2019
/s/ James A. McCaslin James A. McCaslin	Director	February 15, 2019
/s/ William P. Miller II William P. Miller II	Director	February 15, 2019
/s/ Herbert K. Parker Herbert K. Parker	Director	February 15, 2019
/s/ Sandra Pierce Sandra Pierce	Director	February 15, 2019
/s/ John F. Smith John F. Smith	Director	February 15, 2019
/s/ Samuel Valenti III Samuel Valenti III	Director	February 15, 2019