EASTMAN

Enhancing the quality of life *in a material way*

EMNAR18

Dear Fellow Eastman Stockholders,

In 2018, we continued to make progress in our transformation to one of the world's leading innovative companies in additives and advanced materials despite significant challenges in the fourth quarter. Through the third quarter, we delivered strong variable margin growth and were on track to meet the higher end of our long-term 8–12 percent adjusted earnings per share growth projection. However, business conditions quickly deteriorated as demand weakened due to uncertainty from the U.S.-China trade dispute and a slowdown in the European economy that led to volatile raw material prices and greater than normal seasonal customer inventory destocking, negatively impacting our fourth quarter and full-year results.

2018 performance highlights

Despite the challenging dynamics in the last few months of 2018, I am proud of our accomplishments for the full year and am thankful to our global team for their talents and dedication.

- We grew adjusted EPS 8 percent, within our targeted long-term range of 8–12 percent.
- We delivered record sales revenue of $10.2 billion, a 6 percent increase despite the challenging global economy.
- Our strong cash engine generated approximately $1.1 billion of free cash flow.
- We increased our growth investments by $50 million, including 10 plant startups and expansions to meet global demand for our specialty products.
- We returned $718 million to stockholders through a combination of share repurchases and an increased dividend, the ninth consecutive year we have raised our dividend.

More importantly, we continued to make great progress in building our long-term growth potential by converting top innovation programs into commercial orders that delivered $365 million in new business revenue. Here are a few examples that demonstrate our success in 2018:

Advanced Materials:

- In Specialty Plastics, we delivered 7 percent volume growth in Eastman Tritan™ copolyester. This was underpinned by continued growth across a diverse set of end markets and double-digit growth in China.
- In Performance Films, we once again delivered double-digit volume growth in our two largest markets for window films, North America and China, due to our successful new channel strategy. We also continued to build momentum in paint protection films with the launch of two next-generation products.
- Our Advanced Interlayers business continued to benefit from our innovations in automotive applications, with our products for head-up displays growing at 25 percent in 2018. At the same time, we are building momentum in architectural applications with our channel programs and the launch of a new structural product, Saflex™ Structural PVB.

Additives & Functional Products:

- In Animal Nutrition, we delivered strong adoption of our formulated organic acid solution.
- In Tire Additives, we continue strong growth of our Eastman Impera™ resins for improving tire performance.
- We also had strong adoption by more than 10 customers of our next-generation Crystex™ Cure Pro tire additives, the newest innovation in insoluble sulfur, which enables higher tire production efficiency.
- In Care Chemicals, we had 12 percent volume growth in our water treatment products as municipalities around the world adopt global water treatment standards.

Fibers:

- Textiles grew approximately 30 percent, including growth in the Eastman Naia™ cellulosic yarn product line. This performance has helped stabilize the Fibers segment and has become an important and exciting part of how we are innovating solutions to address sustainability demands in apparel.

These and many other examples give me confidence in the strength and resiliency of our portfolio and the power of our ability to create our own growth even in an uncertain business environment. We will have greater clarity as 2019 progresses and will respond accordingly to changes in the macro environment. However, from what we can see today, we expect slower economic growth with some of the challenges we faced in the fourth quarter persisting. We expect recovery throughout the year as we work through higher-cost inventory and as customer inventory destocking is expected to play itself out.

In this current environment, we continue to execute on what we can control — innovating throughout our enterprise, managing costs and allocating our strong free cash flow in a disciplined manner. We are currently on track to increase new business revenue from innovation to greater than $400 million in 2019 and $500 million in 2020. This year, we also plan aggressive cost management and to return cash to stockholders through continued significant share repurchases. Taken altogether, we expect adjusted earnings per share growth in 2019 to be between 6 and 10 percent and strong free cash flow of greater than $1.1 billion.

Strategy for long-term growth

Through strategic acquisitions and divestitures for more than a decade, we have significantly reshaped our portfolio, strengthening our ability to deliver consistent results and create greater value for you, our fellow stockholders.

For the past five years, a primary focus has been to accelerate innovation across our portfolio. We have demonstrated success in delivering both returns from our acquired specialty businesses and our heritage businesses by leveraging our innovation-driven growth model. This unique model, based on our world-class technologies, relentless market engagement and differentiated application development, is central to our strategy and continues to yield compelling results that give us confidence in our ability to drive long-term growth. As we look forward to the next five years, we remain focused on building on our progress to drive results across the portfolio and differentiate our ability to sustain our margins and deliver growth above the underlying markets. In addition, we remain dedicated to disciplined portfolio management as we continue to look for attractive bolt-on acquisitions and targeted divestitures to optimize the portfolio and deliver attractive returns to stockholders.

At the heart of our innovation-driven strategy is our moral obligation of enhancing the quality of life in a material way. Across the entire portfolio, we are delivering innovations that enable lightweighting of cars, improved energy efficiency of tires, safer consumer products, reduced use of antibiotics in animals, enhanced water treatment and more. As the desire grows for products that have a sustainable life cycle, Eastman continues to build on our heritage of world-class technology platforms and product innovation to offer solutions at the molecular level. Today, more than ever, the world needs innovation, and we are excited about the possibilities we can achieve by working along the value chain, across industry sectors and with community partners to expand our efforts and make the greatest collective impact. As one example, we are pursuing innovative recycling solutions to address the growing challenges of plastic waste in our environment. We are currently engaging potential partners and are encouraged by the tremendous interest in providing real solutions to this issue.

Our efforts to find new uses for products or materials otherwise reaching end of life to advance the circular economy align with our innovation-driven growth strategy and commitment to create value though sustainability. With a strong focus on issues and opportunities within the environmental, social and governance (ESG) framework, we have established goals and strategies to address the complex problems being created by the world's changing needs and a growing population. We believe we are well positioned to be part of the solution as we continue to make progress toward our priority goals in three areas: steering a sustainable portfolio that addresses global macro trends and disruptions; driving resource productivity for efficiency and improvement across the organization; and doing focused good for good — corporate responsibility that does good in the world — to create shared value through strategic partnerships and social innovation. We review our goals regularly and establish targets that drive us to continually improve.

Core to achieving our goals is maintaining the trust and confidence of our stakeholders, which is one of the reasons we go beyond compliance to protect our people and the environment. We start with a zero-incident mindset that encompasses all aspects of operational excellence, including personal and process safety. This mentality also extends to how we do business, ensuring that every action we take is consistent with our core values and beliefs. I'm proud that for the sixth consecutive year, Eastman has been named one of the World's Most Ethical Companies® by Ethisphere® Institute, a recognition of the Eastman team's commitment to conducting business with honesty and integrity.

Our commitment to Eastman stockholders

Even in this uncertain global business climate, we are poised to continue making progress toward our strategic transformation while delivering solid earnings growth and strong cash flow generation. We are very optimistic about our future as we find opportunity in today's challenges and have a number of factors driving growth in 2019. Our company is strong, our product portfolio is resilient, and our path forward is clear. Though it is a careful balance, we will work through these short-term dynamics without sacrificing either our performance or our long-term strategy.

Most importantly, we remain determined to make a material difference in the quality of life not only for our stakeholders but for society at large. Whether it's through the value we work hard to deliver, the safe and inclusive workplace we continually strive to strengthen, the innovative products and solutions we bring to the world, the meaningful jobs we provide or the strong relationships that we forge, we always endeavor to reward the confidence that you and others place in us.

On behalf of our global team, thank you for your continued support and your investment in Eastman.

Sincerely,

Mark J. Costa
Board Chair and Chief Executive Officer
March 19, 2019

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Non-GAAP financial measures—earnings, free cash flow, and variable margin: The historical and projected earnings in the Chair and CEO's letter are non-GAAP earnings that exclude certain non-core and unusual, and any future non-core, unusual, or nonrecurring costs, charges, and gains. Reconciliations to the most directly comparable historical GAAP financial measures and other associated disclosures, including descriptions of the excluded non-core and unusual items, for the periods referenced in the Chairman and CEO's letter are included in the "Management's discussion and analysis of financial condition and results of operations" section of this Annual Report and the corresponding Annual Reports for the prior periods referenced and in the Current Reports on Form 8-K on which financial results news releases for the periods referenced were furnished. The Chairman and CEO's letter also includes the terms "free cash flow," which means cash provided by operating activities less net capital expenditures (typically GAAP cash used in additions to properties and equipment, and in 2018 net of proceeds from property insurance) and "variable margin," which Eastman defines as revenue minus total cost of raw materials, purchased energy, freight, duty, and warehousing.

Forward-looking statements: This Annual Report includes forward-looking statements concerning plans and expectations for Eastman Chemical Company. Actual results could differ materially from our expectations. See the "Forward-looking statements" and "Risk factors" sections in "Management's discussion and analysis of financial condition and results of operations" of this Annual Report.

ABOUT OUR BUSINESS

Eastman Chemical Company ("Eastman" or the "Company") is a global advanced materials and specialty additives company that produces a broad range of products found in items people use every day. Eastman began business in 1920 for the purpose of producing chemicals for Eastman Kodak Company's photographic business and became a public company, incorporated in Delaware, on December 31, 1993. Eastman has 48 manufacturing facilities and equity interests in three manufacturing joint ventures in 14 countries that supply products to customers throughout the world. The Company's headquarters and largest manufacturing facility are located in Kingsport, Tennessee. With a robust portfolio of specialty businesses, Eastman works with customers to deliver innovative products and solutions while maintaining a commitment to safety and sustainability.

In the first years as a stand-alone company, Eastman was diversified between commodity and more specialty chemical businesses. Beginning in 2004, the Company refocused its strategy and changed its businesses and portfolio of products, first by the divestiture and discontinuance of under-performing assets and commodity businesses and initiatives (including divestiture in 2004 of resins, inks, and monomers product lines, divestiture in 2006 of the polyethylene business, and divestiture from 2007 to 2010 of the polyethylene terephthalate assets and business). The Company then pursued growth through the development and acquisition of more specialty businesses and product lines by inorganic acquisition and integration (including the acquisition of Solutia, Inc. ("Solutia"), a global leader in performance materials and specialty chemicals, in 2012, and Taminco Corporation, a global specialty chemical company, in 2014) and organic development and commercialization of new and enhanced technologies and products.

Eastman's objective is to be an outperforming specialty chemical company with consistent, sustainable earnings growth and strong cash flow. Integral to the Company's strategy for growth is leveraging its heritage of expertise and innovation within its cellulose and acetyl, olefins, polyester, and alkylamine chemistries. For each of these "streams", the Company has developed and acquired a combination of assets and technologies that combine scale and integration across multiple manufacturing units and sites as a competitive advantage. Management uses an innovation-driven growth model which consists of leveraging world class scalable technology platforms, delivering differentiated application development, and relentlessly engaging the market. The Company sells differentiated products into diverse markets and geographic regions and engages the market by working directly with customers and downstream users to meet their needs in existing and new niche markets. Management believes that this innovation-driven growth model will result in consistent financial results by leveraging the Company's proven technology capabilities to improve product mix, increasing emphasis on specialty businesses, and sustaining and expanding leadership in attractive niche markets. A consistent increase in earnings is expected to continue to result from both organic growth initiatives and strategic inorganic initiatives.

Management is pursuing specific opportunities to leverage Eastman's innovation-driven growth model for continued near-term and long-term greater than end-market growth by both sustaining the Company's leadership in existing markets and expanding into new markets.

The Company's products and operations are managed and reported in four operating segments: Additives & Functional Products ("AFP"), Advanced Materials ("AM"), Chemical Intermediates ("CI"), and Fibers. This organizational structure is based on the management of the strategies, operating models, and sales channels that the various businesses employ and supports the Company's strategy of continued transformation towards a specialty portfolio of products.

ADDITIVES & FUNCTIONAL PRODUCTS SEGMENT

In the AFP segment, the Company manufactures chemicals for products in the transportation, consumables, building and construction, animal nutrition, crop protection, energy, personal and home care, and other markets. Key technology platforms in this segment are cellulose esters, polyester polymers, insoluble sulfur, hydrocarbon resins, alkylamine derivatives, and propylene derivatives.

The AFP segment's sales growth is typically above annual industrial production growth due to innovation and enhanced commercial execution with sales to a robust set of end-markets. The segment is focused on producing high-value additives that provide critical functionality but which comprise a small percentage of total customer product cost. The segment principally competes on the unique performance characteristics of its products and through leveraging its strong customer base and long-standing customer relationships to promote substantial recurring business and product development. A critical element of the AFP segment's success is its close formulation collaboration with customers through advantaged application development capability.

ADVANCED MATERIALS SEGMENT

In the AM segment, the Company produces and markets polymers, films, and plastics with differentiated performance properties for value-added end-uses in transportation, consumables, building and construction, durable goods, and health and wellness markets. Key technology platforms for this segment include cellulose esters, copolyesters, and polyvinyl butyral ("PVB") and polyester films.

Eastman's technical, application development, and market development capabilities enable the AM segment to modify its polymers, films, and plastics to control and customize their final properties for development of new applications with enhanced functionality. For example, Tritan™ copolyesters are a leading solution for food contact applications due to their performance and processing attributes and Bisphenol A ("BPA") free properties. The Saflex™ Q Series product line is a leading acoustic solution for architectural and automotive applications. The Company also maintains a leading solar control technology position in the window film market through the use of high performance sputter coatings which enhance solar heat rejection while maintaining superior optical properties. The segment principally competes on differentiated technology and application development capabilities. Management believes the AM segment's competitive advantages also include long-term customer relationships, vertical integration and scale in manufacturing, and leading market positions.

CHEMICAL INTERMEDIATES SEGMENT

The CI segment leverages large scale and vertical integration from the cellulose and acetyl, olefins, and alkylamines streams to support the Company's specialty operating segments with advantaged cost positions. The CI segment sells excess intermediates beyond the Company's internal specialty needs into markets such as industrial chemicals and processing, building and construction, health and wellness, and agrochemicals. Key technology platforms include acetyls, oxos, plasticizers, polyesters, and alkylamines.

The CI segment product lines benefit from competitive cost positions primarily resulting from the use of and access to lower cost raw materials, and the Company's scale, technology, and operational excellence. Examples include coal used in the production of cellulose and acetyl stream product lines, feedstocks used in the production of olefin derivative product lines such as oxo alcohols and plasticizers, and ammonia and methanol used to manufacture methylamines. The CI segment also provides superior reliability to customers through its backward integration into readily available raw materials, such as propane, ethane, coal, and propylene. In addition to a competitive cost position, the plasticizers business expects to continue to benefit from the growth in relative use of non-phthalate rather than phthalate plasticizers in the United States, Canada, and Europe.

Several CI segment product lines are affected by cyclicality, most notably olefin and acetyl-based products. This cyclicality is caused by periods of supply and demand imbalance, when either incremental capacity additions are not offset by corresponding increases in demand, or when demand exceeds existing supply. While management continues to take steps to reduce the impact of the trough of these cycles, future results are expected to occasionally fluctuate due to both general economic conditions and industry supply and demand.

FIBERS SEGMENT

In the Fibers segment, Eastman manufactures and sells Estron™ acetate tow and Estrobond™ triacetin plasticizers for use in filtration media, primarily cigarette filters; Estron™ natural (undyed), Chromspun™ solution-dyed acetate yarns, Naia™ cellulosic fibers and yarn for use in apparel, home furnishings, and industrial fabrics; nonwovens for use in filtration and friction media, used primarily in transportation, industrial, and agricultural markets; and cellulose acetate flake and acetyl raw materials for other acetate fiber producers. Eastman is one of the world's two largest suppliers of acetate tow and has been a market leader in the manufacture and sale of acetate tow since it began production in the early 1950s. The Company is the world's largest producer of acetate yarn and has been in this business for over 85 years.

The largest 10 Fibers segment customers accounted for approximately 70 percent of the segment's 2018 sales revenue, and include multinational as well as regional cigarette producers, fabric manufacturers, and other acetate fiber producers.

The Company's long history and experience in fibers markets are reflected in the Fibers segment's operating expertise, both within the Company and in support of its customers' processes. The Fibers segment's knowledge of the industry and of customers' processes allows it to assist its customers in maximizing their processing efficiencies, promoting repeat sales, and developing mutually beneficial, long-term customer relationships.

The Company's fully integrated fibers manufacturing process employs unique technology that allows it to use a broad range of high-purity wood pulps for which the Company has dependable sources of supply.

Contributing to profitability in the Fibers segment is the limited number of competitors and significant barriers to entry. These barriers include, but are not limited to, high capital costs for integrated manufacturing facilities.

The Fibers segment's competitive strengths include a reputation for high-quality products, technical expertise, large scale vertically-integrated processes, reliability of supply, balanced internally produced acetate flake supply for Fibers products, a reputation for customer service excellence, and a customer base characterized by strategic long-term customer and end-user relationships. The Company continues to capitalize and build on these strengths to further improve the strategic position of its Fibers segment. In response to challenging acetate tow market conditions, including additional industry capacity and lower capacity utilization rates, the Company has taken actions expected to stabilize segment earnings including, establishing long-term acetate tow customer agreements, pursuing growth in textile and nonwoven applications, and repurposing manufacturing capacity from acetate tow to new products.

SELECTED FINANCIAL DATA

Statements of Earnings Data	**Year Ended December 31,**				
(Dollars in millions, except per share amounts)	**2018**	**2017**	**2016**	**2015**	**2014**
Sales	$ 10,151	$ 9,549	$ 9,008	$ 9,648	$ 9,527
Earnings before interest and taxes	1,552	1,530	1,389	1,392	1,177
Earnings from continuing operations	1,084	1,388	859	854	755
Earnings from discontinued operations	—	—	—	—	2
Net earnings	1,084	1,388	859	854	757
Less: Net earnings attributable to noncontrolling interest	4	4	5	6	6
Net earnings attributable to Eastman	$ 1,080	$ 1,384	$ 854	$ 848	$ 751
Amounts attributable to Eastman:					
Earnings from continuing operations, net of tax	$ 1,080	$ 1,384	$ 854	$ 848	$ 749
Earnings from discontinued operations, net of tax	—	—	—	—	2
Net earnings attributable to Eastman	$ 1,080	$ 1,384	$ 854	$ 848	$ 751
Basic earnings per share attributable to Eastman:					
Earnings from continuing operations	$ 7.65	$ 9.56	$ 5.80	$ 5.71	$ 5.01
Earnings from discontinued operations	—	—	—	—	0.02
Net earnings	$ 7.65	$ 9.56	$ 5.80	$ 5.71	$ 5.03
Diluted earnings per share attributable to Eastman:					
Earnings from continuing operations	$ 7.56	$ 9.47	$ 5.75	$ 5.66	$ 4.95
Earnings from discontinued operations	—	—	—	—	0.02
Net earnings	$ 7.56	$ 9.47	$ 5.75	$ 5.66	$ 4.97
Statements of Financial Position Data					
Current assets	$ 3,365	$ 3,143	$ 2,866	$ 2,878	$ 3,173
Net properties	5,600	5,607	5,276	5,130	5,087
Goodwill	4,467	4,527	4,461	4,518	4,486
Intangible assets, net of accumulated amortization	2,185	2,373	2,479	2,650	2,905
Total assets	15,995	15,999	15,457	15,580	16,072
Current liabilities	1,851	1,982	1,795	2,056	2,022
Long-term borrowings	5,925	6,147	6,311	6,577	7,248
Total liabilities	10,117	10,519	10,849	11,559	12,482
Total Eastman stockholders' equity	5,803	5,403	4,532	3,941	3,510
Dividends declared per share	2.30	2.09	1.89	1.66	1.45

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is based upon the consolidated financial statements of Eastman Chemical Company ("Eastman" or the "Company"), which have been prepared in accordance with accounting principles generally accepted ("GAAP") in the United States, and should be read in conjunction with the Company's consolidated financial statements and related notes included elsewhere in this Annual Report. All references to earnings per share ("EPS") contained in this report are to diluted earnings per share unless otherwise noted. Beginning January 1, 2018, Eastman's primary measure of operating performance for all periods presented is earnings before interest and taxes ("EBIT") on a consolidated and segment basis. Previously, the Company's primary measure of operating performance was operating earnings.

CRITICAL ACCOUNTING ESTIMATES

In preparing the consolidated financial statements in conformity with GAAP, management must make decisions which impact the reported amounts and the related disclosures. Such decisions include the selection of the appropriate accounting principles to be applied and assumptions on which to base estimates and judgments that affect the reported amounts of assets, liabilities, sales revenue and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, Eastman evaluates its estimates, including those related to impairment of long-lived assets, environmental costs, pension and other postretirement benefits, litigation and contingent liabilities, and income taxes. The Company bases its estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions. Management believes the critical accounting estimates described below are the most important to the fair presentation of the Company's financial condition and results. These estimates require management's most significant judgments in the preparation of the Company's consolidated financial statements.

Impairment of Long-Lived Assets

Definite-lived Assets

Properties and equipment and definite-lived intangible assets to be held and used by Eastman are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The review of properties and equipment is performed at the asset group level and the review of definite-lived intangible assets is performed at the asset level, which is the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If the carrying amount is not considered to be recoverable, an analysis of fair value is triggered. An impairment is recognized for the excess of the carrying amount of the asset over the fair value. Fair value is the price that would be received to sell an asset in an orderly transaction between market participants. The Company's assumptions related to long-lived assets are subject to change and impairments may be required in the future. If estimates of fair value less costs to sell are revised, the carrying amount of the related asset is adjusted, resulting in a charge to earnings.

Goodwill

Eastman conducts testing of goodwill annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. The testing of goodwill is performed at the "reporting unit" level which the Company has determined to be its "components". Components are defined as an operating segment or one level below an operating segment, and in order to be a reporting unit, the component must 1) be a "business" as defined by applicable accounting standards (an integrated set of activities and assets that is capable of being conducted and managed for the purpose of providing a return in the form of dividends, lower costs, or other economic benefits directly to the investors or other owners, members, or participants); 2) have discrete financial information available; and 3) be reviewed regularly by Company operating segment management. The Company aggregates certain components into reporting units based on economic similarities.

On October 1, 2018, management adopted *Accounting Standards Update 2017-04 Intangibles - Goodwill and Other* to simplify the annual goodwill impairment testing process. A reporting unit's goodwill is considered to be impaired when the reporting unit's estimated fair value is less than its carrying value. The Company uses an income approach and applies a fair value methodology based on discounted cash flows in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's 2018 goodwill impairment testing included projections of revenues, expenses, and cash flows determined using the Company's annual multi-year strategic plan and a market participant tax rate. The most critical assumptions are the estimated discount rate and a projected long-term growth rate. The Company believes these assumptions are consistent with those a hypothetical market participant would use given circumstances that were present at the time the estimates were made. However, actual results and amounts may be significantly different from the Company's estimates. In addition, the use of different estimates or assumptions could result in materially different determinations. In order to determine the discount rate, the Company uses a market participant weighted average cost of capital ("WACC") approach. The WACC is calculated incorporating weighted average returns on debt and equity from market participants. Therefore, changes in the market, which are beyond the control of the Company, may have an impact on future calculations of estimated fair value. For additional information, see Note 1, "Significant Accounting Policies", to the Company's consolidated financial statements in this Annual Report.

As a result of the goodwill impairment testing performed during fourth quarter 2018, fair values were determined to substantially exceed the carrying values for each reporting unit tested with the exception of crop protection (part of the Additives & Functional Products operating segment). The Company reduced the carrying value of the crop protection reporting unit to its estimated fair value through recognition of a $38 million goodwill impairment. The impairment was primarily driven by an increase in the WACC applied to the impairment analysis and the estimated impact of future regulatory changes. Two of the most critical assumptions used in the calculation of the fair value of the crop protection reporting unit are the target market long-term growth rate and the WACC. The Company performed a sensitivity analysis of both of those assumptions, assuming a one percent decrease in the expected long-term growth rate or a one percent increase in the WACC, and both scenarios independently yielded an estimated fair value for the crop protection reporting unit below carrying value. The crop protection reporting unit's goodwill after the reduction for impairment was $235 million as of December 31, 2018.

Indefinite-lived Intangible Assets

Eastman conducts testing of indefinite-lived intangible assets annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. The carrying value of an indefinite-lived intangible asset is considered to be impaired when the fair value, as established by appraisal or based on discounted future cash flows of certain related products, is less than the respective carrying value.

Indefinite-lived intangible assets, consisting primarily of various tradenames, are tested for potential impairment by comparing the estimated fair value to the carrying amount. The Company uses an income approach, specifically the relief from royalty method, to test indefinite-lived intangible assets. The estimated fair value of tradenames is determined based on an assumed royalty rate savings, discounted by the calculated market participant WACC plus a risk premium.

The Company had $539 million in indefinite-lived intangible assets at the time of impairment testing. There was no material impairment of the Company's indefinite-lived intangible assets as a result of the tests performed during fourth quarter 2018.

The Company will continue to monitor both goodwill and indefinite-lived intangible assets for any indication of triggering events which might require additional testing before the next annual impairment test.

For additional information, see Note 4, "Goodwill and Other Intangible Assets", to the Company's consolidated financial statements in this Annual Report.

Environmental Costs

Eastman accrues environmental remediation costs when it is probable that the Company has incurred a liability at a contaminated site and the amount can be reasonably estimated. When a single amount cannot be reasonably estimated but the cost can be estimated within a range, the Company accrues the minimum undiscounted amount. This undiscounted accrued amount reflects liabilities expected to be paid within approximately 30 years and the Company's assumptions about remediation requirements at the contaminated site, the nature of the remedy, the outcome of discussions with regulatory agencies and other potentially responsible parties at multi-party sites, and the number and financial viability of other potentially responsible parties. Changes in the estimates on which the accruals are based, unanticipated government enforcement action, or changes in health, safety, environmental, and chemical control regulations and testing requirements could result in higher or lower costs. Estimated future environmental expenditures for undiscounted remediation costs ranged from the best estimate or minimum of $271 million to the maximum of $508 million and from the best estimate or minimum of $280 million to the maximum of $483 million at December 31, 2018 and December 31, 2017, respectively. The best estimate or minimum estimated future environmental expenditures are considered to be probable and reasonably estimable and include the amounts accrued at both December 31, 2018 and December 31, 2017.

The Company also establishes reserves for closure and post-closure costs associated with the environmental and other assets it maintains. Environmental assets include but are not limited to waste management units, such as landfills, water treatment facilities, and surface impoundments. When these types of assets are constructed or installed, a loss contingency reserve is established for the anticipated future costs associated with the retirement or closure of the asset based on its expected life and the applicable regulatory closure requirements. The Company recognizes the asset retirement obligations in the period in which they are incurred if a reasonable estimate of fair value can be made. The asset retirement obligations are discounted to expected present value and subsequently adjusted for changes in fair value. These future estimated costs are charged to earnings over the estimated useful life of the assets. If the Company changes its estimate of the environmental asset retirement obligation costs or its estimate of the useful lives of these assets, expenses charged to earnings will be impacted. For sites that have environmental asset retirement obligations, the best estimate for these asset retirement obligation costs accrued to date was $25 million and $24 million at December 31, 2018 and December 31, 2017, respectively.

The Company's total amount reserved for environmental loss contingencies, including the remediation and closure and post-closure costs described above, was $296 million and $304 million at December 31, 2018 and December 31, 2017, respectively. This loss contingency reserve represents the best estimate or minimum for undiscounted remediation costs and the best estimate of the amount accrued to date for discounted asset retirement obligation costs. For additional information, see Note 12, "Environmental Matters and Asset Retirement Obligations", to the Company's consolidated financial statements in this Annual Report.

Pension and Other Postretirement Benefits

Eastman maintains defined benefit pension plans that provide eligible employees with retirement benefits. Under its other postretirement benefit plans in the U.S., Eastman provides life insurance for eligible retirees hired prior to January 1, 2007. Eastman provides a subsidy for pre-Medicare health care and dental benefits to eligible retirees hired prior to January 1, 2007 that will end on December 31, 2021. Company funding is also provided for eligible Medicare retirees hired prior to January 1, 2007 with a health reimbursement arrangement. The estimated amounts of the costs and obligations related to these benefits primarily reflect the Company's assumptions related to discount rates and expected return on plan assets. For valuing the obligations and assets of the Company's U.S. and non-U.S. defined benefit pension plans, the Company assumed weighted average discount rates of 4.29 percent and 2.35 percent, respectively, and weighted average expected returns on plan assets of 7.43 percent and 4.49 percent, respectively at December 31, 2018. The Company assumed a weighted average discount rate of 4.26 percent for its other postretirement benefit plans and an expected return on plan assets of 3.75 percent for its voluntary employees' beneficiary association retiree trust at December 31, 2018. The estimated cost of providing plan benefits also depends on demographic assumptions including retirements, mortality, turnover, and plan participation.

The Company performed a five-year experience study of the assumptions for the U.S. plans in 2017 which included a review of the mortality tables. As a result of the experience study, the Company has updated the mortality assumptions used to a modified RP-2017 table with modified MP-2017 improvement scale and no collar adjustment.

The projected benefit obligation as of December 31, 2018 and 2019 expense are affected by year-end 2018 assumptions. The following table illustrates the sensitivity to changes in the Company's long-term assumptions in the assumed discount rate and expected return on plan assets for all pension and other postretirement benefit plans. The sensitivities below are specific to the time periods noted. They also may not be additive, so the impact of changing multiple factors simultaneously cannot be calculated by combining the individual sensitivities shown.

Change in Assumption	Impact on 2019 Pre-tax Benefits Expense (Excludes mark-to-market impact) for Pension Plans	Impact on December 31, 2018 Projected Benefit Obligation for Pension Plans		Impact on 2019 Pre-tax Benefits Expense (Excludes mark-to-market impact) for Other Postretirement Benefit Plans	Impact on December 31, 2018 Benefit Obligation for Other Postretirement Benefit Plans
		U.S.	Non-U.S.		
25 basis point decrease in discount rate	-$2 Million	+$48 Million	+$40 Million	-$1 Million	+$15 Million
25 basis point increase in discount rate	+$2 Million	-$46 Million	-$37 Million	+$1 Million	-$14 Million
25 basis point decrease in expected return on plan assets	+$6 Million	No Impact	No Impact	<+$0.5 Million	No Impact
25 basis point increase in expected return on plan assets	-$6 Million	No Impact	No Impact	<-$0.5 Million	No Impact

The assumed discount rate and expected return on plan assets used to calculate the Company's pension and other postretirement benefit obligations are established each December 31. The assumed discount rate is based upon a portfolio of high-grade corporate bonds, which are used to develop a yield curve. This yield curve is applied to the expected cash flows of the pension and other postretirement benefit obligations. Because future health care benefits under the U.S. benefit plan have been fixed at a certain contribution amount, changes in the health care cost trend assumptions do not have a material impact on the results of operations. The expected return on plan assets is based upon prior performance and the long-term expected returns in the markets in which the trusts invest their funds, primarily in U.S. and non-U.S. fixed income, U.S. and non-U.S. public equity, private equity, and real estate. Moreover, the expected return on plan assets is a long-term assumption and on average is expected to approximate the actual return on plan assets. Actual returns will be subject to year-to-year variances and could vary materially from assumptions.

In 2016, the Company changed the approach used to calculate service and interest cost components of net periodic benefit costs for its significant defined benefit pension and other postretirement benefit plans. The Company elected to calculate service and interest costs by applying the specific spot rates along the yield curve to the plans' projected cash flows. The change does not affect the measurement of the total benefit obligation or the annual net periodic benefit cost or credit of the plans because the change in the service and interest costs will be offset in the mark-to-market ("MTM") actuarial gain or loss. The MTM gain or loss, as described in the next paragraph, is typically recognized in the fourth quarter of each year or in any other quarters in which an interim remeasurement is triggered. For additional information, see Note 10, "Retirement Plans", to the Company's consolidated financial statements in this Annual Report.

The Company uses fair value accounting for plan assets. If actual experience differs from actuarial assumptions, primarily discount rates and long-term assumptions for asset returns which were used in determining the current year expense, the difference is recognized as part of the MTM net gain or loss in fourth quarter each year, and any other quarter in which an interim remeasurement is triggered. The MTM net gain or loss applied to net earnings in 2018, 2017, and 2016 due to the actual experience versus actuarial assumptions for the defined benefit pension and other postretirement benefit plans were a net loss of $99 million, a net gain of $21 million, and a net loss of $97 million, respectively. The 2018 MTM net loss included an actuarial gain of approximately $170 million, resulting primarily from the Company's December 31, 2018 weighted-average assumed discount rate of 3.82 percent, up from the prior year, and changes in other actuarial assumptions. Overall asset values decreased approximately $270 million due to asset values depreciating in excess of the assumed weighted-average rate of return. The actual loss was approximately $80 million, or an approximately 3 percent loss, which was below the expected return of approximately $190 million, or approximately 7 percent.

While changes in obligations do not correspond directly to cash funding requirements, it is an indication of the amount the Company will be required to contribute to the plans in future years. The amount and timing of such cash contributions is dependent upon interest rates, actual returns on plan assets, retirement, attrition rates of employees, and other factors. For further information regarding pension and other postretirement benefit obligations, see Note 10, "Retirement Plans", to the Company's consolidated financial statements in this Annual Report.

Litigation and Contingent Liabilities

From time to time, Eastman and its operations are parties to, or targets of, lawsuits, claims, investigations and proceedings, including product liability, personal injury, asbestos, patent and intellectual property, commercial, contract, environmental, antitrust, health and safety, and employment matters, which are handled and defended in the ordinary course of business. The Company accrues a contingent loss liability for such matters when it is probable that a liability has been incurred and the amount can be reasonably estimated. When a single amount cannot be reasonably estimated but the cost can be estimated within a range, the Company accrues the minimum amount. The Company expenses legal costs, including those expected to be incurred in connection with a loss contingency, as incurred. Based upon currently available facts, the Company believes the amounts reserved are adequate for such pending matters; however, results of operations could be adversely affected by monetary damages, costs or expenses, and charges against earnings in particular periods.

Income Taxes

Amounts of deferred tax assets and liabilities on Eastman's Consolidated Statements of Financial Position are based on temporary differences between the financial reporting and tax bases of assets and liabilities, applying enacted tax rates expected to be in effect for the year in which the differences are expected to reverse. The ability to realize deferred tax assets is evaluated through the forecasting of taxable income and domestic and foreign taxes, using historical and projected future operating results, the reversal of existing temporary differences, and the availability of tax planning opportunities. Valuation allowances are recognized to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. In the event that the actual outcome of future tax consequences differs from management estimates and assumptions, the resulting change to the provision for (benefit from) income taxes could have a material impact on the consolidated results of operations and statements of financial position. As of December 31, 2018 and 2017, valuation allowances of $466 million and $410 million, respectively, have been provided against the deferred tax assets. The Company recognizes income tax positions that are more likely than not to be realized and accrues interest related to unrecognized income tax positions, which is included as a component of the income tax provision on the balance sheet.

On December 22, 2017, the 2017 "Tax Cuts and Jobs Act" ("Tax Reform Act") was enacted. Accounting for the impacts of newly enacted tax legislation are generally required to be completed in the period of enactment. Following enactment of the Tax Reform Act, the Securities and Exchange Commission ("SEC") provided guidance for initial accounting for the Tax Reform Act in Staff Accounting Bulletin No. 118, "Income Tax Accounting Implications of the Tax Cuts and Jobs Act" ("SAB 118"). The period to finalize accounting for the Tax Reform Act is up to one year following the enactment date and SAB 118 allows companies to provide for the impact of the Tax Reform Act under three scenarios: (1) a company is complete with its accounting for certain effects of tax reform, (2) a company is able to determine a reasonable estimate for certain effects of the Tax Reform Act and records that estimate as a provisional amount, or (3) a company is not able to determine a reasonable estimate and therefore continues to apply accounting based on the provisions of the tax laws that were in effect immediately prior to tax reform being enacted. Because enactment of the Tax Reform Act was close to Eastman's year end, the Company was not able to complete the accounting for certain effects of the changes in tax law, but was able to reasonably estimate the effects and recognized those estimates as provisional amounts as of December 31, 2017.

As of December 31, 2017, management estimated a $339 million net tax benefit, primarily resulting from the Tax Reform Act and a related tax loss from outside-U.S. entity reorganizations as part of the formation of an international treasury services center. In 2018, the Company recognized an adjustment to the 2017 net tax benefit which decreased earnings by $20 million. As of December 31, 2018, the Company considers the accounting for the impacts of the Tax Reform Act under SAB 118 to be complete. As of December 31, 2018, the U.S. Department of Treasury has issued a number of proposed regulations related to implementation of the provisions of the Tax Reform Act and certain states may issue clarifying guidance regarding state income tax conformity to the current federal tax code. Finalization of these regulations in 2019 or future periods may result in changes in the period of enactment to the amounts currently reported in the Consolidated Statements of Financial Position. Any future changes in U.S. tax law may have a significant impact on the provision for income taxes in the period the change occurs. For further information, see Note 7, "Income Taxes", to the Company's consolidated financial statements in this Annual Report.

NON-GAAP FINANCIAL MEASURES

Non-GAAP financial measures, and the accompanying reconciliations of the non-GAAP financial measures to the most comparable GAAP measures, are presented below in this section and in "Overview", "Results of Operations", "Summary by Operating Segment", "Liquidity, Capital Resources, and Other Financial Information", and "Outlook" in this MD&A.

Management discloses non-GAAP financial measures, and the related reconciliations to the most comparable GAAP financial measures, because it believes investors use these metrics in evaluating longer term period-over-period performance, and to allow investors to better understand and evaluate the information used by management to assess the Company's and its operating segments' performances, make resource allocation decisions, and evaluate organizational and individual performances in determining certain performance-based compensation. Non-GAAP financial measures do not have definitions under GAAP, and may be defined differently by, and not be comparable to, similarly titled measures used by other companies. As a result, management cautions investors not to place undue reliance on any non-GAAP financial measure, but to consider such measures alongside the most directly comparable GAAP financial measure.

Company Use of Non-GAAP Financial Measures

Non-Core Items and any Unusual or Non-Recurring Items Excluded from Non-GAAP Earnings

In addition to evaluating Eastman's financial condition, results of operations, liquidity, and cash flows as reported in accordance with GAAP, management also evaluates Company and operating segment performance, and makes resource allocation and performance evaluation decisions, excluding the effect of transactions, costs, and losses or gains that do not directly result from Eastman's normal, or "core", business and operations, or are otherwise of an unusual or non-recurring nature.

- Non-core transactions, costs, and losses or gains relate to, among other things, cost reductions, growth and profitability improvement initiatives, and other events outside of core business operations, and have included asset impairments and restructuring charges and gains, costs of and related to acquisitions, gains and losses from and costs related to dispositions of businesses, financing transaction costs, and MTM losses or gains for pension and other postretirement benefit plans.

- In 2018 the Company recognized unusual income from insurance in excess of costs for, and in 2017 recognized unusual net costs of, the disruption, repairs, and reconstruction of the Kingsport site's coal gasification operations area resulting from the previously reported October 4, 2017 explosion (the "coal gasification incident"). Management considers the coal gasification incident unusual because of the Company's operational and safety history and the magnitude of the unplanned disruption.

- In 2018 the Company recognized unusual costs and an unusual net decrease to earnings from adjustments of the provisional net tax benefit recognized in fourth quarter 2017, resulting from tax law changes, primarily the Tax Reform Act, and related outside-U.S. entity reorganizations as part of the transition to an international treasury services center. Management considers these actions and associated costs and income unusual because of the infrequent nature of such changes in tax law and resulting actions and the significant impacts on earnings.

Because non-core, unusual, or non-recurring transactions, costs, and losses or gains may materially affect the Company's, or any particular operating segment's, financial condition or results in a specific period in which they are recognized, Eastman believes it is appropriate to evaluate both the financial measures prepared and calculated in accordance with GAAP and the related non-GAAP financial measures excluding the effect on the Company's results of these non-core, unusual, or non-recurring items. In addition to using such measures to evaluate results in a specific period, management evaluates such non-GAAP measures, and believes that investors may also evaluate such measures, because such measures may provide more complete and consistent comparisons of the Company's, and its segments', operational performance on a period-over-period historical basis and, as a result, provide a better indication of expected future trends.

Adjusted Tax Rate and Provision for Income Taxes

In interim periods, Eastman discloses non-GAAP earnings with an adjusted effective tax rate and a resulting adjusted provision for income taxes using the Company's forecasted tax rate for the full year as of the end of the interim period. The adjusted effective tax rate and resulting adjusted provision for income taxes are equal to the Company's projected full year effective tax rate and provision for income taxes on earnings excluding non-core, unusual, or non-recurring items for completed periods. The adjusted effective tax rate and resulting adjusted provision for income taxes may fluctuate during the year for changes in events and circumstances that change the Company's forecasted annual effective tax rate and resulting provision for income taxes excluding non-core, unusual, or non-recurring items. Management discloses this adjusted effective tax rate, and the related reconciliation to the GAAP effective tax rate, to provide investors more complete and consistent comparisons of the Company's operational performance on a period-over-period interim basis and on the same basis as management evaluates quarterly financial results to provide a better indication of expected full year results.

Non-GAAP Cash Flow Measure

Eastman regularly evaluates and discloses to investors and securities analysts an alternative non-GAAP measure of "free cash flow", which management defines as cash provided by operating activities, less the amount of net capital expenditures (typically the GAAP measure additions to properties and equipment, and in 2018, net of proceeds from property insurance). Such net capital expenditures are generally funded from available cash and, as such, management believes they should be considered in determining free cash flow. Management believes this is an appropriate metric to assess the Company's ability to fund priorities for uses of available cash. The priorities for cash after funding operations include payment of quarterly dividends, repayment of debt, funding targeted growth opportunities, and repurchasing shares. Management believes this metric is useful to investors and securities analysts in order to provide them with information similar to that used by management in evaluating financial performance and potential future cash available for various initiatives and assessing organizational performance in determining certain performance-based compensation and because management believes investors and securities analysts often use a similar measure of free cash flow to compare the results, and value, of comparable companies. In addition, Eastman may disclose to investors and securities analysts an alternative non-GAAP measure of "free cash flow yield", which management defines as annual free cash flow divided by the Company's market capitalization. Management believes this metric is useful to investors and securities analysts in comparing cash flow generation with that of peer and other companies.

Non-GAAP Measures in this Annual Report

The following non-core items are excluded by management in its evaluation of certain earnings results in this Annual Report:

- MTM pension and other postretirement benefit plans gains and losses resulting from the changes in discount rates and other actuarial assumptions and the difference between actual and expected returns on plan assets during the period;
- Asset impairments and restructuring charges, net, of which asset impairments are non-cash transactions impacting profitability;
- Acquisition integration and transaction costs;
- Early debt extinguishment and other related costs resulting from repayment of borrowings;
- Cost of disposition of claims against operations that were discontinued by Solutia, Inc. ("Solutia") prior to the Company's acquisition of Solutia in 2012;
- Gain from sale of the formulated electronics cleaning solutions business, which was part of the Additives & Functional Products segment;
- Gain from sale of the Company's 50 percent interest in the Primester cellulose acetate flake joint venture; and
- Tax benefit associated with a previously impaired site.

The following unusual items are excluded by management in its evaluation of certain earnings results in this Annual Report:

- Costs of, and income from insurance for, the coal gasification incident;
- Costs of currency transaction and professional fees resulting from fourth quarter 2017 tax law changes and related outside-U.S. entity reorganizations; and
- Estimated net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act, and tax impact of related outside-U.S. entity reorganizations and related subsequent adjustments recognized in 2018.

As described above, the alternative non-GAAP measure of cash flow "free cash flow" is presented in this Annual Report.

Non-GAAP Financial Measures - Non-Core and Unusual Items Excluded from Earnings

(Dollars in millions)	2018	2017	2016
Non-core items impacting EBIT:			
Mark-to-market pension and other postretirement benefits (gain) loss, net	$ 99	$ (21)	$ 97
Asset impairments and restructuring charges, net	45	8	45
Acquisition integration and transaction costs	—	—	9
Cost of disposition of claims against discontinued Solutia operations	—	9	5
Gains from sale of businesses	—	(3)	(17)
Unusual items impacting EBIT:			
Net coal gasification incident (insurance) costs	(83)	112	—
Costs resulting from tax law changes and outside-U.S. entity reorganizations	20	—	—
Total non-core and unusual items impacting EBIT	81	105	139
Non-core item impacting earnings before income taxes:			
Early debt extinguishment and other related costs	7	—	85
Total non-core item impacting earnings before income taxes	7	—	85
Less: Items impacting provision for (benefit from) income taxes:			
Tax effect for non-core and unusual items	16	30	75
Tax benefit associated with previously impaired site	—	8	—
Estimated net tax benefit from tax law changes and tax loss from outside-U.S. entity reorganizations	(20)	339	—
Total items impacting provision for (benefit from) income taxes	(4)	377	75
Total items impacting net earnings attributable to Eastman	$ 92	$ (272)	$ 149

Below is the calculation of the "Other components of post-employment (benefit) cost, net" that are not included in the above non-core item "mark-to-market pension and other postretirement benefits gain (loss), net" and that are included in the non-GAAP results.

(Dollars in millions)	2018	2017	2016
Other components of post-employment (benefit) cost, net	$ (21)	$ (135)	$ (3)
Service cost	49	53	56
Net periodic benefit (credit) cost	28	(82)	53
Less: Mark-to-market (gain) loss	99	(21)	97
Components of post-employment (benefit) cost, net included in non-GAAP earnings measures	$ (71)	$ (61)	$ (44)

Below is the calculation of the MTM pension and other post-retirement benefits (gain) loss disclosed above.

(Dollars in millions)	2018		2017		2016	
Actual return on assets	$ (82)	(3)%	$ 314	11%	$ 252	9%
Less: expected return on assets	189	7 %	180	7%	176	7%
Mark-to-market (loss) gain on assets	(271)		134		76	
Actuarial (loss) gain	172		(113)		(173)	
Total mark-to-market (loss) gain	$ (99)		$ 21		$ (97)	

For more detail about MTM pension and other postretirement benefit plans net gains and losses, including actual and expected return on plan assets and the components of the net gain or loss, see "Critical Accounting Estimates - Pension and Other Postretirement Benefits" above and Note 10, "Retirement Plans", "Summary of Changes" - Actuarial (gain) loss, Actual return on plan assets, and Reserve for third party contributions and "Summary of Benefit Costs and Other Amounts Recognized in Other Comprehensive Income - Mark-to-market pension and other postretirement benefits (gain) loss, net" to the Company's consolidated financial statements in this Annual Report.

This MD&A includes the effect of the foregoing on the following financial measures:

- Gross profit,
- Selling, general, and administrative ("SG&A") expenses,
- Asset impairments and restructuring charges, net,
- Other components of post-employment (benefit) cost, net,
- Other (income) charges, net,
- EBIT,
- Early debt extinguishment and other related costs
- Provision for (benefit from) income taxes,
- Net earnings attributable to Eastman,
- Diluted EPS, and
- Net cash provided by operating activities.

Other Non-GAAP Financial Measures

Alternative Non-GAAP Cash Flow Measure

In addition to the non-GAAP measures presented in this Annual Report and other periodic reports, management occasionally has evaluated and disclosed to investors and securities analysts the non-GAAP measure cash provided by operating activities excluding certain non-core, unusual, or non-recurring sources or uses of cash or including cash from or used by activities that are managed as part of core business operations ("adjusted cash provided by operating activities") when analyzing, among other things, business performance, liquidity and financial position, and performance-based compensation. Management has used this non-GAAP measure in conjunction with the GAAP measure cash provided by operating activities because it believes it is a more appropriate metric to evaluate the cash flows from Eastman's core operations that are available for organic and inorganic growth initiatives and because it allows for a more consistent period-over-period presentation of such amounts. In its evaluation, management generally excludes the impact of certain non-core activities and decisions of management because such activities and decisions are not considered core, ongoing components of operations and the decisions to undertake or not to undertake such activities may be made irrespective of the cash generated from operations, and generally includes cash from or used in activities that are managed as operating activities and in business operating decisions. Management has disclosed this non-GAAP measure and the related reconciliation to investors and securities analysts to allow them to better understand and evaluate the information used by management in its decision-making processes and because management believes investors and securities analysts use similar measures to assess Company performance, liquidity, and financial position over multiple periods and to compare these with other companies.

Alternative Non-GAAP Earnings Measures

From time to time, Eastman may also disclose to investors and securities analysts the non-GAAP earnings measures "EBIT Margin", "Adjusted EBITDA", "EBITDA Margin", and "Return on Invested Capital" (or "ROIC"). Management defines EBIT Margin as the GAAP measure EBIT adjusted to exclude the same non-core, unusual, or non-recurring items as are excluded from the Company's other non-GAAP earnings measures for the same periods divided by the GAAP measure sales revenue in the Company's income statement for the same period. Adjusted EBITDA is EBITDA (net earnings before interest, taxes, depreciation and amortization) adjusted to exclude the same non-core, unusual, or non-recurring items as are excluded from the Company's other non-GAAP earnings measures for the same periods. EBITDA Margin is Adjusted EBITDA divided by the GAAP measure sales revenue in the Company's income statement for the same periods. Management defines ROIC as net earnings plus interest expense after tax divided by average total borrowings plus average stockholders' equity for the periods presented, each derived from the GAAP measures in the Company's financial statements for the periods presented. Management believes that EBIT Margin, Adjusted EBITDA, EBITDA Margin, and ROIC are useful as supplemental measures in evaluating the performance of and returns from Eastman's operating businesses, and, from time to time, uses such measures in internal performance calculations. Further, management understands that investors and securities analysts often use similar measures of EBIT Margin, Adjusted EBITDA, EBITDA Margin, and ROIC to compare the results, returns, and value of the Company with those of peer and other companies.

OVERVIEW

Eastman's products and operations are managed and reported in four operating segments: Additives & Functional Products ("AFP"), Advanced Materials ("AM"), Chemical Intermediates ("CI"), and Fibers. Eastman uses an innovation-driven growth model which consists of leveraging world class scalable technology platforms, delivering differentiated application development capabilities, and relentlessly engaging the market. The Company's world class technology platforms form the foundation of sustainable growth by differentiated products through significant scale advantages in research and development ("R&D") and advantaged global market access. Differentiated application development converts market complexity into opportunities for growth and accelerates innovation by enabling a deeper understanding of the value of Eastman's products and how they perform within customers' and end-user products. Key areas of application development include thermoplastic conversion, functional films, coatings formulations, rubber additive formulations, adhesives formulations, nonwovens and textiles, and animal nutrition. The Company engages the market by working directly with customers and downstream users, targeting attractive niche markets, and leveraging disruptive macro trends such as health and wellness, natural resource efficiency, an increasing middle class in emerging economies, and feeding a growing population. Management believes that these elements of the Company's innovation-driven growth model, combined with disciplined portfolio management and balanced capital deployment, will result in consistent, sustainable earnings growth and strong cash flow.

The Company generated sales revenue of $10.2 billion and $9.5 billion for 2018 and 2017, respectively. Sales revenue increased $602 million in 2018 as a result of increases in all operating segments. EBIT was $1.6 billion and $1.5 billion in 2018 and 2017, respectively. Excluding the non-core and unusual items referenced in "Non-GAAP Financial Measures", adjusted EBIT was $1.6 billion in both 2018 and 2017. Further discussion of sales revenue and EBIT changes is presented in "Results of Operations" and "Summary by Operating Segment" in this MD&A.

Net earnings and EPS attributable to Eastman and adjusted net earnings and EPS attributable to Eastman were as follows:

	2018		2017	
(Dollars in millions, except diluted EPS)	$	EPS	$	EPS
Net earnings attributable to Eastman	$ 1,080	$ 7.56	$ 1,384	$ 9.47
Total non-core and unusual items, net of tax(1)(2)	92	0.64	(272)	(1.86)
Net earnings attributable to Eastman excluding non-core and unusual items	$ 1,172	$ 8.20	$ 1,112	$ 7.61

(1) See "Results of Operations - Net Earnings Attributable to Eastman and Diluted Earnings per Share" for the tax effected amount of non-core and unusual items.

(2) Provision for income taxes for non-core and unusual items are calculated using the tax rate for the jurisdiction where the gains are taxable and the expenses are deductible.

The Company generated $1.54 billion of cash from operating activities in 2018 compared to $1.66 billion of cash generated from operating activities during 2017. Free cash flow was $1.08 billion in 2018 and $1.01 billion in 2017.

As previously reported, in fourth quarter 2017 an explosion in the Kingsport site's coal gasification area disrupted manufacturing operations, primarily for the Fibers and CI segments which are significant internal users of cellulose and acetyl stream intermediates. The incident, net of insurance, reduced 2017 earnings by $112 million and increased 2018 earnings by $83 million. The cumulative net costs of the incident were $29 million. Costs net of insurance of the disruption, repairs, and reconstruction of coal gasification operations in 2017 were recognized in "Cost of sales" and insurance net of costs in 2018 was recognized in "Cost of sales" and "Other (income) charges, net" in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings.

RESULTS OF OPERATIONS

Eastman's results of operations as presented in the Company's consolidated financial statements in this Annual Report are summarized and analyzed below.

Sales

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Sales	$ 10,151	$ 9,549	6%	$ 9,549	$ 9,008	6%
Volume / product mix effect			2%			4%
Price effect			3%			2%
Exchange rate effect			1%			—%

2018 Compared to 2017

Sales revenue increased as a result of increases in all operating segments.

2017 Compared to 2016

Sales revenue increased as increases in the AFP, CI, and AM segments more than offset a decline in the Fibers segment.

Gross Profit

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Gross profit	$ 2,479	$ 2,363	5 %	$ 2,363	$ 2,357	—%
Net coal gasification incident (insurance) costs	(18)	112		112	—	
Gross profit excluding unusual item	$ 2,461	$ 2,475	(1)%	$ 2,475	$ 2,357	5%

2018 Compared to 2017

Gross profit included coal gasification incident insurance in excess of costs in 2018 and coal gasification incident net costs in 2017. Excluding these unusual items, gross profit decreased primarily due to raw material, energy, and distribution costs exceeding selling prices across most segments and higher growth initiative costs being partially offset by higher sales volume in the AM and AFP segments.

2017 Compared to 2016

Gross profit in 2017 included net costs resulting from the coal gasification incident. Excluding this unusual item, gross profit increased as increases in the CI, AFP, and AM segments more than offset a decrease in the Fibers segment. Gross profit in 2017 was increased by lower labor and manufacturing costs from corporate cost reduction actions.

Selling, General and Administrative Expenses

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Selling, general and administrative expenses	$ 721	$ 729	(1)%	$ 729	$ 707	3%
Costs resulting from tax law changes and outside-U.S. entity reorganizations	(7)	—		—	—	
Acquisition integration and transaction costs	—	—		—	(9)	
Selling, general, and administrative expenses excluding non-core and unusual items	$ 714	$ 729	(2)%	$ 729	$ 698	4%

2018 Compared to 2017

SG&A expenses in 2018 included $7 million of costs of professional fees resulting from fourth quarter 2017 tax law changes and related outside-U.S. entity reorganizations as part of the transition to an international treasury services center. Excluding this unusual item, SG&A expenses decreased primarily due to lower variable compensation costs mostly offset by higher costs of growth initiatives.

2017 Compared to 2016

SG&A expenses in 2016 included transaction costs for final resolution of the 2011 Sterling Chemicals, Inc. acquisition purchase price and integration costs for the Commonwealth business acquired in December 2014. Excluding these non-core items, SG&A expenses increased primarily due to higher performance-based variable compensation costs and strategic initiative expenditures partially offset by cost reductions resulting from corporate actions taken in 2016.

Research and Development Expenses

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Research and development expenses	$ 235	$ 227	4%	$ 227	$ 223	2%

2018 Compared to 2017

R&D expenses increased primarily due to higher costs of growth initiatives.

2017 Compared to 2016

R&D expenses were slightly higher in 2017. The Company shifted R&D expenses by eliminating multiple programs and reallocating resources among the Company's operating segments. R&D investments were refocused to where disruptive macro trends create unmet needs in attractive niche markets where the Company's core technologies can deliver material solutions.

Asset Impairments and Restructuring Charges, Net

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Asset impairments	$ —	$ 1	$ 12
Gain on sale of assets, net	—	—	(2)
Intangible asset and goodwill impairments	39	—	—
Severance charges	6	6	32
Site closure and restructuring charges	—	1	3
Total	$ 45	$ 8	$ 45

In 2018, asset impairments and restructuring charges, net consisted of restructuring charges of approximately $6 million for severance. As a result of the annual impairment test of goodwill the Company reduced the carrying value of the crop protection reporting unit (part of the AFP operating segment) to its estimated fair value through recognition of a $38 million goodwill impairment. The impairment was primarily driven by an increase in the WACC applied to the impairment analysis and the estimated impact of future regulatory changes. Additionally, the Company recognized an intangible asset impairment of $1 million in the AM segment.

In 2017, asset impairments and restructuring charges, net were $3 million of asset impairments and restructuring charges, including severance, in the AFP segment related to the closure of a facility in China and restructuring charges of approximately $5 million for severance.

In 2016, the Company impaired a capital project in the AFP segment that resulted in a charge of $12 million and recognized a gain of $2 million in the AFP segment for the sale of previously impaired assets at the Crystex™ insoluble sulfur R&D site in France. The Company recognized restructuring charges of $35 million, including severance, related to an announced plan to reduce costs primarily in 2017. Management anticipated and realized total cost savings of approximately $50 million mostly in 2017 primarily in SG&A expenses and cost of sales.

Other Components of Post-employment (Benefit) Cost, Net

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Other components of post-employment (benefit) cost, net	$ (21)	$ (135)	(84)%	$ (135)	$ (3)	>100%
Mark-to-market pension and other postretirement benefit gain (loss), net	(99)	21		21	(97)	
Other components of post-employment (benefit) cost, net excluding non-core item	$ (120)	$ (114)	5 %	$ (114)	$ (100)	14%

For more information regarding "Other components of post-employment (benefit) cost, net" see Note 1, "Significant Accounting Policies", and Note 10, "Retirement Plans", to the Company's consolidated financial statements in this Annual Report.

Other (Income) Charges, Net

(Dollars in millions)	2018	2017	2016
Foreign exchange transaction losses (gains), net [(1)]	$ 12	$ 5	$ 27
Currency transaction costs resulting from tax law changes and outside-U.S. entity reorganizations	13	—	—
(Income) loss from equity investments and other investment (gains) losses, net	(17)	(12)	(13)
Coal gasification incident property insurance	(65)	—	—
Cost of disposition of claims against discontinued Solutia operations	—	9	5
Gains from sale of businesses [(2)]	—	(3)	(17)
Other, net	4	5	(6)
Other (income) charges, net	$ (53)	$ 4	$ (4)
Currency transaction costs resulting from tax law changes and outside-U.S. entity reorganizations	(13)	—	—
Coal gasification incident property insurance	65	—	—
Cost of disposition of claims against discontinued Solutia operations	—	(9)	(5)
Gains from sale of businesses [(2)]	—	3	17
Other (income) charges, net excluding non-core items	$ (1)	$ (2)	$ 8

(1) Net impact of revaluation of foreign entity assets and liabilities and effect of foreign exchange non-qualifying derivatives.
(2) Gains resulting from the sale of the formulated electronic cleaning solution business in the AFP segment in 2017 and the sale of the Company's interest in the Primester joint venture equity investment in the Fibers segment in 2016.

Earnings Before Interest and Taxes

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
EBIT	$ 1,552	$ 1,530	1 %	$ 1,530	$ 1,389	10%
Mark-to-market pension and other postretirement benefit (gain) loss, net	99	(21)		(21)	97	
Net coal gasification incident (insurance) costs	(83)	112		112	—	
Asset impairments and restructuring charges, net	45	8		8	45	
Costs resulting from tax law changes and outside-U.S. entity reorganizations	20	—		—	—	
Acquisition integration and transaction costs	—	—		—	9	
Cost of disposition of claims against discontinued Solutia operations	—	9		9	5	
Gains from sale of businesses	—	(3)		(3)	(17)	
EBIT excluding non-core and unusual items	$ 1,633	$ 1,635	— %	$ 1,635	$ 1,528	7%

Net Interest Expense

	2018 Compared to 2017			2017 Compared to 2016		
(Dollars in millions)	2018	2017	Change	2017	2016	Change
Gross interest expense	$ 242	$ 251		$ 251	$ 265	
Less: Capitalized interest	4	7		7	7	
Interest Expense	238	244		244	258	
Less: Interest income	3	3		3	3	
Net interest expense	$ 235	$ 241	(2)%	$ 241	$ 255	(5)%

2018 Compared to 2017

Net interest expense decreased $6 million primarily as a result of U.S. dollar to euro cross-currency swaps and reduced debt partly offset by increased interest rates.

2017 Compared to 2016

Net interest expense decreased $14 million primarily as a result of prior year refinancing of certain outstanding public debt and repayment of term loan borrowings in 2017.

Early Debt Extinguishment and Other Related Costs

In fourth quarter 2018, the Company sold 3.5% notes due December 2021 in the principal amount of $300 million and 4.5% notes due December 2028 in the principal amount of $500 million. Net proceeds from the notes were $789 million and were used, together with available cash, for the early and full repayment of the 5.5% notes due November 2019 ($250 million principal) and the partial redemption of the 2.7% notes due January 2020 ($550 million principal). Total consideration for these redemptions were $806 million ($800 million total principal and $6 million for the early redemption premiums) and are reported as financing activities on the Consolidated Statements of Cash Flows. The early repayment resulted in a charge of $7 million for early debt extinguishment costs which were primarily attributable to the early redemption premiums and related unamortized costs. The book value of the redeemed debt was $799 million. For additional information regarding the early debt extinguishment costs, see Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

In fourth quarter 2016, the Company sold additional euro-denominated 1.50% notes due May 2023 in the principal amount of €200 million ($213 million) and euro-denominated 1.875% notes due November 2026 in the principal amount of €500 million ($534 million). In December 2016, the Company borrowed $300 million under a second five-year term loan agreement ("2021 Term Loan"). Proceeds from the notes and 2021 Term Loan borrowings were used for the early repayment of the 2.4% notes due June 2017 ($500 million principal) and 6.30% notes due November 2018 ($160 million principal) and partial redemptions of the 4.5% notes due January 2021 ($65 million principal), 3.6% notes due August 2022 ($150 million principal), 7 1/4% debentures due January 2024 ($47 million principal), 7 5/8% debentures due June 2024 ($11 million principal), 3.8% notes due March 2025 ($100 million principal), and 7.60% debentures due February 2027 ($28 million principal). The early repayments resulted in a charge of $76 million for early debt extinguishment costs and related derivatives and hedging items.

In second quarter 2016, the Company sold euro-denominated 1.50% notes due 2023 in the principal amount of €550 million ($614 million). Proceeds from the sale of the notes, net of transaction costs, were used for the early repayment of $500 million of 2.4% notes due June 2017 and repayment of other borrowings. The early repayment resulted in a charge of $9 million for early debt extinguishment costs primarily attributable to the early redemption premium and related unamortized costs.

Provision for (Benefit from) Income Taxes

(Dollars in millions)	2018 Compared to 2017				2017 Compared to 2016			
	2018		2017		2017		2016	
	$	%	$	%	$	%	$	%
Provision for (benefit from) income taxes and effective tax rate	$ 226	17%	$ (99)	(8)%	$ (99)	(8)%	$ 190	18%
Tax provision for non-core and unusual items[(1)]	16		30		30		75	
Tax benefit associated with previously impaired site	—		8		8		—	
Estimated net tax benefit from tax law changes and tax loss from outside-U.S. entity reorganizations	(20)		339		339		—	
Adjusted provision for income taxes and effective tax rate	$ 222	16%	$ 278	20%	$ 278	20 %	$ 265	21%

(1) Provision for income taxes for non-core and unusual items is calculated using the tax rate for the jurisdiction where the gains are taxable and the expenses are deductible.

The 2018 effective tax rate includes a $20 million increase to the provision for income taxes resulting from adjustments to the provisional net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act. These adjustments related to the one-time transition tax on deferred foreign income and changes in valuation of deferred tax assets associated with tax law changes and outside-U.S. entity reorganizations as part of the formation of an international treasury services center.

The 2017 effective tax rate included a $339 million net benefit resulting from tax law changes, primarily the Tax Reform Act, and a tax loss from outside-U.S. entity reorganizations as part of the formation of an international treasury services center, a $20 million benefit due to amendments to prior years' domestic income tax returns, and a $30 million benefit reflecting the finalization of prior years' foreign income tax returns. The 2017 effective tax rate also includes an $8 million tax benefit due to a tax ruling permitting deductibility of a liquidation loss on a previously impaired site.

The 2016 effective tax rate includes a tax benefit of $16 million related to foreign tax credits as a result of the amendment of prior year income tax returns, a $16 million one-time benefit for the restoration of tax basis for which depreciation deductions were previously limited, and a $9 million tax benefit primarily due to adjustments to the tax provision to reflect the finalization of 2014 foreign income tax returns.

For more information, see Note 7, "Income Taxes", to the Company's consolidated financial statements in this Annual Report.

Net Earnings Attributable to Eastman and Diluted Earnings per Share

	2018		2017		2016	
(Dollars in millions, except per share amounts)	$	EPS	$	EPS	$	EPS
Net earnings and diluted earnings per share attributable to Eastman	$ 1,080	$ 7.56	$ 1,384	$ 9.47	$ 854	$ 5.75
Non-core items, net of tax: [1]						
Mark-to-market pension and other postretirement benefit (gain) loss, net	75	0.52	(14)	(0.09)	68	0.46
Asset impairments and restructuring charges (gain), net	43	0.30	(3)	(0.02)	28	0.19
Acquisition transaction, integration, and financing costs	—	—	—	—	5	0.04
Early debt extinguishment and other related costs	6	0.04	—	—	56	0.37
Cost of disposition of claims against discontinued Solutia operations	—	—	5	0.03	3	0.02
Gains from sale of businesses	—	—	(1)	(0.01)	(11)	(0.07)
Unusual items, net of tax: [1]						
Net coal gasification incident (insurance) costs	(67)	(0.47)	80	0.55	—	—
Estimated net tax benefit from tax law changes and tax loss from outside-U.S. entity reorganizations	20	0.14	(339)	(2.32)	—	—
Costs resulting from tax law changes and outside-U.S. entity reorganizations	15	0.11	—	—	—	—
Adjusted net earnings and diluted earnings per share attributable to Eastman	$ 1,172	$ 8.20	$ 1,112	$ 7.61	$ 1,003	$ 6.76

[1] The provision for income taxes for non-core and unusual items is calculated using the tax rate for the jurisdiction where the gains are taxable and the expenses are deductible.

SUMMARY BY OPERATING SEGMENT

Eastman's products and operations are managed and reported in four operating segments: Additives & Functional Products ("AFP"), Advanced Materials ("AM"), Chemical Intermediates ("CI"), and Fibers. For additional financial and product information for each operating segment, see "About Our Business" section of this Annual Report and Note 19, "Segment Information", to the Company's consolidated financial statements in this Annual Report.

Additives & Functional Products Segment

	2018 Compared to 2017				2017 Compared to 2016			
			Change				Change	
(Dollars in millions)	2018	2017	$	%	2017	2016	$	%
Sales	$ 3,647	$ 3,343	$ 304	9 %	$ 3,343	$ 2,979	$ 364	12%
Volume / product mix effect			151	4 %			313	10%
Price effect			98	3 %			45	2%
Exchange rate effect			55	2 %			6	—%
EBIT	639	653	(14)	(2)%	653	607	46	8%
Asset impairments and restructuring charges, net	38	3	35		3	10	(7)	
Gain from sale of business	—	(3)	3		(3)	—	(3)	
Net coal gasification incident (insurance) costs	(6)	8	(14)		8	—	8	
EBIT excluding non-core and unusual items	671	661	10	2 %	661	617	44	7%

2018 Compared to 2017

Sales revenue increased due to higher sales volume, higher selling prices across most product lines, and a favorable shift in foreign currency exchange rates. The higher sales volume was primarily attributed to volume growth in care chemicals, coatings and inks additives, tire additives, and animal nutrition, and products previously reported in the CI operating segment.

EBIT in 2018 included a goodwill impairment charge related to the crop protection reporting unit and coal gasification incident insurance in excess of costs. EBIT in 2017 included net costs resulting from the coal gasification incident, asset impairment and restructuring charges, including severance, related to the closure of a facility in China, and a gain from sale of the formulated electronics cleaning solutions business. Excluding these non-core and unusual items, EBIT increased primarily due to higher sales volume of $54 million largely offset by higher raw material, energy, and distribution costs more than exceeding higher selling prices by $20 million, primarily due to fourth quarter competitive pressure in adhesives resins, and higher growth initiative costs of approximately $20 million.

2017 Compared to 2016

Sales revenue increased primarily due to higher sales volume across the segment, including for specialty fluids due to the timing of customer solar energy project completions, animal nutrition products, and tire additives products.

EBIT in 2017 included net costs resulting from the coal gasification incident, asset impairment and restructuring charges, including severance, related to the closure of a facility in China, and a gain from sale of the formulated electronics cleaning solutions business. EBIT in 2016 included asset impairment and restructuring charges, net consisting of impairment of a capital project resulting in a charge of $12 million partially offset by a $2 million gain for the sale of previously impaired assets at the Crystex™ insoluble sulfur R&D site in France. Excluding these non-core and unusual items, EBIT increased primarily due to higher sales volume of $97 million partially offset by higher raw material and energy costs, including the reduced negative impact of hedges of commodity prices on raw material costs, exceeding higher selling prices by $60 million.

Growth Initiatives

In 2018, the AFP segment:

- advanced growth and innovation of Crystex™ insoluble sulfur rubber additives through mechanical completion of an expansion of the manufacturing facility in Kuantan, Malaysia in second quarter 2018 resulting in commercial sales beginning in first quarter 2019. This expansion is expected to allow the Company to capitalize on recent enhancements of technology by improving the Company's cost position and facilitating the introduction of new products into the tire markets; and
- advanced growth of specialty ketones for low volatile organic compound ("VOC") coatings and other markets as a result of a capacity expansion at the Kingsport, Tennessee manufacturing facility which became fully operational in second quarter 2018.

Advanced Materials Segment

	2018 Compared to 2017				2017 Compared to 2016			
			Change				Change	
(Dollars in millions)	2018	2017	$	%	2017	2016	$	%
Sales	$ 2,755	$ 2,572	$ 183	7%	$ 2,572	$ 2,457	$ 115	5%
Volume / product mix effect			130	5%			113	5%
Price effect			22	1%			1	—%
Exchange rate effect			31	1%			1	—%
EBIT	509	483	26	5%	483	472	11	2%
Asset impairments and restructuring charges, net	1	—	1		—	—	—	
Net coal gasification incident (insurance) costs	(9)	11	(20)		11	—	11	
EBIT excluding non-core and unusual items	501	494	7	1%	494	472	22	5%

2018 Compared to 2017

Sales revenue increased primarily due to higher sales volume and improved product mix across the segment, including for premium products such as performance films, Saflex™ head-up displays, and Tritan™ copolyester. While 2018 had higher sales volume compared with 2017, fourth quarter 2018 had lower specialty plastics sales volume compared to fourth quarter 2017 attributed to customer inventory destocking related to uncertainty caused by the U.S. - China trade dispute.

EBIT in 2018 included coal gasification incident insurance in excess of costs and a charge for an impairment of an indefinite-lived intangible asset. EBIT in 2017 included net costs resulting from the coal gasification incident. Excluding these non-core and unusual items, EBIT increased primarily due to higher sales volume and improved product mix of premium products of $94 million, partially offset by higher raw material (particularly for paraxylene in the second half of the year), energy, and distribution costs of $67 million and higher growth initiative costs of approximately $25 million.

2017 Compared to 2016

Sales revenue increased primarily due to higher sales volume across the segment, including of premium products such as automotive performance films, Tritan™ copolyester, and Saflex™ acoustic interlayers.

EBIT in 2017 included coal gasification incident net costs. Excluding this unusual item, EBIT increased primarily due to the combined impact of higher sales volume, lower unit costs due to higher capacity utilization, and improved product mix of premium products of $83 million. The increase was partially offset by higher raw material and energy costs of $48 million and increased costs of growth initiatives.

Growth Initiatives

In 2018, the AM segment:

- continued the growth of Tritan™ copolyester in the durable goods and health and wellness markets, supported by completion of an additional 60,000 metric ton expansion of Tritan™ copolyester capacity at the Kingsport, Tennessee manufacturing facility which became fully operational in second quarter 2018;
- advanced growth and innovation of Saflex™ acoustic interlayers used in the transportation and building and construction markets, enabled by construction of a manufacturing facility for polyvinyl butyral ("PVB") resin at the Kuantan, Malaysia manufacturing facility which became fully operational in first quarter 2018;
- advanced growth in the Chinese market supported by the conversion of manufacturing capacity at the Suzhou, China site from non-acoustic to acoustic interlayer production which was mechanically completed in fourth quarter 2018 and is expected to produce material qualified for commercial sales in 2019; and
- strengthened growth in automotive window and paint protection films in North America and China through improved sales channel, marketing, and commercial execution strategies and capabilities.

Chemical Intermediates Segment

	2018 Compared to 2017				2017 Compared to 2016			
			Change				Change	
(Dollars in millions)	2018	2017	$	%	2017	2016	$	%
Sales	$ 2,831	$ 2,728	$ 103	4 %	$ 2,728	$ 2,534	$ 194	8 %
Volume / product mix effect			(142)	(5)%			(55)	(2)%
Price effect			229	8 %			253	10 %
Exchange rate effect			16	1 %			(4)	— %
EBIT	308	255	53	21 %	255	171	84	49 %
Net coal gasification incident (insurance) costs	(30)	44	(74)		44	—	44	
EBIT excluding unusual item	278	299	(21)	(7)%	299	171	128	75 %

2018 Compared to 2017

Sales revenue increased due to higher selling prices across most product lines, particularly for acetyl derivatives attributed to favorable market conditions and for olefin derivatives due to higher raw material and energy costs. Higher selling prices were partially offset by lower sales volume primarily attributable to lower merchant ethylene sales, products previously reported in the CI segment being reported in the AFP segment in 2018, and supplier operational disruptions at the Texas City and Longview, Texas manufacturing facilities. Lower merchant ethylene sales are primarily due to the decision to reduce operating rates of the olefins cracking units at the Longview, Texas manufacturing facility due to spot ethylene prices. Lower sales volume was partially offset by higher functional amines products sales attributed to strengthened agriculture and energy markets.

EBIT included coal gasification incident insurance in excess of costs in 2018 and coal gasification incident net costs in 2017. Excluding these unusual items, EBIT decreased due to lower sales volume of $62 million, and higher planned manufacturing shutdown costs of $21 million. The decrease was partially offset by higher selling prices exceeding higher raw material, energy, and distribution costs of $61 million.

2017 Compared to 2016

Sales revenue increased due to higher selling prices attributed to higher raw material prices and improved market conditions. The increase was partially offset by lower intermediates sales volume due to the coal gasification incident.

EBIT in 2017 included net costs resulting from the coal gasification incident. Excluding this unusual item, EBIT increased primarily due to the reduced negative impact of hedges of commodity prices on raw material costs, primarily for propane, of $100 million, lower scheduled maintenance costs of $24 million, and lower operating costs of $21 million. The increase was partially offset by higher raw material and energy costs more than offsetting higher selling prices by $27 million.

Cost and Growth Initiatives

The Company reduced operating rates of the olefin cracking units at the Longview, Texas manufacturing facility to reduce the amount of excess ethylene produced and sold at lower spot prices in the merchant ethylene market over the second half of 2018. The Company took further action through completion of modifications to the site's olefin cracking units, which will allow for the introduction of refinery-grade propylene ("RGP") into the feedstock mix while also reducing the amount of other purchased feedstocks in 2019. This feedstock shift is expected to result in a significant decrease in ethylene production and excess ethylene sales, while maintaining historical levels of propylene production. Consequently, the RGP project provides the flexibility to largely remove the Company from participation in the merchant ethylene market, while retaining a cost-advantaged integrated propylene position to support specialty derivatives throughout the Company.

Fibers Segment

(Dollars in millions)	2018 Compared to 2017				2017 Compared to 2016			
			Change				Change	
	2018	2017	$	%	2017	2016	$	%
Sales	$ 918	$ 852	$ 66	8 %	$ 852	$ 992	$ (140)	(14)%
Volume / product mix effect			95	11 %			(53)	(5)%
Price effect			(30)	(3)%			(86)	(9)%
Exchange rate effect			1	— %			(1)	— %
EBIT	257	181	76	42 %	181	331	(150)	(45)%
Gain from sale of business	—	—	—		—	(17)	17	
Net coal gasification incident (insurance) costs	(38)	49	(87)		49	—	49	
EBIT excluding non-core and unusual items	219	230	(11)	(5)%	230	314	(84)	(27)%

2018 Compared to 2017

Sales revenue increased primarily due to sales of nonwovens products previously reported in "Other" of $57 million and higher sales volume, particularly for textiles products. The higher sales revenue was partially offset by lower selling prices, particularly for acetate tow. Lower acetate tow selling prices were primarily attributed to lower industry capacity utilization.

EBIT included coal gasification incident insurance in excess of costs in 2018 and coal gasification incident net costs in 2017. Excluding these unusual items, EBIT decreased primarily due to the net impact of $7 million of lower selling prices, particularly for acetate tow attributed to lower capacity utilization, and higher raw material and energy costs, partially offset by volume growth of textiles products.

2017 Compared to 2016

Sales revenue decreased primarily due to lower selling prices and lower sales volume, particularly for acetate tow. Lower acetate tow selling prices were primarily attributed to lower industry capacity utilization rates. Lower acetate tow sales volume was primarily attributed to reduced sales in China.

EBIT in 2017 included net costs resulting from the coal gasification incident and EBIT in 2016 included a gain from the sale of the Company's interest in the cellulose acetate manufacturing joint venture. Excluding these non-core and unusual items, EBIT decreased primarily due to approximately $103 million of lower selling prices and lower sales volume, partially offset by lower operating costs resulting from changes in segment business operations and assets.

Cost and Growth Initiatives

As a result of challenging market conditions for acetate tow, the Company closed its Workington, UK acetate tow manufacturing facility in 2015. Following an increase in acetate flake capacity at the Kingsport, Tennessee site in 2015, the Fibers segment could supply all its acetate tow and yarn spinning capacity from this low-cost flake asset. In order to fully utilize the increased capacity and reduce fixed costs, in June 2016, the Company sold its 50 percent interest in Primester, which manufactures cellulose acetate at the Company's Kingsport, Tennessee site. In 2018, the Company repurposed some of its acetate tow manufacturing capacity for production of new products.

The Fibers segment R&D efforts focus on serving existing customers, leveraging proprietary cellulose ester and spinning technology for differentiated application development in new markets, optimizing asset productivity, and working with suppliers to reduce costs. For acetate tow, these efforts are assisting customers in the effective use of the segment's products and customers' product development efforts. Beyond acetate tow, management is applying the innovation-driven growth model to leverage its fibers technology and expertise to focus on innovative growth in the textiles and nonwovens markets. Examples of recent product innovation within the Fibers segment include Naia™, a yarn for the apparel market developed from Eastman's proprietary cellulose ester technology, Avra™, a family of performance fibers for the apparel, home furnishings and industrial fabrics markets developed from a combination of Eastman proprietary spinning technology and polymer chemistry enabling unique fiber capabilities of size, shape, comfort, and performance, and Vestera™, a new wood pulp-based alternative for the nonwoven industry used in personal hygiene applications.

Other

(Dollars in millions)	2018	2017	2016
Sales	$ —	$ 54	$ 46
Loss before interest and taxes			
Growth initiatives and businesses not allocated to operating segments	$ (114)	$ (114)	$ (82)
Pension and other postretirement benefit plans income (expense), net not allocated to operating segments	(17)	93	(44)
Restructuring and acquisition integration and transaction costs	(6)	(5)	(44)
Other income (charges), net not allocated to operating segments	(24)	(16)	(22)
Loss before interest and taxes before non-core and unusual items	(161)	(42)	(192)
Mark-to-market pension and other postretirement benefit plans (gain) loss, net	99	(21)	97
Asset impairments and restructuring charges, net	6	5	35
Acquisition integration and transaction costs	—	—	9
Cost of disposition of claims against discontinued Solutia operations	—	9	5
Costs resulting from tax law changes and outside-U.S. entity reorganizations	20	—	—
Loss before interest and taxes excluding non-core and unusual items	$ (36)	$ (49)	$ (46)

Sales revenue and costs related to growth initiatives, R&D costs, certain components of pension and other postretirement benefits, and other expenses and income not identifiable to an operating segment are not included in segment operating results for any periods presented and are included in "Other".

Sales revenue in 2017 and 2016 was primarily sales from the nonwovens products. Beginning first quarter 2018, sales revenue and innovation costs from the nonwovens and textiles innovation products previously reported in "Other" are reported in the Fibers operating segment due to accelerating commercial progress of growth initiatives. See Note 19, "Segment Information", to the Company's consolidated financial statements in this Annual Report.

SALES BY CUSTOMER LOCATION

	Sales Revenue							
			Change				Change	
(Dollars in millions)	2018	2017	$	%	2017	2016	$	%
United States and Canada	$ 4,303	$ 4,189	$ 114	3%	$ 4,189	$ 4,025	$ 164	4%
Europe, Middle East, and Africa	2,756	2,539	217	9%	2,539	2,305	234	10%
Asia Pacific	2,504	2,306	198	9%	2,306	2,163	143	7%
Latin America	588	515	73	14%	515	515	—	—%
Total	$ 10,151	$ 9,549	$ 602	6%	$ 9,549	$ 9,008	$ 541	6%

2018 Compared to 2017

Sales revenue in United States and Canada increased primarily due to higher CI, AFP, and AM segments selling prices and higher AFP and AM segments sales volume. The increase was partially offset by lower CI segment sales volume, primarily resulting from lower merchant ethylene sales. See "Summary by Operating Segment".

Sales revenue in Europe, Middle East, and Africa increased primarily due to a favorable shift in foreign currency exchange rates across the segments, higher CI, AM, and Fibers segments sales volume, and higher AFP and CI segments selling prices. These items were partially offset by lower AFP segment sales volume.

Sales revenue in Asia Pacific increased primarily due to higher AFP and AM segments sales volume and higher CI and AFP segments selling prices partially offset by lower Fibers segment selling prices.

Sales revenue in Latin America increased primarily due to higher AM, AFP, and CI segments sales volume and higher CI segment selling prices.

2017 Compared to 2016

Sales revenue in United States and Canada increased primarily due to higher CI segment selling prices.

Sales revenue in Europe, Middle East, and Africa increased primarily due to higher AFP and Fibers segments sales volume. Higher AFP segment sales volume is primarily due to higher sales volume across the segment, including specialty fluids due to the timing of customer solar energy project completions, tire additives products, and animal nutrition products.

Sales revenue in Asia Pacific increased primarily due to higher AFP, AM, and CI segments sales volume partially offset by lower Fibers segment sales volume.

See Note 19, "Segment Information", in this Annual Report for segment sales revenues by customer location.

LIQUIDITY, CAPITAL RESOURCES, AND OTHER FINANCIAL INFORMATION

Cash Flows

(Dollars in millions)	2018	2017	2016
Net cash provided by (used in):			
Operating activities	$ 1,543	$ 1,657	$ 1,385
Investing activities	(463)	(643)	(655)
Financing activities	(1,040)	(1,006)	(838)
Effect of exchange rate changes on cash and cash equivalents	(5)	2	(4)
Net change in cash and cash equivalents	35	10	(112)
Cash and cash equivalents at beginning of period	191	181	293
Cash and cash equivalents at end of period	$ 226	$ 191	$ 181

2018 Compared to 2017

Cash provided by operating activities decreased primarily due to increased inventory resulting from reduced demand and higher cost raw materials inventory in fourth quarter 2018.

Cash used in investing activities decreased primarily due to decreased capital expenditures as significant capital projects related to key growth initiatives achieved mechanical completion and were put into service during 2018. See "Capital Expenditures" below.

Cash used in financing activities increased primarily due to increased share repurchases and dividend payments partially offset by reduced debt repayments.

2017 Compared to 2016

Cash provided by operating activities increased primarily due to higher earnings and lower pension and other postretirement contributions due to the advanced funding of U.S. defined pension plans in 2016.

Cash used in investing activities in 2017 and 2016 was primarily for capital expenditures.

Cash used in financing activities increased primarily due to increases in both share repurchases and dividend payments partially offset by less net debt repayments.

(Dollars in millions)	2018	2017	2016
Net cash provided by operating activities	$ 1,543	$ 1,657	$ 1,385
Capital expenditures			
Additions to properties and equipment	(528)	(649)	(626)
Proceeds from property insurance (1)	65	—	—
Net capital expenditures	(463)	(649)	(626)
Free cash flow	$ 1,080	$ 1,008	$ 759

(1) Cash proceeds from insurance for coal gasification incident property damage.

Liquidity and Capital Resources

The Company had cash and cash equivalents as follows:

(Dollars in millions)	December 31, 2018	2017	2016
Cash and cash equivalents	$ 226	$ 191	$ 181

Cash flows from operations, cash and cash equivalents, and other sources of liquidity are expected to be available and sufficient to meet foreseeable cash requirements. However, the Company's cash flows from operations can be affected by numerous factors including risks associated with global operations, raw material availability and cost, demand for and pricing of Eastman's products, capacity utilization, and other factors described under "Risk Factors" in this MD&A. Management believes maintaining a financial profile that supports an investment grade credit rating is important to its long-term strategic and financial flexibility.

The Company has access to a $1.50 billion revolving credit agreement (the "Credit Facility") that was amended in October 2018 to increase the available borrowing amount from $1.25 billion and extend the maturity to October 2023. Borrowings under the Credit Facility are subject to interest at varying spreads above quoted market rates and a commitment fee is paid on the total unused commitment. The Credit Facility provides available liquidity for general corporate purposes and supports commercial paper borrowings. At December 31, 2018, the Company had no outstanding borrowings under the Credit Facility. At December 31, 2018, commercial paper borrowings were $130 million with a weighted average interest rate of 2.91 percent. See Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

The Company has access to a $250 million accounts receivable securitization agreement (the "A/R Facility") that expires April 2020. Eastman Chemical Financial Corporation ("ECFC"), a subsidiary of the Company, has an agreement to sell interests in trade receivables under the A/R Facility to a third party purchaser. Third party creditors of ECFC have first priority claims on the assets of ECFC before those assets would be available to satisfy the Company's general obligations. Borrowings under the A/R Facility are subject to interest rates based on a spread over the lender's borrowing costs, and ECFC pays a fee to maintain availability of the A/R Facility. At December 31, 2018, the Company's borrowings under the A/R Facility were $50 million supported by trade receivables with an interest rate of 3.39 percent. See Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

The Company has access to borrowings of up to €150 million ($172 million) under a receivables facility based on the discounted value of selected customer accounts receivable. This facility expires December 2020 and renews for another one year period if not terminated with 90 days notice by either party. These arrangements include receivables in the United States, Belgium, and Finland, and are subject to various eligibility requirements. Borrowings under this facility are subject to interest at an agreed spread above LIBOR and EURIBOR plus administration and insurance fees. The amount of outstanding borrowings under this facility were $112 million at December 31, 2018 with a weighted average interest rate of 1.70 percent. See Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

The Credit and A/R Facilities and other borrowing agreements contain customary covenants and events of default, some of which require the Company to maintain certain financial ratios that determine the amounts available and terms of borrowings. The Company was in compliance with all covenants at both December 31, 2018 and December 31, 2017. The amount of available borrowings under the A/R and Credit Facilities was approximately $1.70 billion as of December 31, 2018. For additional information, see Section 5.03 of the Credit Facility at Exhibit 10.02 to the Company's 2016 Annual Report on Form 10-K.

Debt and Other Commitments

(Dollars in millions)	Payments Due for						
Period	**Debt Securities**	**Credit Facilities and Other**	**Interest Payable**	**Purchase Obligations**	**Operating Leases**	**Other Liabilities**	**Total**
2019	$ —	$ 243	$ 210	$ 275	$ 63	$ 250	$ 1,041
2020	250	50	194	227	51	79	851
2021	482	—	189	136	40	92	939
2022	739	—	176	87	29	99	1,130
2023	855	—	157	77	18	96	1,203
2024 and beyond	3,549	—	1,553	2,046	47	1,010	8,205
Total	$ 5,875	$ 293	$ 2,479	$ 2,848	$ 248	$ 1,626	$ 13,369

At December 31, 2018, Eastman's borrowings totaled approximately $6.2 billion with various maturities. In fourth quarter 2018 the Company refinanced certain outstanding public debt with proceeds of the sale of new debt securities, which extended the weighted average maturity of outstanding debt while retaining adequate levels of pre-payable debt and near-term maturities. Estimated future payments of debt securities assumes the repayment of principal upon stated maturity, and actual amounts and the timing of such payments may differ materially due to repayment or other changes in the terms of such debt prior to maturity. For information on debt securities, credit facilities and other, and interest payable, see Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

For information about purchase obligations and operating leases, see Note 11, "Commitments and Off Balance Sheet Arrangements", to the Company's consolidated financial statements in this Annual Report.

Amounts in other liabilities represent the current estimated cash payments required to be made by the Company primarily for pension and other postretirement benefits, environmental loss contingency reserves, accrued compensation benefits, uncertain tax liabilities, one-time transition tax on deferred foreign income under the Tax Reform Act, and commodity and foreign exchange hedging in the periods indicated. Due to uncertainties in the timing of the effective settlement of tax positions with respect to taxing authorities, management is unable to determine the timing of payments related to uncertain tax liabilities and these amounts are included in the "2024 and beyond" line item.

The amount and timing of pension and other postretirement benefit payments included in other liabilities is dependent upon interest rates, health care cost trends, actual returns on plan assets, retirement and attrition rates of employees, continuation or modification of the benefit plans, and other factors. Such factors can significantly impact the amount and timing of any future contributions by the Company. Excess contributions are periodically made by management in order to keep the plans' funded status above 80 percent under the funding provisions of the Pension Protection Act to avoid partial benefit restrictions on accelerated forms of payment. The Company's U.S. defined benefit pension plans are not currently under any benefit restrictions. See Note 10, "Retirement Plans", to the Company's consolidated financial statements in this Annual Report, for more information regarding pension and other postretirement benefit obligations.

The resolution of uncertainties related to environmental matters included in other liabilities may have a material adverse effect on the Company's consolidated results of operations in the period recognized, however, because of the availability of legal defenses, the Company's preliminary assessment of actions that may be required, and, if applicable, the expected sharing of costs, management does not believe that the Company's liability for these environmental matters, individually or in the aggregate, will be material to the Company's consolidated financial position, results of operations, or cash flows. See Note 1, "Significant Accounting Policies", to the Company's consolidated financial statements in this Annual Report for the Company's accounting policy for environmental costs, and see Note 12, "Environmental Matters and Asset Retirement Obligations", to the Company's consolidated financial statements in this Annual Report for more information regarding outstanding environmental matters and asset retirement obligations.

Off Balance Sheet Arrangements

The Company has off balance sheet uncommitted non-recourse factoring facilities that include customer specific receivables in the United States and Europe. The Company sells the receivables at face value, less a transaction fee, which substantially equals the carrying value and fair value with no gain or loss recognized. There is no continuing involvement with these receivables once sold and no credit loss exposure. The total amount of receivables sold during 2018 and 2017 were $169 million and $35 million, respectively.

In October 2018, Eastman added an uncommitted non-recourse factoring facility under which the Company sells undivided interests in certain receivables and provides servicing at market rates with no credit loss exposure. The Company sells the receivables at face value, less a transaction fee, which substantially equals the carrying value and fair value with no gain or loss recognized. The total amount of receivables sold during 2018 was $50 million.

Capital Expenditures

Capital expenditures were $528 million ($463 million net of proceeds from property damage insurance for 2017 coal gasification incident), $649 million, and $626 million in 2018, 2017, and 2016, respectively. Capital expenditures in 2018 were primarily for the following projects:

- Crystex™ manufacturing capacity expansion in Kuantan, Malaysia;
- Tritan™ copolyester manufacturing capacity expansion in Kingsport, Tennessee;
- conversion of manufacturing capacity from non-acoustic to acoustic interlayer production in Suzhou, China;
- modification of olefin cracking units in Longview, Texas; and
- manufacturing capacity debottlenecking and site modernization projects in Kingsport, Tennessee.

The Company expects that 2019 capital spending will be between $475 million and $500 million, primarily for targeted growth initiatives and maintenance.

The Company had capital expenditures related to environmental protection and improvement of approximately $44 million, $38 million, and $45 million in 2018, 2017, and 2016, respectively. The Company does not currently expect near term environmental capital expenditures arising from requirements of environmental laws and regulations to materially impact the Company's planned level of annual capital expenditures for environmental control facilities.

Stock Repurchases and Dividends

In February 2014, the Company's Board of Directors authorized the repurchase of up to $1 billion of the Company's outstanding common stock. The Company completed the $1 billion repurchase authorization in May 2018, acquiring a total of 12,215,950 shares. In February 2018, the Company's Board of Directors authorized the repurchase of up to an additional $2 billion of the Company's outstanding common stock at such times, in such amounts, and on such terms, as determined by management to be in the best interests of the Company. As of December 31, 2018, a total of 2,470,755 shares have been repurchased under the February 2018 authorization for a total amount of $248 million. During 2018, the Company repurchased a total of 3,959,878 shares for a total cost of approximately $400 million.

The Board of Directors has declared a cash dividend of $0.62 per share during the first quarter of 2019, payable on April 5, 2019 to stockholders of record on March 15, 2019.

Other

Eastman did not have any material relationships with unconsolidated entities or financial partnerships, including special purpose entities, for the purpose of facilitating off balance sheet arrangements with contractually narrow or limited purposes. Thus, the Company is not materially exposed to any financing, liquidity, market, or credit risk related to any such relationships.

INFLATION

In recent years, general economic inflation has not had a material adverse impact on Eastman's costs. The cost of raw materials is generally based on market prices, although derivative financial instruments are utilized, as appropriate, to mitigate short-term market price fluctuations. Management expects the volatility of raw material and energy prices and costs to continue and the Company will continue to pursue pricing and hedging strategies and ongoing cost control initiatives to offset the effects. For additional information see Note 9, "Derivative and Non-Derivative Financial Instruments", to the Company's consolidated financial statements in this Annual Report.

RECENTLY ISSUED ACCOUNTING STANDARDS

For information regarding the impact of recently issued accounting standards, see Note 1, "Significant Accounting Policies", to Eastman's consolidated financial statements in this Annual Report.

OUTLOOK

In 2019, management expects adjusted EPS to be six to ten percent higher than 2018 and greater than $1.1 billion free cash flow. These expectations assume:

- earnings to benefit from a robust portfolio of specialty businesses in attractive niche end-markets, strong growth in high margin, innovative products, and relatively unchanged manufacturing costs due to aggressive cost management;
- earnings to be negatively impacted by slow global economic growth, the U.S. - China trade dispute, a stronger U.S. dollar, and higher pension costs due to lower expected return on assets and higher interest costs;
- interest expense of approximately $225 million;
- the full-year effective tax rate on reported earnings before income tax to be approximately 16 to 17 percent;
- depreciation and amortization of approximately $620 million;
- capital expenditures between $475 million and $500 million;
- reduction in debt to be lower than 2018; and
- increased share repurchases compared to 2018.

The Company's 2019 financial results forecasts do not include non-core, unusual, or non-recurring items. Accordingly, management is unable to reconcile projected full-year 2019 earnings excluding non-core, unusual, or non-recurring items to projected reported GAAP earnings without unreasonable efforts.

See "Forward-Looking Statements" and "Risk Factors" below.

FORWARD-LOOKING STATEMENTS

Certain statements made or incorporated by reference in this Annual Report are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act (Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities and Exchange Act of 1934, as amended). Forward-looking statements are all statements, other than statements of historical fact, that may be made by Eastman Chemical Company ("Eastman" or the "Company") from time to time. In some cases, you can identify forward-looking statements by terminology such as "anticipates", "believes", "estimates", "expects", "intends", "may", "plans", "projects", "will", "would", and similar expressions or expressions of the negative of these terms. Forward-looking statements may relate to, among other things, such matters as planned and expected capacity increases and utilization; anticipated capital spending; expected depreciation and amortization; environmental matters; exposure to, and effects of hedging of, raw material and energy prices and costs; foreign currencies and interest rates; disruption or interruption of operations and of raw material or energy supply; global and regional economic, political, and business conditions; competition; growth opportunities; supply and demand, volume, price, cost, margin and sales; pending and future legal proceedings; earnings, cash flow, dividends, stock repurchases and other expected financial results, events, and conditions; expectations, strategies, and plans for individual assets and products, businesses, and operating segments, as well as for the whole of Eastman; cash requirements and uses of available cash; financing plans and activities; pension expenses and funding; credit ratings; anticipated and other future restructuring, acquisition, divestiture, and consolidation activities; cost reduction and control efforts and targets; the timing and costs of, and benefits from, the integration of, and expected business and financial performance of, acquired businesses; strategic and technology and product innovation initiatives and development, production, commercialization and acceptance of new products, services and technologies and related costs; asset, business, and product portfolio changes; and expected tax rates and net interest costs.

Forward-looking statements are based upon certain underlying assumptions as of the date such statements were made. Such assumptions are based upon internal estimates and other analyses of current market conditions and trends, management expectations, plans, and strategies, economic conditions, and other factors. Forward-looking statements and the assumptions underlying them are necessarily subject to risks and uncertainties inherent in projecting future conditions and results. Actual results could differ materially from expectations expressed in the forward-looking statements if one or more of the underlying assumptions and expectations proves to be inaccurate or is unrealized. The most significant known factors, risks, and uncertainties that could cause actual results to differ materially from those in the forward-looking statements are identified and discussed under "Management's Discussion and Analysis of Financial Condition and Results of Operations - Risk Factors" in this Annual Report. Other factors, risks or uncertainties of which management is not aware, or presently deems immaterial, could also cause actual results to differ materially from those in the forward-looking statements.

The Company cautions you not to place undue reliance on forward-looking statements, which speak only as of the date such statements are made. Except as may be required by law, the Company undertakes no obligation to update or alter these forward-looking statements, whether as a result of new information, future events, or otherwise. Investors are advised, however, to consult any further public Company disclosures (such as filings with the Securities and Exchange Commission or in Company press releases) on related subjects.

RISK FACTORS

In addition to factors described elsewhere in this Annual Report, the following are the most significant known factors, risks, and uncertainties that could cause actual results to differ materially from those in the forward-looking statements made in this Annual Report and elsewhere from time to time. See "Forward-Looking Statements".

Continued uncertain conditions in the global economy and the financial markets could negatively impact the Company.

The Company's business and operating results were affected by the impact of the last global recession, and its related impacts, such as the credit market crisis, declining consumer and business confidence, fluctuating commodity prices, volatile exchange rates, and other challenges that affected the global economy. Current uncertainty in the global economy and global capital markets may adversely affect Eastman's results of operations, financial condition, and cash flows. In addition, the Company's ability to access the credit and capital markets under attractive rates and terms could be constrained, which may negatively impact the Company's liquidity or ability to pursue certain growth initiatives.

Volatility in costs for strategic raw material and energy commodities or disruption in the supply of these commodities could adversely affect the Company's financial results.

Eastman is reliant on certain strategic raw material and energy commodities for its operations and utilizes risk management tools, including hedging, as appropriate, to mitigate market fluctuations in raw material and energy costs. These risk mitigation measures do not eliminate all exposure to market fluctuations and may limit the Company from fully benefiting from lower raw material costs and, conversely, offset the impact of higher raw material costs. In addition, natural disasters, plant interruptions, changes in laws or regulations, war or other outbreak of hostilities or terrorism, and breakdown or degradation of transportation infrastructure used for delivery of strategic raw material and energy commodities, could adversely impact both the cost and availability of these commodities.

Loss or financial weakness of any of the Company's largest customers could adversely affect the Company's financial results.

Although Eastman has an extensive customer base, loss of, or material financial weakness of, certain of the Company's largest customers could adversely affect the Company's financial condition and results of operations until such business is replaced. No assurances can be made that the Company would be able to regain or replace any lost customers.

The Company's business is subject to operating risks common to chemical manufacturing businesses, including cyber security risks, any of which could disrupt manufacturing operations or related infrastructure and adversely affect results of operations.

As a global specialty chemicals manufacturing company, Eastman's business is subject to operating risks common to chemical manufacturing, storage, handling, and transportation, including explosions, fires, inclement weather, natural disasters, mechanical failure, unscheduled downtime, transportation interruptions, remediation, chemical spills, discharges or releases of toxic or hazardous substances or gases. Significant limitation on the Company's ability to manufacture products due to disruption of manufacturing operations or related infrastructure could have a material adverse effect on the Company's sales revenue, costs, results of operations, credit ratings, and financial condition. Disruptions could occur due to internal factors such as computer or equipment malfunction (accidental or intentional), operator error, or process failures; or external factors such as computer or equipment malfunction at third-party service providers, natural disasters, pandemic illness, changes in laws or regulations, war or other outbreak of hostilities or terrorism, cyber attacks, or breakdown or degradation of transportation infrastructure used for delivery of supplies to the Company or for delivery of products to customers. The Company has in the past experienced cyber attacks and breaches of its computer information systems, although none of these have had a material adverse effect on the Company's operations. While the Company remains committed to managing cyber related risk, no assurances can be provided that any future disruptions due to these, or other, circumstances will not have a material effect on operations. Unplanned disruptions of manufacturing operations or related infrastructure could be significant in scale and could negatively impact operations, neighbors, and the environment, and could have a negative impact on the Company's results of operations. As previously reported, manufacturing operations and earnings have been negatively impacted by the fourth quarter 2017 operational incident in the Kingsport manufacturing facility coal gasification operations area and the second quarter 2018 third-party supplier operational disruptions at the Texas City and Longview, Texas manufacturing facilities.

Growth initiatives may not achieve desired business or financial objectives and may require significant resources in addition to or different from those available or in excess of those estimated or budgeted for such initiatives.

Eastman continues to identify and pursue growth opportunities through both organic and inorganic initiatives. These growth opportunities include development and commercialization or licensing of innovative new products and technologies and related employee leadership, expertise, skill development and retention, expansion into new markets and geographic regions, alliances, ventures, and acquisitions that complement and extend the Company's portfolio of businesses and capabilities. Such initiatives are necessarily constrained by available and development of additional resources, including development, attraction, and retention of employee leadership, application development, and sales and marketing talent and capabilities. There can be no assurance that such innovation, development and commercialization or licensing efforts, investments, or acquisitions and alliances (including integration of acquired businesses) will result in financially successful commercialization of products, or acceptance by existing or new customers, or successful entry into new markets or otherwise achieve their underlying strategic business objectives or that they will be beneficial to the Company's results of operations. There also can be no assurance that capital projects for growth efforts can be completed within the time or at the costs projected due, among other things, to demand for and availability of construction materials and labor and obtaining regulatory approvals and operating permits and reaching agreement on terms of key agreements and arrangements with potential suppliers and customers. Any such delays or cost overruns or the inability to obtain such approvals or to reach such agreements on acceptable terms could negatively affect the returns from any proposed or current investments and projects.

The Company's substantial global operations subject it to risks of doing business in other countries, including U.S. and non-U.S. trade relations, which could adversely affect its business, financial condition, and results of operations.

More than half of Eastman's sales for 2018 were to customers outside of North America. The Company expects sales from international markets to continue to represent a significant portion of its sales. Also, a significant portion of the Company's manufacturing capacity is located outside of the United States. Accordingly, the Company's business is subject to risks related to the differing legal, political, cultural, social and regulatory requirements, and economic conditions of many jurisdictions. Fluctuations in exchange rates may affect product demand and may adversely affect the profitability in U.S. dollars of products and services provided in foreign countries. In addition, the U.S. or foreign countries have imposed and may impose additional taxes or otherwise tax Eastman's foreign income, or adopt or increase restrictions on foreign trade or investment, including currency exchange controls, tariffs or other taxes, or limitations on imports or exports (including recent and proposed changes in U.S. trade policy and resulting retaliatory actions by other countries, including China, which have recently reduced and which may increasingly reduce demand for and increase costs of impacted products or result in U.S.-based trade counterparties limiting trade with U.S.-based companies or non-U.S. customers limiting their purchases from U.S.-based companies). Certain legal and political risks are also inherent in the operation of a company with Eastman's global scope. For example, it may be more difficult for Eastman to enforce its agreements or collect receivables through foreign legal systems, and the laws of some countries may not protect the Company's intellectual property rights to the same extent as the laws of the U.S. Failure of foreign countries to have laws to protect Eastman's intellectual property rights or an inability to effectively enforce such rights in foreign countries could result in loss of valuable proprietary information. There is also risk that foreign governments may nationalize private enterprises in certain countries where Eastman operates. Social and cultural norms in certain countries may not support compliance with Eastman's corporate policies including those that require compliance with substantive laws and regulations. Also, changes in general economic and political conditions in countries where Eastman operates are a risk to the Company's financial performance. As Eastman continues to operate its business globally, its success will depend, in part, on its ability to anticipate and effectively manage these and other related risks. There can be no assurance that the consequences of these and other factors relating to its multinational operations will not have an adverse effect on Eastman's business, financial condition, or results of operations.

Legislative or regulatory actions could increase the Company's future compliance costs.

Eastman and its facilities and businesses are subject to complex health, safety, and environmental laws and regulations, both in the U.S. and internationally, which require and will continue to require significant expenditures to remain in compliance with such laws and regulations. The Company's accruals for such costs and associated liabilities are subject to changes in estimates on which the accruals are based. For example, any amount accrued for environmental matters reflects the Company's assumptions about remediation requirements at the contaminated site, the nature of the remedy, the outcome of discussions with regulatory agencies and other potentially responsible parties at multi-party sites, and the number of and financial viability of other potentially responsible parties. Changes in the estimates on which the accruals are based, unanticipated government enforcement action, or changes in health, safety, environmental, chemical control regulations, and testing requirements could result in higher costs. Specifically, future changes in U.S. Federal legislation and regulation may increase the likelihood that the Company's manufacturing facilities will in the future be impacted by regulation of greenhouse gas emissions and energy policy, which legislation and regulation, if enacted, may result in capital expenditures, increases in costs for raw materials and energy, limitations on raw material and energy source and supply choices, and other direct compliance costs.

Significant acquisitions expose the Company to risks and uncertainties, the occurrence of any of which could materially adversely affect the Company's business, financial condition, and results of operations.

While acquisitions have been and continue to be a part of Eastman's growth strategy, acquisitions of large companies (such as the previous acquisitions of Taminco Corporation and Solutia) subject the Company to a number of risks and uncertainties, the occurrence of any of which could have a material adverse effect on Eastman. These include, but are not limited to, the possibilities that the financial performance of the acquired business may be significantly worse than expected; that significant additional indebtedness may constrain the Company's ability to access the credit and capital markets at attractive interest rates and favorable terms, which may negatively impact the Company's liquidity or ability to pursue certain growth initiatives; that the Company may not be able to achieve the cost, revenue, tax, or other "synergies" expected from any acquisition, or that there may be delays in achieving any such synergies; that management's time and effort may be dedicated to the new business resulting in a loss of focus on the successful operation of the Company's existing businesses; and that the Company may be required to expend significant additional resources in order to integrate any acquired business into Eastman or that the integration efforts will not achieve the expected benefits.

In addition to the foregoing most significant known risk factors to the Company, there may be other factors, not currently known to the Company, which could, in the future, materially adversely affect the Company, its business, financial condition, or results of operations. The foregoing discussion of the most significant risk factors to the Company does not necessarily present them in order of importance. This disclosure, including that under "Outlook" and other forward-looking statements and related disclosures made by the Company in this Annual Report and elsewhere from time to time, represents management's best judgment as of the date the information is given. The Company does not undertake responsibility for updating any of such information, whether as a result of new information, future events, or otherwise, except as required by law. Investors are advised, however, to consult any further public Company disclosures (such as in filings with the Securities and Exchange Commission or in Company press releases) on related subjects.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Eastman has exposure to various market risks principally due to changes in foreign currency exchange rates, the pricing of various commodities, and interest rates. In an effort to manage these risks, the Company employs various strategies, including pricing, inventory management, and hedging. The Company enters into derivative contracts which are governed by policies, procedures, and internal processes set forth by its Board of Directors.

The Company determines its exposures to market risk by utilizing sensitivity analyses, which measure the potential losses in fair value resulting from one or more selected hypothetical changes in foreign currency exchange rates, commodity prices, or interest rates.

Foreign Currency Risk

Due to a portion of the Company's operating cash flows and borrowings being denominated in foreign currencies, the Company is exposed to market risk from changes in foreign currency exchange rates. The Company continually evaluates its foreign currency exposure based on current market conditions and the locations in which the Company conducts business. The Company manages most foreign currency exposures on a consolidated basis, which allows the Company to net certain exposures and take advantage of natural offsets. To mitigate foreign currency risk, from time to time, the Company enters into derivative instruments to hedge the cash flows related to certain sales and purchase transactions expected within a rolling three year period and denominated in foreign currencies, and enters into forward exchange contracts to hedge certain firm commitments denominated in foreign currencies. The gains and losses on these contracts offset changes in the value of related exposures. Additionally, the Company, from time to time, enters into non-derivative and derivative instruments to hedge the foreign currency exposure of the net investment in certain foreign operations. The foreign currency change in the designated investment values of the foreign subsidiaries will generally be offset by a foreign currency change in the carrying value of the euro-denominated borrowings. It is the Company's policy to enter into foreign currency derivative and non-derivative instruments only to the extent considered necessary to meet its objectives as stated above. The Company does not enter into foreign currency derivative financial instruments for speculative purposes.

At December 31, 2018, the market risk associated with certain cash flows under these derivative transactions assuming a 10 percent adverse move in the U.S. dollar relative to these foreign currencies was $28 million, with an additional $3 million exposure for each additional one percentage point adverse change in those foreign currency rates. At December 31, 2017, the market risk associated with cash flows under these derivative transactions assuming a 10 percent adverse move in the U.S. dollar relative to those currencies was $45 million, with an additional $5 million exposure for each additional one percentage point adverse change in those exchange rates. Since the Company utilizes currency-sensitive derivative instruments for hedging anticipated foreign currency transactions, a loss in fair value from those instruments is generally offset by an increase in the value of the underlying anticipated transactions.

In January 2018, Eastman entered into fixed-to-fixed cross-currency swaps and designated these swaps to hedge a portion of its net investment in a euro functional currency denominated subsidiary against foreign currency fluctuations. These contracts involve the exchange of fixed U.S. dollars with fixed euro interest payments periodically over the life of the contracts and an exchange of the notional amounts at maturity. The fixed-to-fixed cross-currency swaps include €150 million ($180 million) maturing January 2021 and €266 million ($320 million) maturing August 2022.

In October 2018, Eastman entered into fixed-to-fixed cross-currency swaps and designated these swaps to hedge a portion of its net investment in a euro functional currency denominated subsidiary against foreign currency fluctuations. These contracts involve the exchange of fixed U.S. dollars with fixed euro interest payments periodically over the life of the contracts and an exchange of the notional amounts at maturity. The fixed-to-fixed cross-currency swaps include €165 million ($190 million) maturing January 2024, €104 million ($120 million) maturing March 2025, and €165 million ($190 million) maturing February 2027.

At December 31, 2018, a 10 percent fluctuation in the euro currency rate would have had a $240 million impact on the designated net investment values in the foreign subsidiaries. At December 31, 2017, a 10 percent fluctuation in the euro currency rate would have had a $149 million impact on the designated net investment values in the foreign subsidiaries. As a result of the designation of the euro-denominated borrowings and designated cross-currency interest rate swaps as hedges of the net investments, foreign currency translation gains and losses on the borrowings and designated cross-currency interest rate swaps are recorded as a component of the "Change in cumulative translation adjustment" within "Other comprehensive income (loss), net of tax" in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings in this Annual Report. Therefore, a foreign currency change in the designated investment values of the foreign subsidiaries will generally be offset by a foreign currency change in the carrying value of the euro-denominated borrowings or the foreign currency change in the designated cross-currency interest rate swaps.

Commodity Risk

The Company is exposed to fluctuations in market prices for certain of its raw materials and energy, as well as contract sales of certain commodity products. To mitigate short-term fluctuations in market prices for certain commodities, principally propane, ethane, natural gas, paraxylene, ethylene, and benzene, as well as selling prices for ethylene, the Company enters into derivative transactions, from time to time, to hedge the cash flows related to certain sales and purchase transactions expected within a rolling three year period. At December 31, 2018 and December 31, 2017, the market risk associated with these derivative contracts, assuming an instantaneous parallel shift in the underlying commodity price of 10 percent and no corresponding change in the selling price of finished goods, was $25 million and $30 million, respectively, with an additional $3 million of exposure at both dates for each one percentage point move in closing price thereafter.

Interest Rate Risk

Eastman is exposed to interest rate risk primarily as a result of its borrowing and investing activities, which include long-term borrowings used to maintain liquidity and to fund its business operations and capital requirements. The nature and amount of the Company's long-term and short-term debt may vary from time to time as a result of business requirements, market conditions, and other factors. The Company manages global interest rate exposure as part of regular operational and financing strategies. The Company had variable interest rate borrowings (including credit facility borrowings and commercial paper borrowings) of $293 million and $589 million at December 31, 2018 and 2017, respectively. These borrowings represented approximately 5 percent and 10 percent of total outstanding debt and bore weighted average interest rates of 2.53 percent and 1.89 percent at December 31, 2018 and 2017, respectively. A hypothetical 10 percent increase in the average interest rate applicable to these borrowings would change annualized interest expense by approximately $1 million as of both December 31, 2018 and 2017.

Eastman may enter into interest rate swaps, collars, or similar instruments with the objective of reducing interest rate volatility relating to the Company's borrowing costs. As of both December 31, 2018 and 2017, the Company had an interest rate swap outstanding with a notional value of $75 million. For purposes of calculating the market risks associated with the fair value of interest-rate-sensitive instruments, the Company uses a hypothetical 10 percent increase in interest rates. The corresponding market risk of the interest rate swap hedging the interest rate risk on the 3.8% bonds maturing March 2025 was $1 million as of both December 31, 2018 and December 31, 2017.

FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

MANAGEMENT'S RESPONSIBILITY FOR FINANCIAL STATEMENTS

Management is responsible for the preparation and integrity of the accompanying consolidated financial statements of Eastman Chemical Company ("Eastman" or the "Company"). Eastman has prepared these consolidated financial statements in accordance with accounting principles generally accepted in the United States, and the statements of necessity include some amounts that are based on management's best estimates and judgments.

Eastman's accounting systems include extensive internal controls designed to provide reasonable assurance of the reliability of its financial records and the proper safeguarding and use of its assets. Such controls are based on established policies and procedures, are implemented by trained, skilled personnel with an appropriate segregation of duties, and are monitored through a comprehensive internal audit program. The Company's policies and procedures prescribe that the Company and all employees are to maintain the highest ethical standards and that its business practices throughout the world are to be conducted in a manner that is above reproach.

The accompanying consolidated financial statements have been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, who were responsible for conducting their audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Their report is included herein.

The Board of Directors exercises its responsibility for these financial statements through its Audit Committee, which consists entirely of non-management Board members. PricewaterhouseCoopers LLP, and internal auditors have full and free access to the Audit Committee. The Audit Committee meets periodically with PricewaterhouseCoopers LLP and Eastman's Director of Corporate Audit Services, both privately and with management present, to discuss accounting, auditing, policies and procedures, internal controls, and financial reporting matters.

/s/ Mark J. Costa	/s/ Curtis E. Espeland
Mark J. Costa	Curtis E. Espeland
Chief Executive Officer	Executive Vice President and Chief Financial Officer
February 27, 2019	February 27, 2019

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of
Eastman Chemical Company

Opinions on the Financial Statements and Internal Control over Financial Reporting

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

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

Change in Accounting Principle

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for revenues from contracts with customers in 2018.

Basis for Opinions

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

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

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

Definition and Limitations of Internal Control over Financial Reporting

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

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

/s/ PricewaterhouseCoopers LLP
Cincinnati, OH
February 27, 2019

We have served as the Company's auditor since 1993.

CONSOLIDATED STATEMENTS OF EARNINGS, COMPREHENSIVE INCOME AND RETAINED EARNINGS

(Dollars in millions, except per share amounts)	For years ended December 31, 2018	2017	2016
Sales	$ 10,151	$ 9,549	$ 9,008
Cost of sales	7,672	7,186	6,651
Gross profit	2,479	2,363	2,357
Selling, general and administrative expenses	721	729	707
Research and development expenses	235	227	223
Asset impairments and restructuring charges, net	45	8	45
Other components of post-employment (benefit) cost, net	(21)	(135)	(3)
Other (income) charges, net	(53)	4	(4)
Earnings before interest and taxes	1,552	1,530	1,389
Net interest expense	235	241	255
Early debt extinguishment and other related costs	7	—	85
Earnings before income taxes	1,310	1,289	1,049
Provision for (benefit from) income taxes	226	(99)	190
Net earnings	1,084	1,388	859
Less: Net earnings attributable to noncontrolling interest	4	4	5
Net earnings attributable to Eastman	$ 1,080	$ 1,384	$ 854
Basic earnings per share attributable to Eastman	$ 7.65	$ 9.56	$ 5.80
Diluted earnings per share attributable to Eastman	$ 7.56	$ 9.47	$ 5.75
Comprehensive Income			
Net earnings including noncontrolling interest	$ 1,084	$ 1,388	$ 859
Other comprehensive income (loss), net of tax:			
Change in cumulative translation adjustment	(13)	85	(97)
Defined benefit pension and other postretirement benefit plans:			
Prior service credit arising during the period	—	—	64
Amortization of unrecognized prior service credits included in net periodic costs	(30)	(27)	(30)
Derivatives and hedging:			
Unrealized gain (loss) during period	22	7	93
Reclassification adjustment for (gains) losses included in net income, net	(15)	7	79
Total other comprehensive income (loss), net of tax	(36)	72	109
Comprehensive income including noncontrolling interest	1,048	1,460	968
Less: Comprehensive income attributable to noncontrolling interest	4	4	5
Comprehensive income attributable to Eastman	$ 1,044	$ 1,456	$ 963
Retained Earnings			
Retained earnings at beginning of period	$ 6,802	$ 5,721	$ 5,146
Cumulative effect adjustment resulting from adoption of new accounting standards	16	—	—
Net earnings attributable to Eastman	1,080	1,384	854
Cash dividends declared	(325)	(303)	(279)
Retained earnings at end of period	$ 7,573	$ 6,802	$ 5,721

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

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

(Dollars in millions, except per share amounts)	December 31, 2018	December 31, 2017
Assets		
Current assets		
Cash and cash equivalents	$ 226	$ 191
Trade receivables, net of allowance for doubtful accounts	1,154	1,026
Miscellaneous receivables	329	360
Inventories	1,583	1,509
Other current assets	73	57
Total current assets	3,365	3,143
Properties		
Properties and equipment at cost	12,731	12,370
Less: Accumulated depreciation	7,131	6,763
Net properties	5,600	5,607
Goodwill	4,467	4,527
Intangible assets, net of accumulated amortization	2,185	2,373
Other noncurrent assets	378	349
Total assets	$ 15,995	$ 15,999
Liabilities and Stockholders' Equity		
Current liabilities		
Payables and other current liabilities	$ 1,608	$ 1,589
Borrowings due within one year	243	393
Total current liabilities	1,851	1,982
Long-term borrowings	5,925	6,147
Deferred income tax liabilities	884	893
Post-employment obligations	925	963
Other long-term liabilities	532	534
Total liabilities	10,117	10,519
Commitments and contingencies (Note 11)		
Stockholders' equity		
Common stock ($0.01 par value per share – 350,000,000 shares authorized; shares issued – 219,140,523 and 218,369,992 for 2018 and 2017, respectively)	2	2
Additional paid-in capital	2,048	1,983
Retained earnings	7,573	6,802
Accumulated other comprehensive loss	(245)	(209)
	9,378	8,578
Less: Treasury stock at cost (79,413,989 shares for 2018 and 75,454,111 shares for 2017)	3,575	3,175
Total Eastman stockholders' equity	5,803	5,403
Noncontrolling interest	75	77
Total equity	5,878	5,480
Total liabilities and stockholders' equity	$ 15,995	$ 15,999

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Operating activities			
Net earnings	$ 1,084	$ 1,388	$ 859
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	604	587	580
Mark-to-market pension and other postretirement benefit plans (gain) loss, net	99	(21)	97
Asset impairment charges	39	1	9
Early debt extinguishment and other related costs	7	—	85
Gains from sale of assets and businesses	(4)	(3)	(17)
Gain from property insurance	(65)	—	—
Provision for (benefit from) deferred income taxes	(51)	(394)	177
Changes in operating assets and liabilities, net of effect of acquisitions and divestitures:			
(Increase) decrease in trade receivables	16	(53)	(29)
(Increase) decrease in inventories	(224)	(71)	54
Increase (decrease) in trade payables	90	123	7
Pension and other postretirement contributions in excess of expenses	(152)	(115)	(329)
Variable compensation less than expenses	55	71	17
Other items, net	45	144	(125)
Net cash provided by operating activities	1,543	1,657	1,385
Investing activities			
Additions to properties and equipment	(528)	(649)	(626)
Proceeds from property insurance	65	—	—
Proceeds from sale of assets and businesses	5	14	41
Acquisitions, net of cash acquired	(3)	(4)	(26)
Other items, net	(2)	(4)	(44)
Net cash used in investing activities	(463)	(643)	(655)
Financing activities			
Net increase (decrease) in commercial paper and other borrowings	(146)	(19)	(150)
Proceeds from borrowings	1,604	675	1,848
Repayment of borrowings	(1,774)	(1,025)	(2,126)
Dividends paid to stockholders	(318)	(296)	(272)
Treasury stock purchases	(400)	(350)	(145)
Dividends paid to noncontrolling interests	(4)	(7)	(8)
Other items, net	(2)	16	15
Net cash used in financing activities	(1,040)	(1,006)	(838)
Effect of exchange rate changes on cash and cash equivalents	(5)	2	(4)
Net change in cash and cash equivalents	35	10	(112)
Cash and cash equivalents at beginning of period	191	181	293
Cash and cash equivalents at end of period	$ 226	$ 191	$ 181

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

1. SIGNIFICANT ACCOUNTING POLICIES

Financial Statement Presentation

The consolidated financial statements of Eastman Chemical Company ("Eastman" or the "Company") and subsidiaries are prepared in conformity with accounting principles generally accepted ("GAAP") in the United States and of necessity include some amounts that are based upon management estimates and judgments. Future actual results could differ from such current estimates. The consolidated financial statements include assets, liabilities, sales revenue, and expenses of all majority-owned subsidiaries and joint ventures in which a controlling interest is maintained. Eastman accounts for other joint ventures and investments in minority-owned companies where it exercises significant influence on the equity basis. Intercompany transactions and balances are eliminated in consolidation.

Certain prior period data has been reclassified in the Consolidated Financial Statements and accompanying footnotes to conform to current period presentation. As of January 1, 2018:

- Eastman's primary measure of operating performance for all periods presented is earnings before interest and taxes ("EBIT") on a consolidated and segment basis. Previously, the Company's primary measure of operating performance was operating earnings.
- As discussed below, the new accounting standard for the presentation of net periodic benefit costs requires the Company to present non-service cost components of net periodic benefit costs (interest cost, expected return on plan assets, curtailment gains or losses, amortization of prior service costs or credits, and mark-to-market gains or losses) separately from service cost. These non-service cost components were reclassified from "Cost of sales", "Selling, general and administrative expenses", and "Research and development expenses" line items and are now included in a new line item, "Other components of post-employment (benefit) cost, net" on the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings for all periods presented. This reclassification does not change prior period EBIT, earnings before income taxes, or net earnings and, accordingly, management does not consider this change to have a material impact on the Company's financial statements and related disclosures.

Recently Adopted Accounting Standards

Accounting Standards Update ("ASU") 2014-09 Revenue Recognition (Accounting Standards Codification ("ASC") 606): On January 1, 2018, Eastman adopted this standard under the modified retrospective method, such that revenue for all periods prior to January 1, 2018 continue to be reported under the previous standard, which resulted in an increase to retained earnings of $53 million after tax for products shipped but not delivered as of December 31, 2017.

Under the new standard, the Company recognizes revenue when performance obligations of the sale are satisfied. The majority of the Company's terms of sale have a single performance obligation to transfer products. Accordingly, the Company recognizes revenue when control has been transferred to the customer, generally at the time of shipment of products. Under the previous revenue recognition accounting standard, the Company recognized revenue upon transfer of title and risk of loss, generally upon the delivery of goods.

Changes in the accounting required by this new standard did not materially impact the Company's financial statements and related disclosures when comparing 2018 under the new revenue standard to previous years under the prior standard. For further information, see Note 22, "Revenue Recognition".

ASU 2016-01 Financial Instruments: On January 1, 2018, Eastman adopted this standard relating to the recognition and measurement of financial assets and financial liabilities. This standard requires equity investments (except equity method and consolidated investments) to be measured at fair value with changes in fair value recognized in net income. Management has concluded that changes in its accounting required by the new standard did not materially impact the Company's financial statements and related disclosures. In February 2018, the Financial Accounting Standards Board ("FASB") issued ASU 2018-03 as an update to the standard described above which was adopted on July 1, 2018. Management has concluded that changes in its accounting required by the update did not materially impact the Company's financial statements and related disclosures.

ASU 2016-16 Income Taxes - Intra-Entity Transfers: On January 1, 2018, Eastman adopted this standard under the modified retrospective method resulting in a beginning retained earnings decrease of $39 million. Under this standard, the Company is required to recognize the income tax consequence of an intra-entity transfer of an asset other than inventory when the transfer occurs.

ASU 2017-05 Other Income - Gains and Losses from Derecognition of Nonfinancial Assets: On January 1, 2018, Eastman adopted this standard in conjunction with the revenue recognition standard mentioned above. This standard clarifies the scope of nonfinancial asset derecognition and the accounting for partial sales of nonfinancial assets. This adoption had no impact on the Company's financial statements and related disclosures in the current period.

ASU 2017-07 Compensation - Retirement Benefits: On January 1, 2018, Eastman adopted this standard retrospectively for income statement effects and prospectively for balance sheet effects. This standard is intended to improve the presentation of net periodic pension and postretirement benefit costs by requiring the reporting of the service cost component in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net periodic benefit costs (interest cost, expected return on plan assets, curtailment gains or losses, amortization of prior service costs or credits, and mark-to-market gains or losses) are to be presented in the income statement separately from the service cost component and outside the subtotal of income from operations, if presented. Management has concluded that changes in its accounting required by this new standard did not materially impact the Company's financial statements and related disclosures.

ASU 2017-12 Derivatives and Hedging: On January 1, 2018, Eastman adopted this standard on a modified retrospective basis for income statement impacts and prospectively for presentation and disclosure resulting in a beginning retained earnings increase of $2 million related to ineffectiveness recognized in "Accumulated other comprehensive income (loss)" ("AOCI") which was recognized in the Consolidated Statements of Financial Position under the previous standard. This standard is intended to simplify the application of hedge accounting and improve the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in the financial statements. Management has included the additional disclosures required by this standard in Note 9, "Derivative and Non-Derivative Financial Instruments".

ASU 2017-04 Intangibles - Goodwill and Other: On October 1, 2018, Eastman adopted this standard on a prospective basis beginning with the assessments performed in the fourth quarter 2018. FASB issued this standard as a part of its simplification initiative that bases the impairment of goodwill on any difference for which the carrying value is greater than the fair value of the reporting unit.

Accounting Standards Issued But Not Adopted as of December 31, 2018

ASU 2016-02 Leases: In February 2016, the FASB issued this standard on lease accounting. The new standard establishes two types of leases for lessees: finance and operating. Both finance and operating leases will have associated right-of-use assets and liabilities initially measured at the present value of the lease payments. This standard is effective for annual reporting periods beginning after December 15, 2018, including interim periods within that reporting period and early adoption is permitted. The new standard is to be applied under a modified retrospective approach wherein practical expedients have been allowed that will not require reassessment of current leases at the effective date. In July 2018, the FASB issued update *ASU 2018-11* that allows entities to initially apply the new leases standard prospectively at the adoption date with a cumulative-effect adjustment to the opening balance of retained earnings in the period of adoption as necessary. The Company will adopt this standard beginning first quarter 2019, and anticipates adopting under the optional prospective method which will have a material impact, on a gross basis, on the Company's Consolidated Statements of Financial Position. In preparation for adoption, management continues lease accounting system testing and development of related internal controls and disclosures.

ASU 2016-13 Financial Instruments - Credit Losses: In June 2016, the FASB issued this standard relating to credit losses. The amendments require a financial asset (including trade receivables) to be presented at the net amount expected to be collected through the use of allowances for credit losses valuation account. The income statement will reflect the measurement of credit losses for newly recognized financial assets, as well as the expected increases or decreases of expected credit losses that have taken place during the period. This standard is effective for annual reporting periods beginning after December 15, 2019, including interim periods within that reporting period and early adoption is permitted, including adoption in an interim period, beginning after December 15, 2018. In November 2018, the FASB issued amendment 2018-19 to clarify that receivables arising from operating leases are not within the scope of this sub-topic but instead, impairment of such operating lease receivables should be accounted for in accordance with Topic 842, Leases (2016-02 above). The new standard application is mixed among the various elements that include modified retrospective and prospective transition methods. Management does not expect that changes in its accounting required by the new standard will materially impact the Company's financial statements and related disclosures.

ASU 2018-02 Income Statement - Reporting Comprehensive Income: In February 2018, the FASB issued this standard that allows the reclassification from AOCI to retained earnings for stranded tax effects resulting from the 2017 Tax Cuts and Jobs Act ("Tax Reform Act"). The amount of the reclassification is the effect of the change in the U.S. federal corporate income tax rate on the gross deferred tax amounts and related valuation allowances related to items remaining in AOCI. This standard is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period, for reporting periods for which financial statements have not yet been issued. The Company will adopt this standard beginning first quarter 2019, and it is not expected to have a material impact to the Company's financial statements and related disclosures.

ASU 2018-13 Fair Value Measurement - Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement: In August 2018, the FASB issued this update as a part of its disclosure framework project to improve the effectiveness of disclosures in the notes to financial statements. This standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. Early adoption was permitted upon issuance of this update and an entity is permitted to early adopt any removed or modified disclosures upon issuance of this update and delay adoption of the additional disclosures until the effective date. Certain disclosure amendments are to be applied prospectively for only the most recent interim or annual period presented, while other amendments are to be applied retrospectively to all periods presented. Management is currently evaluating implementation options and impact on the Company's related disclosures.

ASU 2018-14 Retirement Benefits - Disclosure Framework - Changes to the Disclosure Requirements for Defined Benefit Plans: In August 2018, the FASB issued this update as a part of its disclosure framework project to improve the effectiveness of disclosures in the notes to financial statements. This standard is effective for fiscal years ending after December 15, 2020 and early adoption is permitted. Upon adoption, this update is to be applied on a retrospective basis to all periods presented. Management is currently evaluating the impact on the Company's related disclosures.

ASU 2018-15 Internal-Use Software - Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract: In August 2018, the FASB issued this update. This standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted, including adoption in any interim period. This standard is to be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. Management is currently evaluating implementation options and impact on the Company's financial statements and related disclosures.

2018-16 Derivatives and Hedging - Inclusion of the Secured Overnight Financing Rate ("SOFR") Overnight Index Swap ("OIS") Rate as a Benchmark Interest Rate for Hedge Accounting Purposes: In October 2018, the FASB issued this update that permits the use of the OIS rate based on SOFR as a U.S. benchmark interest rate for hedge accounting purposes. For entities that have already adopted 2017-12, above, this update is effective for fiscal years beginning after December 15, 2018, and interim periods within those fiscal years. The Company will adopt this standard beginning first quarter 2019, and anticipates adopting on a prospective basis for qualifying new or redesignated hedging relationships.

2018-18 Collaborative Arrangements - Clarifying the Interaction between Topic 808 (Collaborative Arrangements) and Topic 606 (Revenue from Contracts with Customers): In November 2018, the FASB issued clarification in regards to which contracts are accounted for under Topic 808 and Topic 606 as well as alignment of guidance between the two Topics. This standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Early adoption is permitted. Upon adoption, this update is to be applied retrospectively to the date of initial application of Topic 606. Management is currently evaluating the impact on the Company's financial statements and related disclosures.

Cash and Cash Equivalents

Cash and cash equivalents include cash, time deposits, and readily marketable securities with original maturities of three months or less.

Fair Value Measurements

Eastman records recurring and non-recurring financial assets and liabilities as well as all non-financial assets and liabilities subject to fair value measurement at the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. These fair value principles prioritize valuation inputs across three broad levels. Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities. Level 2 inputs are quoted prices for similar assets and liabilities in active markets or inputs that are observable for the asset or liability, either directly or indirectly through market corroboration, for substantially the full term of the financial instrument. Level 3 inputs are unobservable inputs based on the Company's assumptions used to measure assets and liabilities at fair value. An asset or liability's classification within the various levels is determined based on the lowest level input that is significant to the fair value measurement.

Accounts Receivable and Allowance for Doubtful Accounts

Trade accounts receivable are recorded at the invoiced amount and do not bear interest. Eastman maintains allowances for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company calculates the allowance based on an assessment of the risk in the accounts receivable portfolio. Write-offs are recorded at the time a customer receivable is deemed uncollectible. Allowance for doubtful accounts was $11 million and $12 million at December 31, 2018 and 2017, respectively. The Company does not enter into receivables of a long-term nature, also known as financing receivables, in the normal course of business.

Inventories

Inventories are valued at the lower of cost or market. Eastman determines the cost of most raw materials, work in process, and finished goods inventories in the United States and Switzerland by the last-in, first-out ("LIFO") method. The cost of all other inventories is determined by the average cost method, which approximates the first-in, first-out ("FIFO") method. The Company writes-down its inventories for estimated obsolescence or unmarketable inventory equal to the difference between the carrying value of inventory and the estimated market value based upon assumptions about future demand and market conditions.

Properties

Eastman records properties at cost. Maintenance and repairs are charged to earnings; replacements and betterments are capitalized. When Eastman retires or otherwise disposes of assets, it removes the cost of such assets and related accumulated depreciation from the accounts. The Company records any profit or loss on retirement or other disposition into earnings. Asset impairments are reflected as increases in accumulated depreciation for properties that have been placed in service. In instances when an asset has not been placed in service and is impaired, the associated costs are removed from the appropriate property accounts.

Depreciation and Amortization

Depreciation expense is calculated based on historical cost and the estimated useful lives of the assets, generally using the straight-line method. Estimated useful lives for buildings and building equipment generally range from 20 to 50 years. Estimated useful lives generally ranging from 3 to 33 years are applied to machinery and equipment in the following categories: computer software (3 to 5 years); office furniture and fixtures and computer equipment (5 to 10 years); vehicles, railcars, and general machinery and equipment (5 to 20 years); and manufacturing-related improvements (20 to 33 years). Accelerated depreciation is reported when the estimated useful life is shortened and continues to be reported in cost of sales.

Amortization expense for definite-lived intangible assets is generally determined using a straight-line method over the estimated useful life of the asset.

For additional information, see Note 4, "Goodwill and Other Intangible Assets".

Impairment of Long-Lived Assets

Definite-lived Assets

Properties and equipment and definite-lived intangible assets to be held and used by Eastman are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. The review of properties and equipment is performed at the asset group level and the review of definite-lived intangible assets is performed at the asset level, which is the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. If the carrying amount is not considered to be recoverable, an analysis of fair value is triggered. An impairment is recognized for the excess of the carrying amount of the asset over the fair value. Fair value is the price that would be received to sell an asset in an orderly transaction between market participants.

Goodwill

Eastman conducts testing of goodwill annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. The testing of goodwill is performed at the "reporting unit" level which the Company has determined to be its "components". Components are defined as an operating segment or one level below an operating segment, and in order to be a reporting unit, the component must 1) be a "business" as defined by applicable accounting standards (an integrated set of activities and assets that is capable of being conducted and managed for the purpose of providing a return in the form of dividends, lower costs, or other economic benefits directly to the investors or other owners, members, or participants); 2) have discrete financial information available; and 3) be reviewed regularly by Company operating segment management. The Company aggregates certain components into reporting units based on economic similarities.

On October 1, 2018, management adopted *ASU 2017-04 Intangibles - Goodwill and Other* to simplify the annual goodwill impairment testing process. A reporting unit's goodwill is considered to be impaired when the reporting unit's estimated fair value is less than its carrying value. The Company uses an income approach and applies a fair value methodology based on discounted cash flows in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's 2018 goodwill impairment testing included projections of revenues, expenses, and cash flows determined using the Company's annual multi-year strategic plan and a market participant tax rate. The most critical assumptions are the estimated discount rate and a projected long-term growth rate. The Company believes these assumptions are consistent with those a hypothetical market participant would use given circumstances that were present at the time the estimates were made. However, actual results and amounts may be significantly different from the Company's estimates. In addition, the use of different estimates or assumptions could result in materially different determinations. In order to determine the discount rate, the Company uses a market participant weighted average cost of capital ("WACC") approach. The WACC is calculated incorporating weighted average returns on debt and equity from market participants. Therefore, changes in the market, which are beyond the control of the Company, may have an impact on future calculations of estimated fair value.

Indefinite-lived Intangible Assets

Eastman conducts testing of indefinite-lived intangible assets annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. The carrying value of an indefinite-lived intangible asset is considered to be impaired when the fair value, as established by appraisal or based on discounted future cash flows of certain related products, is less than the respective carrying value.

Indefinite-lived intangible assets, consisting primarily of various tradenames, are tested for potential impairment by comparing the estimated fair value to the carrying amount. The Company uses an income approach, specifically the relief from royalty method, to test indefinite-lived intangible assets. The estimated fair value of tradenames is determined based on an assumed royalty rate savings, discounted by the calculated market participant WACC plus a risk premium.

For additional information, see Note 4, "Goodwill and Other Intangible Assets".

Investments

The consolidated financial statements include the accounts of Eastman and all its subsidiaries and entities or joint ventures in which a controlling interest is maintained.

Investments in affiliates over which the Company has significant influence but not a controlling interest are carried on the equity basis. Under the equity method of accounting, these investments are included in other noncurrent assets. The Company includes its share of earnings and losses of such investments in "Other (income) charges, net", and its share of "Other comprehensive income (loss), net of tax" ("OCI") located in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings and in the appropriate component of AOCI located in the Consolidated Statements of Financial Position.

Pension and Other Postretirement Benefits

Eastman maintains defined benefit pension plans that provide eligible employees with retirement benefits. Under its other postretirement benefit plans in the U.S., Eastman provides life insurance for eligible retirees hired prior to January 1, 2007. Eastman provides a subsidy for pre-Medicare health care and dental benefits to eligible retirees hired prior to January 1, 2007 that will end on December 31, 2021. Company funding is also provided for eligible Medicare retirees hired prior to January 1, 2007 with a health reimbursement arrangement. The estimated amounts of the costs and obligations related to these benefits reflect the Company's assumptions related to discount rates, expected return on plan assets, rate of compensation increase or decrease for employees, and health care cost trends. The estimated cost of providing plan benefits also depends on demographic assumptions including retirements, mortality, turnover, and plan participation.

Eastman's pension and other postretirement benefit plans costs consist of two elements: 1) ongoing costs recognized quarterly, which are comprised of service and interest costs, expected returns on plan assets, and amortization of prior service credits; and 2) mark-to-market ("MTM") gains and losses recognized annually, in the fourth quarter of each year, primarily resulting from changes in actuarial assumptions for discount rates and the differences between actual and expected returns on plan assets. Any interim remeasurements triggered by a curtailment, settlement, or significant plan changes are recognized in the quarter in which such remeasurement event occurs.

For additional information, see Note 10, "Retirement Plans".

Environmental Costs

Eastman accrues environmental remediation costs when it is probable that the Company has incurred a liability at a contaminated site and the amount can be reasonably estimated. When a single amount cannot be reasonably estimated but the cost can be estimated within a range, the Company accrues the minimum undiscounted amount. This undiscounted accrued amount reflects liabilities expected to be paid within approximately 30 years and the Company's assumptions about remediation requirements at the contaminated site, the nature of the remedy, the outcome of discussions with regulatory agencies and other potentially responsible parties at multi-party sites, and the number and financial viability of other potentially responsible parties. Changes in the estimates on which the accruals are based, unanticipated government enforcement action, or changes in health, safety, environmental, and chemical control regulations and testing requirements could result in higher or lower costs.

The Company also establishes reserves for closure and post-closure costs associated with the environmental and other assets it maintains. Environmental assets include but are not limited to waste management units, such as landfills, water treatment facilities, and surface impoundments. When these types of assets are constructed or installed, a loss contingency reserve is established for the anticipated future costs associated with the retirement or closure of the asset based on its expected life and the applicable regulatory closure requirements. The Company recognizes the asset retirement obligations in the period in which they are incurred if a reasonable estimate of fair value can be made. The asset retirement obligations are discounted to expected present value and subsequently adjusted for changes in fair value. These future estimated costs are charged to earnings over the estimated useful life of the assets. If the Company changes its estimate of the environmental asset retirement obligation costs or its estimate of the useful lives of these assets, expenses charged to earnings will be impacted.

The current portion of accruals for environmental liabilities is included in payables and other current liabilities and the long-term portion is included in other long-term liabilities. These accruals exclude claims for recoveries from insurance companies or other third parties. Environmental costs are capitalized if they extend the life of the related property, increase its capacity, or mitigate or prevent future contamination. The cost of operating and maintaining environmental control facilities is charged to expense as incurred.

For additional information see Note 12, "Environmental Matters and Asset Retirement Obligations".

Derivative and Non-Derivative Financial Instruments

Eastman uses derivative and non-derivative instruments to manage its exposure to market risks, such as changes in foreign currency exchange rates, commodity prices, and interest rates. The Company does not enter into derivative transactions for speculative purposes.

Counterparties to the derivative contracts are highly rated financial institutions which the Company believes carry minimal risk of nonperformance and the Company diversifies its positions among such counterparties to reduce its exposure to counterparty risk and credit losses. The Company monitors the creditworthiness of its counterparties on an ongoing basis.

The Company's derivative instruments are recognized as either assets or liabilities on the Consolidated Statements of Financial Position and measured at fair value. For qualifying derivatives designated as cash flow hedges, the effective portion of the changes in the fair value are reported as a component of AOCI in the Consolidated Statements of Financial Position and recognized in earnings when the hedged items affect earnings. For qualifying derivatives designated as fair value hedges, the effective portion of the changes in the fair value are reported as "Long-term borrowings" on the Consolidated Statements of Financial Position and recognized in earnings when the hedged items affect earnings. For qualifying derivative or non-derivative instruments designated as net investment hedges, the net change in the hedge instrument and item being hedged is reported as a component of "Cumulative translation adjustment" ("CTA") within AOCI located in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings. Any hedge components excluded from the assessment of effectiveness are recognized in earnings, the initial value of the excluded component, using a systematic and rational method over the life of the hedging instrument. Changes in the fair value of nonqualifying derivatives or derivatives that are not designated as hedges, are recognized in current earnings. Hedge accounting will be discontinued prospectively for all hedges that no longer qualify for hedge accounting treatment. Cash flows from derivative instruments designated as hedges are reported in the same category as the cash flows from the items being hedged.

For additional information, see Note 9, "Derivative and Non-Derivative Financial Instruments".

Litigation and Contingent Liabilities

Eastman and its operations from time to time are, and in the future, may be, parties to or targets of lawsuits, claims, investigations and proceedings, including product liability, personal injury, asbestos, patent and intellectual property, commercial, contract, environmental, antitrust, health and safety, and employment matters, which are handled and defended in the ordinary course of business. The Company accrues a contingent loss liability for such matters when it is probable that a liability has been incurred and the amount can be reasonably estimated. When a single amount cannot be reasonably estimated but the cost can be estimated within a range, the Company accrues the minimum amount. The Company expenses legal costs, including those expected to be incurred in connection with a loss contingency, as incurred.

Revenue Recognition and Customer Incentives

As noted above, on January 1, 2018, Eastman adopted *ASU 2014-09 Revenue Recognition (ASC 606).* For accounting policy and elections, see Note 22, "Revenue Recognition".

Restructuring of Operations

Eastman records restructuring charges for costs incurred in connection with consolidation of operations, exited business or product lines, or shutdowns of specific sites that are expected to be substantially completed within twelve months. These restructuring charges are recorded as incurred, and are associated with site closures, legal and environmental matters, demolition, contract terminations, obsolete inventory, or other costs and charges directly related to the restructuring. The Company records severance charges for employee separations when the separation is probable and reasonably estimable. In the event employees are required to perform future service, the Company records severance charges ratably over the remaining service period of those employees. For additional information, see Note 15, "Asset Impairments and Restructuring Charges, Net".

Share-based Compensation

Eastman recognizes compensation expense in the financial statements for stock options and other share-based compensation awards based upon the grant-date fair value over the substantive vesting period. For additional information, see Note 17, "Share-Based Compensation Plans and Awards".

Income Taxes

The provision for (benefit from) income taxes has been determined using the asset and liability approach of accounting for income taxes. Under this approach, deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. The provision for (benefit from) income taxes represents income taxes paid or payable for the current year plus the change in deferred taxes during the year. Deferred taxes result from differences between the financial and tax bases of Eastman's assets and liabilities and are adjusted for changes in tax rates and tax laws when changes are enacted. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. Provision has been made for income taxes on unremitted earnings of subsidiaries and affiliates, except for subsidiaries in which earnings are deemed to be indefinitely reinvested.

The Company recognizes income tax positions that meet the more likely than not threshold and accrues interest related to unrecognized income tax positions which is recorded as a component of the income tax provision.

In conjunction with its evaluation of the provisions of the Tax Reform Act, in 2018, the Company made an accounting policy election to account for taxes resulting from the global intangible low-tax income ("GILTI") as a component of the provision for income taxes.

2. INVENTORIES

	December 31,	
(Dollars in millions)	2018	2017
Finished goods	$ 1,143	$ 1,114
Work in process	262	213
Raw materials and supplies	515	470
Total inventories at FIFO or average cost	1,920	1,797
Less: LIFO reserve	337	288
Total inventories	$ 1,583	$ 1,509

Inventories valued on the LIFO method were approximately 55 percent of total inventories at both December 31, 2018 and 2017.

3. PROPERTIES AND ACCUMULATED DEPRECIATION

	December 31,	
(Dollars in millions)	2018	2017
Properties		
Land	$ 158	$ 161
Buildings	1,385	1,325
Machinery and equipment	10,801	10,122
Construction in progress	387	762
Properties and equipment at cost	$ 12,731	$ 12,370
Less: Accumulated depreciation	7,131	6,763
Net properties	$ 5,600	$ 5,607

Depreciation expense was $437 million, $420 million, and $412 million for 2018, 2017, and 2016, respectively.

Cumulative construction-period interest of $115 million and $111 million, reduced by accumulated depreciation of $54 million and $49 million, is included in net properties at December 31, 2018 and 2017, respectively.

Eastman capitalized $4 million of interest in 2018, $8 million of interest in 2017, and $7 million of interest in 2016.

4. GOODWILL AND OTHER INTANGIBLE ASSETS

Changes in the carrying amount of goodwill follow:

(Dollars in millions)	Additives & Functional Products	Advanced Materials	Chemical Intermediates	Other	Total
Balance at December 31, 2016	$ 2,416	$ 1,275	$ 760	$ 10	$ 4,461
Acquisitions	17	—	—	—	17
Goodwill written off as a result of sale of business	(1)	—	—	—	(1)
Currency translation adjustments	27	14	9	—	50
Balance at December 31, 2017	2,459	1,289	769	10	4,527
Impairments recognized	(38)	—	—	—	(38)
Currency translation adjustments	(11)	(6)	(5)	—	(22)
Balance at December 31, 2018	$ 2,410	$ 1,283	$ 764	$ 10	$ 4,467

In fourth quarter 2018, as a result of the annual impairment test of goodwill, the Company recognized a $38 million goodwill impairment in the crop protection reporting unit (part of the Additives & Functions Products ("AFP") segment). The impairment was primarily driven by an increase in the WACC applied to the impairment analysis and the estimated impact of future regulatory changes. The Company used an income approach and applied a fair value methodology based on discounted cash flows in testing the carrying value of goodwill for the crop protection reporting unit.

As of December 31, 2018, the reported balance of goodwill included accumulated impairment losses of $61 million, $12 million, and $14 million in the AFP segment, Chemical Intermediates ("CI") segment, and other segments, respectively. As of December 31, 2017, the reported balance of goodwill included accumulated impairment losses of $23 million, $12 million, and $14 million in the AFP segment, CI segment, and other segments, respectively.

The carrying amounts of intangible assets follow:

		December 31, 2018			December 31, 2017		
(Dollars in millions)	Estimated Useful Life in Years	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
Amortizable intangible assets:							
Customer relationships	8 - 25	$ 1,567	$ 419	$ 1,148	$ 1,583	$ 345	$ 1,238
Technology	7 - 20	680	294	386	690	247	443
Contracts	5	180	147	33	180	111	69
Other	5 - 37	102	23	79	102	19	83
Indefinite-lived intangible assets:							
Tradenames		529	—	529	530	—	530
Other		10	—	10	10	—	10
Total identified intangible assets		$ 3,068	$ 883	$ 2,185	$ 3,095	$ 722	$ 2,373

Amortization expense of definite-lived intangible assets was $164 million, $164 million, and $166 million for 2018, 2017, and 2016, respectively. Estimated amortization expense for future periods is $165 million in 2019, $130 million in 2020, and $120 million each year for 2021 through 2023.

5. EQUITY INVESTMENTS

In June 2016, Eastman sold its 50 percent interest in Primester, a joint venture which manufactures cellulose acetate at the Company's Kingsport, Tennessee site, to an affiliate of the joint venture partner for $35 million. This investment was accounted for under the equity method. Eastman's net investment in the joint venture at the date of sale was $18 million. Such amounts were included in "Other noncurrent assets" in the Consolidated Statements of Financial Position and the gain of $17 million was recorded in "Other (income) charges, net" in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings.

Eastman owns a 50 percent or less interest in other joint ventures which are accounted for under the equity method and included in "Other noncurrent assets". These include a 50 percent interest in a joint venture that has a manufacturing facility in Nanjing, China. The Nanjing facility produces Eastotac™ hydrocarbon tackifying resins for pressure-sensitive adhesives, caulks, and sealants. These also include a joint venture with a 50 percent interest for the manufacture of compounded cellulose diacetate ("CDA") in Shenzhen, China. CDA is a bio-derived material, which is used in various injection molded applications, including but not limited to ophthalmic frames, tool handles, and other end use products. The Company owns a 45 percent interest in a joint venture with China National Tobacco Corporation that manufactures acetate tow in Hefei, China. At December 31, 2018 and 2017, the Company's total investment in these joint ventures was $100 million and $95 million, respectively, included in "Other noncurrent assets" in the Consolidated Statements of Financial Position.

6. PAYABLES AND OTHER CURRENT LIABILITIES

(Dollars in millions)	December 31, 2018	December 31, 2017
Trade creditors	$ 914	$ 842
Accrued payrolls, vacation, and variable-incentive compensation	197	199
Accrued taxes	94	111
Other	403	437
Total payables and other current liabilities	$ 1,608	$ 1,589

The "Other" above consists primarily of accruals for other miscellaneous payables, dividends payable, post-employment obligations, interest payable, hedging liability, and the current portion of environmental liabilities.

7. INCOME TAXES

As previously reported, the Company recognized a provisional net tax benefit for the year ended December 31, 2017, resulting from the Tax Reform Act. In 2017, the Company recognized a $339 million estimated net tax benefit, primarily resulting from the Tax Reform Act and a tax loss from outside-U.S. entity reorganizations as part of the formation of an international treasury services center. The net tax benefit included a $533 million benefit from the one-time revaluation of deferred tax liabilities, partially offset by a one-time transition tax on deferred foreign income of $71 million and $123 million in changes in valuation of deferred tax assets associated with tax law changes and outside-U.S. entity reorganizations as part of the formation of an international treasury services center.

As of December 31, 2018 the Company considers the accounting under SAB 118 for the impacts of the Tax Reform Act to be complete. In preparing the amounts as of December 31, 2018 the Company considered notices, revenue procedures, and proposed regulations issued by the Internal Revenue Service and authoritative accounting guidance to date. In 2018, the Company recognized an adjustment to the 2017 net tax benefit which decreased earnings by $20 million primarily related to the one-time transition tax on deferred foreign income and changes in valuation of deferred tax assets associated with tax law changes and outside-U.S. entity reorganizations as part of the formation of an international treasury services center.

As of December 31, 2018, the U.S. Department of Treasury has issued a number of proposed regulations related to implementation of the provisions of the Tax Reform Act and certain states may issue clarifying guidance regarding state income tax conformity to the current federal tax code. Finalization of these regulations in 2019 or future periods may result in changes in the period of enactment to the amounts currently reported in the Consolidated Statements of Financial Position.

The income tax payable for the transition tax will be paid over eight years. As of December 31, 2018 and 2017, a non-current income tax payable of approximately $56 million and $60 million, respectively, attributable to the transition tax is reflected in "Other long-term liabilities" of the Consolidated Statements of Financial Position.

In conjunction with its evaluation of the provisions of the Tax Reform Act, in 2018, the Company made an accounting policy election to account for taxes resulting from GILTI as a component of the provision for income taxes.

Components of earnings before income taxes and the provision for (benefit from) U.S. and other income taxes from operations follow:

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Earnings before income taxes			
United States	$ 718	$ 654	$ 422
Outside the United States	592	635	627
Total	$ 1,310	$ 1,289	$ 1,049
Provision for (benefit from) income taxes			
United States Federal			
Current [1]	$ 161	$ 220	$ (80)
Deferred [2]	(11)	(383)	214
Outside the United States			
Current	86	62	91
Deferred	(22)	2	(18)
State and other			
Current	30	13	2
Deferred	(18)	(13)	(19)
Total	$ 226	$ (99)	$ 190

(1) A one-time transition tax of $71 million on deferred foreign income tax is included for 2017.

(2) Includes a one-time benefit of $517 million primarily due to the re-measurement of certain net deferred tax liabilities using the lower U.S. corporate income tax rate and a one-time $72 million valuation allowance on deferred tax assets for foreign tax credit carryforwards for 2017.

The following represents the deferred tax (benefit) charge recorded as a component of AOCI in the Consolidated Statements of Financial Position:

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Defined benefit pension and other postretirement benefit plans	$ (10)	$ (16)	$ 21
Derivatives and hedging	3	8	105
Total	$ (7)	$ (8)	$ 126

Total income tax expense (benefit) included in the consolidated financial statements was composed of the following:

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Earnings before income taxes	$ 226	$ (99)	$ 190
Other comprehensive income	(7)	(8)	126
Total	$ 219	$ (107)	$ 316

Differences between the provision for (benefit from) income taxes and income taxes computed using the U.S. Federal statutory income tax rate follow:

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Amount computed using the statutory rate	$ 274	$ 450	$ 366
State income taxes, net	6	(4)	(18)
Foreign rate variance	(52)	(150)	(121)
Domestic manufacturing deduction	—	(18)	(7)
Change in reserves for tax contingencies	21	20	—
General business credits	(60)	(65)	(20)
U.S. tax on foreign earnings	8	29	25
Foreign tax credits	(12)	(26)	(10)
Tax law changes and tax loss from outside-U.S. entity reorganizations [1]	20	(339)	—
Other	21	4	(25)
Provision for (benefit from) income taxes	$ 226	$ (99)	$ 190
Effective income tax rate	17%	(8)%	18%

(1) Includes a one-time net benefit primarily due to the re-measurement of certain net deferred tax liabilities using the lower U.S. corporate income tax rate partially offset by the transition tax on deferred foreign income and changes in the valuation of deferred tax assets associated with tax law changes and the tax impact from intercompany reorganization activities in 2017 and a net incremental adjustment to those amounts under the Tax Reform Act in 2018.

The 2018 effective tax rate includes the impact of the U.S. corporate tax rate reduction resulting from the Tax Reform Act and the repeal of the domestic manufacturing deduction. The 2018 effective tax rate also includes a $20 million increase to the provision for income taxes resulting from adjustments to the provisional net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act. These adjustments related to the one-time transition tax on deferred foreign income and changes in valuation of deferred tax assets associated with tax law changes and outside-U.S. entity reorganizations as part of the formation of an international treasury services center.

The 2017 effective tax rate includes a $339 million net tax benefit, primarily resulting from the Tax Reform Act, and a tax loss from outside-U.S. entity reorganizations as part of the formation of an international treasury services center, a $20 million benefit due to amendments to prior years' domestic income tax returns, and a $30 million benefit reflecting the finalization of prior years' foreign income tax returns. The 2017 effective tax rate also includes an $8 million tax benefit due to a tax ruling permitting deductibility of a liquidation loss on a previously impaired site.

The 2016 effective tax rate includes a tax benefit of $16 million related to foreign tax credits as a result of the amendment of prior year income tax returns, a $16 million one-time benefit for the restoration of tax basis for which depreciation deductions were previously limited, and a $9 million tax benefit primarily due to adjustments to the tax provision to reflect the finalization of 2014 foreign income tax returns.

The significant components of deferred tax assets and liabilities follow:

(Dollars in millions)	December 31, 2018	2017
Deferred tax assets		
Post-employment obligations	$ 230	$ 242
Net operating loss carryforwards	708	690
Tax credit carryforwards	239	202
Environmental reserves	70	72
Unrealized derivative loss	18	17
Other	94	90
Total deferred tax assets	1,359	1,313
Less: Valuation allowance	466	410
Deferred tax assets less valuation allowance	$ 893	$ 903
Deferred tax liabilities		
Property, plant, and equipment	$ (856)	$ (835)
Intangible assets	(473)	(535)
Investments	(274)	(274)
Other	(131)	(131)
Total deferred tax liabilities	$ (1,734)	$ (1,775)
Net deferred tax liabilities	$ (841)	$ (872)
As recorded in the Consolidated Statements of Financial Position:		
Other noncurrent assets	$ 43	$ 21
Deferred income tax liabilities	(884)	(893)
Net deferred tax liabilities	$ (841)	$ (872)

As of December 31, 2018, the Company has accumulated undistributed earnings generated by our foreign subsidiaries of approximately $1.3 billion. As of December 31, 2017, the Company had accumulated undistributed earnings generated by our foreign subsidiaries of approximately $1.2 billion, which was subject to the one-time transition tax of $71 million on deferred foreign income as required by the Tax Reform Act. Beginning January 1, 2019, the Company is not asserting indefinite reinvestment on short-term liquid assets of certain foreign subsidiaries. All other foreign earnings, including basis differences of certain foreign subsidiaries, continue to be considered indefinitely reinvested.

For certain consolidated foreign subsidiaries, income and losses directly flow through to taxable income in the U.S. These entities are also subject to taxation in the foreign tax jurisdictions. Net operating loss carryforwards exist to offset future taxable income in foreign tax jurisdictions and valuation allowances are provided to reduce deferred related tax assets if it is more likely than not that this benefit will not be realized. Changes in the estimated realizable amount of deferred tax assets associated with net operating losses for these entities could result in changes in the deferred tax asset valuation allowance in the foreign tax jurisdiction. At the same time, because these entities are also subject to tax in the U.S., a deferred tax liability for the expected future taxable income will be established concurrently. Therefore, the impact of any reversal of valuation allowances on consolidated income tax expense will be only to the extent that there are differences between the U.S. statutory tax rate and the tax rate in the foreign jurisdiction. A valuation allowance of $20 million at December 31, 2018 has been provided against the deferred tax asset resulting from these operating loss carryforwards.

At December 31, 2018, foreign net operating loss carryforwards totaled $2.5 billion. Of this total, $145 million will expire in 1 to 20 years and $2.4 billion have no expiration date. A valuation allowance of approximately $304 million has been provided against such net operating loss carryforwards.

At December 31, 2018, federal net operating loss carryforwards of $12 million were available to offset future taxable income, which expire from 2028 to 2030. At December 31, 2018, foreign tax credit carryforwards of approximately $64 million were available to reduce possible future U.S. income taxes and which expire from 2019 to 2028. As a result of the Tax Reform Act, the Company may no longer be able to utilize the Solutia, Inc. ("Solutia") U.S. foreign tax credit carryforwards; therefore, management established a full valuation allowance of $48 million on the remaining deferred tax asset as of December 31, 2018.

At December 31, 2018, a valuation allowance of $36 million was established against state tax credits that the Company may not be able to utilize.

A partial valuation allowance of $54 million has been established for the Solutia state net operating loss carryforwards. The valuation allowance will be retained until there is sufficient positive evidence to conclude that it is more likely than not that the deferred tax assets will be realized, or the related statute expires.

Amounts due to and from tax authorities as recorded in the Consolidated Statements of Financial Position:

	December 31,	
(Dollars in millions)	2018	2017
Miscellaneous receivables	$ 135	$ 215
Payables and other current liabilities	$ 43	$ 58
Other long-term liabilities	162	137
Total income taxes payable	$ 205	$ 195

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

(Dollars in millions)	2018	2017	2016
Balance at January 1	$ 142	$ 114	$ 125
Adjustments based on tax positions related to current year	44	29	(7)
Lapse of statute of limitations	(4)	(1)	(4)
Balance at December 31	$ 182	$ 142	$ 114

All of the unrecognized tax benefits would, if recognized, impact the Company's effective tax rate.

Interest, net of tax, related to unrecognized tax benefits is recorded as a component of income tax expense. As of January 1, 2018, Eastman had accrued a liability of $6 million for interest, net of tax, and $1 million for estimated tax penalties. During 2018, the Company recognized $4 million of expense for interest, net of tax, and no penalties associated with unrecognized tax benefits, no income for interest, net of tax, and no penalties, associated with the expiration of the statute of limitations. At December 31, 2018, the Company had accrued balances of $10 million for interest, net of tax benefit, and $1 million for penalties.

As of January 1, 2017, Eastman had accrued a liability of $4 million for interest, net of tax, and $1 million for tax penalties. During 2017, the Company recognized $3 million of expense for interest, net of tax, and no penalties associated with unrecognized tax benefits, offset by $1 million of income for interest, net of tax, and no penalties, associated with the expiration of the statute of limitations. At December 31, 2017, the Company had accrued balances of $6 million for interest, net of tax benefit, and $1 million for penalties.

As of January 1, 2016, Eastman had accrued a liability of $4 million for interest, net of tax, and $1 million for tax penalties. During 2016, the Company recognized $1 million of expense for interest, net of tax, and no penalties associated with unrecognized tax benefits, offset by $1 million of income for interest, net of tax, and no of penalties, associated with the expiration of the statute of limitations. At December 31, 2016, the Company had accrued balances of $4 million for interest, net of tax benefit, and $1 million for penalties.

Eastman files income tax returns in the United States and various state and foreign jurisdictions. The Company is no longer subject to U.S. Federal income tax examinations by tax authorities for years before 2011 for Eastman legal entities and years before 2002 for Solutia legal entities. With few exceptions, Eastman is no longer subject to state and local income tax examinations by tax authorities for years before 2011. Solutia and related subsidiaries are no longer subject to state and local income tax examinations for years before 2000. With few exceptions, the Company is no longer subject to foreign income tax examinations by tax authorities for tax years before 2011.

It is reasonably possible that, as a result of the resolution of federal, state, and foreign examinations and appeals, and the expiration of various statutes of limitation, unrecognized tax benefits could decrease within the next twelve months by up to $8 million.

8. BORROWINGS

(Dollars in millions)	December 31, 2018	2017
Borrowings consisted of:		
5.5% notes due November 2019	$ —	$ 250
2.7% notes due January 2020	250	797
4.5% notes due January 2021	185	185
3.5% notes due December 2021	297	—
3.6% notes due August 2022	739	738
1.50% notes due May 2023 (1)	855	895
7 1/4% debentures due January 2024	197	197
7 5/8% debentures due June 2024	43	43
3.8% notes due March 2025	691	690
1.875% notes due November 2026 (1)	566	592
7.60% debentures due February 2027	195	195
4.5% notes due December 2028	492	—
4.8% notes due September 2042	493	493
4.65% notes due October 2044	872	871
Commercial paper and short-term borrowings	243	389
Credit facilities borrowings	50	200
Capital leases and other	—	5
Total borrowings	6,168	6,540
Borrowings due within one year	243	393
Long-term borrowings	$ 5,925	$ 6,147

(1) The carrying value of the euro-denominated 1.50% notes due May 2023 and 1.875% notes due November 2026 will fluctuate with changes in the euro exchange rate. The carrying value of these euro-denominated borrowings have been designated as non-derivative net investment hedges of a portion of the Company's net investments in euro functional-currency denominated subsidiaries to offset foreign currency fluctuations.

In fourth quarter 2018, the Company sold 3.5% notes due December 2021 in the principal amount of $300 million and 4.5% notes due December 2028 in the principal amount of $500 million. Net proceeds from the notes were $789 million and were used, together with available cash, for the early and full repayment of the 5.5% notes due November 2019 ($250 million principal) and the partial redemption of the 2.7% notes due January 2020 ($550 million principal). Total consideration for these redemptions were $806 million ($800 million total principal and $6 million for the early redemption premiums) and are reported as financing activities on the Consolidated Statements of Cash Flows. The early repayment resulted in a charge of $7 million for early debt extinguishment costs which were primarily attributable to the early redemption premiums and related unamortized costs. The book value of the redeemed debt was $799 million.

Credit Facilities and Commercial Paper Borrowings

In December 2016, the Company borrowed $300 million under a five-year term loan agreement ("2021 Term Loan"). Borrowings under the 2021 Term Loan agreement were subject to interest at varying spreads above quoted market rates. As of December 31, 2017, the 2021 Term Loan outstanding balance was $200 million with an interest rate of 2.60 percent. In 2018, the 2021 Term Loan was repaid using available cash.

The Company has access to a $1.50 billion revolving credit agreement (the "Credit Facility") that was amended in October 2018 to increase the available borrowing amount from $1.25 billion and to extend the maturity to October 2023. Borrowings under the Credit Facility are subject to interest at varying spreads above quoted market rates and a commitment fee is paid on the total unused commitment. The Credit Facility provides available liquidity for general corporate purposes and supports commercial paper borrowings. Commercial paper borrowings are classified as short-term. At December 31, 2018 and 2017, the Company had no outstanding borrowings under the Credit Facility. At December 31, 2018, commercial paper borrowings were $130 million with a weighted average interest rate of 2.91 percent. At December 31, 2017, the Company's commercial paper borrowings were $280 million with a weighted average interest rate of 1.61 percent.

The Company has access to a $250 million accounts receivable securitization agreement (the "A/R Facility") that expires April 2020. Eastman Chemical Financial Corporation ("ECFC"), a subsidiary of the Company, has an agreement to sell interests in trade receivables under the A/R Facility to a third party purchaser. Third party creditors of ECFC have first priority claims on the assets of ECFC before those assets would be available to satisfy the Company's general obligations. Borrowings under the A/R Facility are subject to interest rates based on a spread over the lender's borrowing costs, and ECFC pays a fee to maintain availability of the A/R Facility. At December 31, 2018, the Company's borrowings under the A/R Facility were $50 million supported by trade receivables with an interest rate of 3.39 percent. At December 31, 2017, the Company had no borrowings under the A/R Facility.

The Company has access to borrowings of up to €150 million ($172 million) under a receivables facility based on the discounted value of selected customer accounts receivable. This facility expires December 2020 and renews for another one year period if not terminated with 90 days notice by either party. These arrangements include receivables in the United States, Belgium, and Finland, and are subject to various eligibility requirements. Borrowings under this facility are subject to interest at an agreed spread above LIBOR and EURIBOR plus administration and insurance fees and are classified as short-term. The amount of outstanding borrowings under this facility were $112 million at December 31, 2018 with a weighted average interest rate of 1.70 percent.

The Credit and A/R Facilities and other borrowing agreements contain customary covenants and events of default, some of which require the Company to maintain certain financial ratios that determine the amounts available and terms of borrowings. The Company was in compliance with all covenants at both December 31, 2018 and December 31, 2017.

Fair Value of Borrowings

Eastman has classified its total borrowings at December 31, 2018 and 2017 under the fair value hierarchy as defined in the accounting policies in Note 1, "Significant Accounting Policies". The fair value for fixed-rate debt securities is based on quoted market prices for the same or similar debt instruments and is classified as Level 2. The fair value for the Company's other borrowings primarily under the 2021 Term Loan, commercial paper, A/R Facility, and receivables facility equals the carrying value and is classified as Level 2. At December 31, 2018 and 2017, the fair value of total borrowings was $6,216 million and $6,980 million, respectively. The Company had no borrowings classified as Level 1 or Level 3 as of December 31, 2018 and 2017.

9. DERIVATIVE AND NON-DERIVATIVE FINANCIAL INSTRUMENTS

Overview of Hedging Programs

Eastman is exposed to market risks, such as changes in foreign currency exchange rates, commodity prices, and interest rates. To mitigate these market risks and their effects on the cash flows of the underlying transactions and investments in foreign subsidiaries, the Company uses various derivative and non-derivative financial instruments, when appropriate, in accordance with the Company's hedging strategy and policies. Designation is performed on a specific exposure basis to support hedge accounting. The Company does not enter into derivative transactions for speculative purposes.

Cash Flow Hedges

Cash flow hedges are derivative instruments designated as and used to hedge the exposure to variability in expected future cash flows that are attributable to a particular risk. The derivative instruments that are designated and qualify as a cash flow hedge are reported on the balance sheet at fair value and the changes in fair value of these hedging instruments are offset in part or in whole by corresponding changes in the anticipated cash flows of the underlying exposures being hedged. The change in the hedge instrument is reported as a component of AOCI located in the Consolidated Statements of Financial Position and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings.

Foreign Currency Exchange Rate Hedging

Eastman manufactures and sells its products in a number of countries throughout the world and, as a result, is exposed to changes in foreign currency exchange rates. To manage the volatility relating to these exposures, the Company nets the exposures on a consolidated basis to take advantage of natural offsets. To manage the remaining exposure, the Company enters into currency option and forward cash flow hedges to hedge probable anticipated, but not yet committed, export sales and purchase transactions expected within a rolling three year period and denominated in foreign currencies (principally the euro). Additionally, the Company, from time to time, enters into forward exchange contract cash flow hedges to hedge certain firm commitments denominated in foreign currencies.

Commodity Hedging

Certain raw material and energy sources used by Eastman, as well as sales of certain commodity products by the Company, are subject to price volatility caused by weather, supply and demand conditions, economic variables and other unpredictable factors. This volatility is primarily related to the market pricing of propane, ethane, natural gas, paraxylene, ethylene, and benzene. In order to mitigate expected fluctuations in market prices, from time to time, the Company enters into option and forward contracts and designates these contracts as cash flow hedges. The Company currently hedges commodity price risks using derivative financial instrument transactions within a rolling three year period. The Company weights its hedge portfolio more heavily in the first year with declining coverage over the remaining periods.

Interest Rate Hedging

Eastman's policy is to manage interest expense using a mix of fixed and variable rate debt. To manage interest rate risk effectively, the Company, from time to time, enters into cash flow interest rate derivative instruments, primarily forward starting swaps and treasury locks, to hedge the Company's exposure to movements in interest rates prior to anticipated debt offerings. These instruments are designated as cash flow hedges.

Fair Value Hedges

Fair value hedges are defined as derivative or non-derivative instruments designated as and used to hedge the exposure to changes in the fair value of an asset or a liability or an identified portion thereof that is attributable to a particular risk. The derivative instruments that are designated and qualify as fair value hedges are recognized on the balance sheet at fair value and the changes in fair value of these hedging instruments are offset in part or in whole by corresponding changes in the anticipated fair value of the underlying exposures being hedged. The net of the change in the hedge instrument and item being hedged for qualifying fair value hedges is recognized in earnings in the same period or periods during which the hedged transaction affects earnings.

Interest Rate Hedging

Eastman's policy is to manage interest expense using a mix of fixed and variable rate debt. To manage the Company's mix of fixed and variable rate debt effectively, from time to time, the Company enters into interest rate swaps in which the Company agrees to exchange the difference between fixed and variable interest amounts calculated by reference to an agreed upon notional principal amount. These swaps are designated as hedges of the fair value of the underlying debt obligations and the interest rate differential is reflected as an adjustment to interest expense over the life of the swaps.

Net Investment Hedges

Net investment hedges are defined as derivative or non-derivative instruments designated as and used to hedge the foreign currency exposure of the net investment in certain foreign operations. The net of the change in the hedge instrument and item being hedged for qualifying net investment hedges is reported as a component of the CTA within AOCI located in the Consolidated Statements of Financial Position. Recognition in earnings of amounts previously recognized in CTA is limited to circumstances such as complete or substantially complete liquidation of the net investment in the hedged foreign operation.

For derivative cross-currency interest rate swap net investment hedges, gains and losses representing hedge components excluded from the assessment of effectiveness are recognized in CTA within AOCI and recognized in earnings through the periodic swap interest accruals. The cross-currency interest rate swaps designated as net investment hedges are included as part of "Other long-term liabilities" or "Other noncurrent assets" within the Consolidated Statements of Financial Position.

In January 2018, Eastman entered into fixed-to-fixed cross-currency swaps and designated these swaps to hedge a portion of its net investment in a euro functional currency denominated subsidiary against foreign currency fluctuations. These contracts involve the exchange of fixed U.S. dollars with fixed euro interest payments periodically over the life of the contracts and an exchange of the notional amounts at maturity. The fixed-to-fixed cross-currency swaps include €150 million ($180 million) maturing January 2021 and €266 million ($320 million) maturing August 2022.

In October 2018, Eastman entered into fixed-to-fixed cross-currency swaps and designated these swaps to hedge a portion of its net investment in a euro functional currency denominated subsidiary against foreign currency fluctuations. These contracts involve the exchange of fixed U.S. dollars with fixed euro interest payments periodically over the life of the contracts and an exchange of the notional amounts at maturity. The fixed-to-fixed cross-currency swaps include €165 million ($190 million) maturing January 2024, €104 million ($120 million) maturing March 2025, and €165 million ($190 million) maturing February 2027.

Summary of Financial Position and Financial Performance of Hedging Instruments

The following table presents the notional amounts outstanding at December 31, 2018 and 2017 associated with Eastman's hedging programs.

Notional Outstanding	December 31, 2018	December 31, 2017
Derivatives designated as cash flow hedges:		
Foreign Exchange Forward and Option Contracts (in millions)		
EUR/USD (in EUR)	€263	€525
Commodity Forward and Collar Contracts		
Feedstock (in million barrels)	5	7
Energy (in million british thermal units)	40	23
Derivatives designated as fair value hedges:		
Fixed-for-floating interest rate swaps (in millions)	$75	$75
Derivatives designated as net investment hedges:		
Cross-currency interest rate swaps (in millions)		
EUR/USD (in EUR)	€851	—
Non-derivatives designated as net investment hedges:		
Foreign Currency Net Investment Hedges (in millions)		
EUR/USD (in EUR)	€1,241	€1,240

Fair Value Measurements

For additional information on fair value measurement, see Note 1, "Significant Accounting Policies".

All the Company's derivative assets and liabilities are currently classified as Level 2. Level 2 fair value is based on estimates using standard pricing models. These standard pricing models use inputs that are derived from or corroborated by observable market data such as interest rate yield curves and currency spot and forward rates. The fair value of commodity contracts is derived using forward curves supplied by an industry recognized and unrelated third party. In addition, on an ongoing basis, the Company tests a subset of its valuations against valuations received from the transaction's counterparty to validate the accuracy of its standard pricing models. Counterparties to these derivative contracts are highly rated financial institutions which the Company believes carry minimal risk of nonperformance and the Company diversifies its positions among such counterparties to reduce its exposure to counterparty risk and credit losses. The Company monitors the creditworthiness of its counterparties on an ongoing basis. The Company did not realize a credit loss during the years ended December 31, 2018 or 2017.

All the Company's derivative contracts are subject to master netting arrangements, or similar agreements, which provide for the option to settle contracts on a net basis when they settle on the same day and in the same currency. In addition, these arrangements provide for a net settlement of all contracts with a given counterparty in the event that the arrangement is terminated due to the occurrence of default or a termination event. The Company does not have any cash collateral due under such agreements.

The Company has elected to present derivative contracts on a gross basis within the Consolidated Statements of Financial Position. The following table presents the financial assets and liabilities valued on a recurring and gross basis and includes where the financial assets and liabilities are located within the Consolidated Statements of Financial Position as of December 31, 2018 and 2017.

The Financial Position and Fair Value Measurements of Hedging Instruments on a Gross Basis

(Dollars in millions)

Derivative Type	Statements of Financial Position Location	December 31, 2018 Level 2	December 31, 2017 Level 2
Derivatives designated as cash flow hedges:			
Commodity contracts	Other current assets	$ 4	$ 9
Commodity contracts	Other noncurrent assets	—	4
Foreign exchange contracts	Other current assets	15	23
Foreign exchange contracts	Other noncurrent assets	4	2
Derivatives designated as fair value hedges:			
Fixed-for-floating interest rate swap	Other current assets	1	1
Derivatives designated as net investment hedges:			
Cross-currency interest rate swaps	Other noncurrent assets	26	—
Total Derivative Assets		$ 50	$ 39
Derivatives designated as cash flow hedges:			
Commodity contracts	Payables and other current liabilities	$ 24	$ 28
Commodity contracts	Other long-term liabilities	5	10
Foreign exchange contracts	Payables and other current liabilities	—	6
Foreign exchange contracts	Other long-term liabilities	—	4
Derivatives designated as fair value hedges:			
Fixed-for-floating interest rate swap	Long-term borrowings	4	4
Total Derivative Liabilities		$ 33	$ 52
Total Net Derivative Assets (Liabilities)		$ 17	$ (13)

In addition to the fair value associated with derivative instruments designated as cash flow hedges, fair value hedges, and net investment hedges noted in the table above, the Company had a carrying value of $1.4 billion and $1.5 billion associated with non-derivative instruments designated as foreign currency net investment hedges as of December 31, 2018 and 2017, respectively. The designated foreign currency-denominated borrowings are included as part of "Long-term borrowings" within the Consolidated Statements of Financial Position.

As of December 31, 2018 and 2017, the following amounts were included within the Consolidated Statements of Financial Position related to cumulative basis adjustments for fair value hedges.

(Dollars in millions)	Carrying amount of the hedged liabilities		Cumulative amount of fair value hedging loss adjustment included in the carrying amount of the hedged liability	
Line item in the Consolidated Statements of Financial Position in which the hedged item is included	**December 31, 2018**	**December 31, 2017**	**December 31, 2018**	**December 31, 2017**
Long-term borrowings [(1)]	$ 759	$ 760	$ (12)	$ (10)

(1) At December 31, 2018 and 2017, the cumulative amount of fair value hedging loss adjustment remaining for hedged liabilities for which hedge accounting has been discontinued was $7 million and $6 million, respectively.

The following table presents the effect of the Company's hedging instruments on OCI and financial performance for the twelve months ended December 31, 2018 and 2017:

(Dollars in millions)	Change in amount of after tax gain/(loss) recognized in OCI on Derivatives		Pre-tax amount of gain/(loss) reclassified from AOCI into income	
	December 31		December 31	
Hedging Relationships	**2018**	**2017**	**2018**	**2017**
Derivatives in cash flow hedging relationships:				
Commodity contracts	$ —	$ 62	$ (3)	$ (43)
Foreign exchange contracts	3	(50)	29	35
Forward starting interest rate and treasury lock swap contracts	4	3	(5)	(5)
Non-derivatives in net investment hedging relationships (pre-tax):				
Net investment hedges	67	(180)	—	—
Derivatives in net investment hedging relationships (pre-tax):				
Cross-currency interest rate swaps	26	—	—	—
Cross-currency interest rate swaps excluded component	—	—	—	—

The following table presents the effect of fair value and cash flow hedge accounting on the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings for 2018 and 2017.

Location and Amount of Gain or (Loss) Recognized in Earnings on Fair Value and Cash Flow Hedging Relationships

	Twelve Months					
	2018			2017		
(Dollars in millions)	Sales	Cost of Sales	Net interest expense	Sales	Cost of Sales	Net interest expense
Total amounts of income and expense line items presented in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings in which the effects of fair value or cash flow hedges are recognized	$ 10,151	$ 7,672	$ 235	$ 9,549	$ 7,186	$ 241
The effects of fair value and cash flow hedging:						
Gain or (loss) on fair value hedging relationships:						
Interest contracts (fixed-for-floating interest rate swaps):						
Hedged items			—			(4)
Derivatives designated as hedging instruments			—			4
Gain or (loss) on cash flow hedging relationships:						
Interest contracts (forward starting interest rate and treasury lock swap contracts):						
Amount reclassified from AOCI into earnings			(5)			(5)
Commodity Contracts:						
Amount reclassified from AOCI into earnings		(3)			(43)	
Foreign Exchange Contracts:						
Amount reclassified from AOCI into earnings	29			35		

The Company enters into foreign exchange derivatives denominated in multiple currencies which are transacted and settled in the same quarter. These derivatives are not designated as hedges due to the short-term nature and the gains or losses on these derivatives are marked-to-market in line item "Other (income) charges, net" of the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings. The Company recognized a net loss of $13 million and net gain of $1 million during 2018 and 2017, respectively, on these derivatives.

Pre-tax monetized positions and MTM gains and losses from raw materials and energy, currency, and certain interest rate hedges that were included in AOCI included losses of $112 million at December 31, 2018 and losses of $214 million at December 31, 2017. Losses in AOCI decreased in 2018 compared to 2017 primarily as a result of a decrease in foreign currency exchange rates, particularly the euro. If realized, approximately $10 million in pre-tax losses will be reclassified into earnings during the next 12 months.

10. RETIREMENT PLANS

As described below, Eastman offers various postretirement benefits to its employees.

Defined Contribution Plans

Eastman sponsors a defined contribution employee stock ownership plan (the "ESOP"), which is a component of the Eastman Investment Plan and Employee Stock Ownership Plan ("EIP/ESOP"), under Section 401(a) of the Internal Revenue Code. Eastman made a contribution in February 2019 to the EIP/ESOP for substantially all U.S. employees equal to 5 percent of their eligible compensation for the 2018 plan year. Employees may allocate contributions to other investment funds within the EIP from the ESOP at any time without restrictions. Allocated shares in the ESOP totaled 2,119,614; 2,130,176; and 2,183,950 shares as of December 31, 2018, 2017, and 2016, respectively. Dividends on shares held by the EIP/ESOP are charged to retained earnings. All shares held by the EIP/ESOP are treated as outstanding in computing earnings per share.

In 2006, the Company amended its EIP/ESOP to provide a Company match of 50 percent of the first 7 percent of an employee's compensation contributed to the plan for employees who are hired on or after January 1, 2007. Employees who are hired on or after January 1, 2007, are also eligible for the contribution to the ESOP as described above.

Charges for domestic contributions to the EIP/ESOP were $67 million, $64 million, and $63 million for 2018, 2017, and 2016, respectively.

Defined Benefit Pension Plans and Other Postretirement Benefit Plans

Pension Plans

Eastman maintains defined benefit pension plans that provide eligible employees with retirement benefits.

Effective January 1, 2000, the Company's Eastman Retirement Assistance Plan, a U.S. defined benefit pension plan, was amended. Employees' accrued pension benefits earned prior to January 1, 2000 are calculated based on previous plan provisions using the employee's age, years of service, and final average compensation as defined in the plans. The amended plan uses a pension equity formula to calculate an employee's retirement benefits from January 1, 2000 forward. Benefits payable will be the combined pre-2000 and post-1999 benefits. Employees hired on or after January 1, 2007 are not eligible to participate in Eastman's U.S. defined benefit pension plans.

Benefits are paid to employees from trust funds. Contributions to the trust funds are made as permitted by laws and regulations. The pension trust funds do not directly own any of the Company's common stock.

Pension coverage for employees of Eastman's non-U.S. operations is provided, to the extent deemed appropriate, through separate plans. The Company systematically provides for obligations under such plans by depositing funds with trustees, under insurance policies, or by book reserves.

Other Postretirement Benefit Plans

Under its other postretirement benefit plans in the U.S., Eastman provides life insurance for eligible retirees hired prior to January 1, 2007. Eastman provides a subsidy for pre-Medicare health care and dental benefits to eligible retirees hired prior to January 1, 2007 that will end on December 31, 2021. Company funding is also provided for eligible Medicare retirees hired prior to January 1, 2007 with a health reimbursement arrangement. A few of the Company's non-U.S. operations have supplemental health benefit plans for certain retirees, the cost of which is not significant to the Company.

Below is a summary balance sheet of the change in plan assets during 2018 and 2017, the funded status of the plans and amounts recognized in the Consolidated Statements of Financial Position.

Summary of Changes

	Pension Plans				Postretirement Benefit Plans	
	2018		2017		2018	2017
(Dollars in millions)	U.S.	Non-U.S.	U.S.	Non-U.S.		
Change in projected benefit obligation:						
Benefit obligation, beginning of year	$ 2,154	$ 893	$ 2,141	$ 801	$ 738	$ 737
Service cost	35	14	37	13	—	3
Interest cost	67	20	66	20	22	23
Actuarial (gain) loss	(119)	(20)	94	(11)	(33)	30
Plan participants' contributions	—	1	—	1	11	12
Effect of currency exchange	—	(45)	—	90	(1)	1
Federal subsidy on benefits paid	—	—	—	—	—	1
Benefits paid	(178)	(23)	(184)	(21)	(65)	(69)
Benefit obligation, end of year	$ 1,959	$ 840	$ 2,154	$ 893	$ 672	$ 738
Change in plan assets:						
Fair value of plan assets, beginning of year	$ 2,054	$ 773	$ 1,959	$ 667	$ 148	$ 149
Actual return on plan assets	(61)	(19)	271	31	(6)	22
Effect of currency exchange	—	(39)	—	76	—	—
Company contributions	5	20	8	19	43	43
Reserve for third party contributions	—	—	—	—	4	(10)
Plan participants' contributions	—	1	—	1	11	12
Benefits paid	(178)	(23)	(184)	(21)	(65)	(69)
Federal subsidy on benefits paid	—	—	—	—	—	1
Fair value of plan assets, end of year	$ 1,820	$ 713	$ 2,054	$ 773	$ 135	$ 148
Funded status at end of year	$ (139)	$ (127)	$ (100)	$ (120)	$ (537)	$ (590)
Amounts recognized in the Consolidated Statements of Financial Position consist of:						
Other noncurrent assets	$ 2	$ —	$ 12	$ 8	$ 41	$ 38
Current liabilities	(4)	(1)	(3)	(1)	(45)	(44)
Post-employment obligations	(137)	(126)	(109)	(127)	(533)	(584)
Net amount recognized, end of year	$ (139)	$ (127)	$ (100)	$ (120)	$ (537)	$ (590)
Accumulated benefit obligation	$ 1,900	$ 796	$ 2,031	$ 845		
Amounts recognized in accumulated other comprehensive income consist of:						
Prior service (credit) cost	$ 2	$ —	$ 1	$ 1	$ (182)	$ (222)

Information for pension plans with projected benefit obligations in excess of plan assets:

(Dollars in millions)	2018		2017	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Projected benefit obligation	$ 1,726	$ 840	$ 1,709	$ 658
Fair value of plan assets	1,585	713	1,597	530

Information for pension plans with accumulated benefit obligations in excess of plan assets:

(Dollars in millions)	2018		2017	
	U.S.	Non-U.S.	U.S. [(1)]	Non-U.S.
Projected benefit obligation	$ 1,726	$ 568	$ 170	$ 618
Accumulated benefit obligation	1,667	547	159	596
Fair value of plan assets	1,585	448	117	492

(1) Return on assets during 2017, including returns on $200 million contributions made in 2016, resulted in the fair value of plan assets exceeding the accumulated benefit obligation for a significant U.S. pension plan.

Summary of Benefit Costs and Other Amounts Recognized in Other Comprehensive Income

	Pension Plans						Postretirement Benefit Plans		
	2018		2017		2016		2018	2017	2016
(Dollars in millions)	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.			
Components of net periodic benefit (credit) cost:									
Service cost	$ 35	$ 14	$ 37	$ 13	$ 39	$ 12	$ —	$ 3	$ 5
Interest cost	67	20	66	20	74	23	22	23	27
Expected return on plan assets	(147)	(37)	(140)	(35)	(138)	(32)	(5)	(5)	(6)
Amortization of:									
Prior service (credit) cost	(1)	1	(4)	1	(4)	—	(40)	(40)	(44)
Mark-to-market pension and other postretirement benefits (gain) loss, net	89	36	(37)	(7)	34	52	(26)	23	11
Net periodic benefit (credit) cost	$ 43	$ 34	$ (78)	$ (8)	$ 5	$ 55	$ (49)	$ 4	$ (7)
Other changes in plan assets and benefit obligations recognized in other comprehensive income:									
Current year prior service credit (cost)	$ —	$ —	$ —	$ —	$ (3)	$ —	$ —	$ —	$ 106
Amortization of:									
Prior service (credit) cost	(1)	1	(4)	1	(4)	—	(40)	(40)	(44)
Total	$ (1)	$ 1	$ (4)	$ 1	$ (7)	$ —	$ (40)	$ (40)	$ 62

In fourth quarter 2016, Eastman changed benefits provided to retirees by an Eastman other postretirement benefit plan which triggered a remeasurement of the plan's obligation. The remeasurement resulted in a pre-tax reduction in the accumulated postretirement benefit obligation of approximately $106 million which will be amortized as a prior service credit from AOCI over approximately eight years. The remeasurement was included in the 2016 year end remeasurement process.

In third quarter 2016, the Company announced a change to a UK defined benefit pension plan which triggered an interim remeasurement of the plan obligation resulting in a MTM loss of $30 million. The MTM loss was primarily due to a lower discount rate at the third quarter 2016 remeasurement date compared to December 31, 2015. The lower discount rate was reflective of changes in global market conditions and interest rates on high-grade corporate bonds. The plan was remeasured in fourth quarter 2016 as part of the annual MTM remeasurement process.

In first quarter 2016, the Company changed the approach used to calculate service and interest cost components of net periodic benefit costs for its significant defined benefit pension and other postretirement benefit plans. The Company elected to calculate service and interest costs by applying the specific spot rates along the yield curve to the plans' projected cash flows. The change does not affect the measurement of the total benefit obligation or the annual net periodic benefit cost or credit of the plans because the change in the service and interest costs will be offset in the MTM actuarial gain or loss which typically is recognized in the fourth quarter of each year or in any other quarters in which an interim remeasurement is triggered. The change in the approach for full-year 2016 pre-tax expense was an increase to service cost of approximately $2 million and a reduction in interest cost of approximately $22 million compared to the previous method. The net reduction of approximately $20 million was offset by a MTM loss as part of the annual remeasurement of the plans in fourth quarter 2016.

The estimated prior service credit for the other postretirement benefit plans that will be amortized from AOCI into net periodic cost in 2019 is $39 million.

Plan Assumptions

The assumptions used to develop the projected benefit obligation for Eastman's significant U.S. and non-U.S. defined benefit pension plans and U.S. postretirement benefit plans are provided in the following tables.

	Pension Plans						Postretirement Benefit Plans		
	2018		2017		2016		2018	2017	2016
Weighted-average assumptions used to determine benefit obligations for years ended December 31:	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**			
Discount rate	4.29%	2.35%	3.57%	2.25%	3.89%	2.33%	4.26%	3.54%	3.91%
Rate of compensation increase	3.25%	2.94%	3.25%	2.95%	3.25%	2.94%	3.25%	3.25%	3.25%
Health care cost trend									
Initial							6.50%	6.75%	7.00%
Decreasing to ultimate trend of							5.00%	5.00%	5.00%
in year							2025	2025	2021
Weighted-average assumptions used to determine net periodic cost for years ended December 31:	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**			
Discount rate	3.57%	2.25%	3.89%	2.33%	4.13%	3.26%	3.54%	3.91%	4.17%
Discount rate for service cost	3.64%	2.25%	3.89%	2.33%	4.13%	3.26%	3.28%	4.31%	4.57%
Discount rate for interest cost	3.18%	2.25%	3.24%	2.33%	3.33%	3.26%	3.14%	3.28%	3.42%
Expected return on assets	7.48%	4.83%	7.49%	5.02%	7.60%	5.11%	3.75%	3.75%	3.75%
Rate of compensation increase	3.25%	2.95%	3.25%	2.94%	3.50%	3.00%	3.25%	3.25%	3.50%
Health care cost trend									
Initial							6.75%	7.00%	7.50%
Decreasing to ultimate trend of							5.00%	5.00%	5.00%
in year							2025	2021	2021

A 6.50 percent rate of increase in per capita cost of covered health care benefits is assumed for 2019. The rate is assumed to decrease gradually to five percent in 2025 and remain at that level thereafter. A one percent increase or decrease in health care cost trend would have had no material impact on the 2018 service and interest costs or the 2018 benefit obligation, because the Company's contributions for benefits are fixed.

In 2017, the Company performed a five year experience study on assumptions for the U.S. plans, including a review of the mortality tables. As a result of the study, the Company has updated the mortality assumptions used to a modified RP-2017 table with a modified MP-2017 improvement scale and no collar adjustment.

The fair value of plan assets for the U.S. pension plans at December 31, 2018 and 2017 was $1.8 billion and $2.1 billion, respectively, while the fair value of plan assets at December 31, 2018 and 2017 for non-U.S. pension plans was $713 million and $773 million, respectively. At December 31, 2018 and 2017, the expected weighted-average long-term rate of return on U.S. pension plan assets was 7.43 percent and 7.48 percent, respectively. The expected weighted-average long-term rate of return on non-U.S. pension plans assets was 4.49 percent and 4.83 percent at December 31, 2018 and 2017, respectively.

Plan Assets

The following tables reflect the fair value of the defined benefit pension plans assets.

(Dollars in millions)

			Fair Value Measurements at December 31, 2018					
Description	**Total Fair Value**		**Quoted Prices in Active Markets for Identical Assets (Level 1)**		**Significant Other Observable Inputs (Level 2)**		**Significant Unobservable Inputs (Level 3)**	
Pension Assets:	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**
Cash & Cash Equivalents [1]	$ 16	$ 53	$ 16	$ 53	$ —	$ —	$ —	$ —
Public Equity - United States [2]	2	—	2	—	—	—	—	—
Other Investments [3]	—	51	—	—	—	—	—	51
Total Assets at Fair Value	$ 18	$ 104	$ 18	$ 53	$ —	$ —	$ —	$ 51
Investments Measured at Net Asset Value [4]	1,802	609						
Total Assets	$ 1,820	$ 713						

(Dollars in millions)

			Fair Value Measurements at December 31, 2017					
Description	**Total Fair Value**		**Quoted Prices in Active Markets for Identical Assets (Level 1)**		**Significant Other Observable Inputs (Level 2)**		**Significant Unobservable Inputs (Level 3)**	
Pension Assets:	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**	**U.S.**	**Non-U.S.**
Cash & Cash Equivalents [1]	$ 20	$ 57	$ 20	$ 57	$ —	$ —	$ —	$ —
Public Equity - United States [2]	4	—	4	—	—	—	—	—
Other Investments [3]	—	51	—	—	—	—	—	51
Total Assets at Fair Value	$ 24	$ 108	$ 24	$ 57	$ —	$ —	$ —	$ 51
Investments Measured at Net Asset Value [4]	2,030	665						
Total Assets	$ 2,054	$ 773						

(1) Cash & Cash Equivalents: Funds generally invested in actively managed collective trust funds or interest bearing accounts.
(2) Public Equity - United States: Common stock equity securities which are primarily valued using a market approach based on the quoted market prices.
(3) Other Investments: Primarily consist of insurance contracts which are generally valued using a crediting rate that approximates market returns and investments in underlying securities whose market values are unobservable and determined using pricing models, discounted cash flow methodologies, or similar techniques.
(4) Investments Measured at Net Asset Value: The underlying debt and public equity investments in this category are generally held in common trust funds, which are either actively or passively managed investment vehicles, that are valued at the net asset value per unit/share multiplied by the number of units/shares held as of the measurement date. The other alternative investments in this category are valued under the practical expedient method which is based on the most recently reported net asset value provided by the management of each private investment fund, adjusted as appropriate, for any lag between the date of the financial reports and the measurement date.

The following tables reflect the fair value of the postretirement benefit plan assets. The postretirement benefit plan is for the voluntary employees' beneficiary association ("VEBA") trust the Company assumed as part of the Solutia acquisition.

(Dollars in millions)

Description	Total Fair Value	Fair Value Measurements at December 31, 2018 Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Postretirement Benefit Plan Assets:				
Cash & Cash Equivalents [1]	$ 3	$ 3	$ —	$ —
Debt [2]:				
Fixed Income (U.S.)	78	—	78	—
Fixed Income (Non-U.S.)	26	—	26	—
Total	$ 107	$ 3	$ 104	$ —

(Dollars in millions)

Description	Total Fair Value	Fair Value Measurements at December 31, 2017 Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Postretirement Benefit Plan Assets:				
Cash & Cash Equivalents [1]	$ 2	$ 2	$ —	$ —
Debt [2]:				
Fixed Income (U.S.)	82	—	82	—
Fixed Income (Non-U.S.)	31	—	31	—
Total	$ 115	$ 2	$ 113	$ —

(1) Cash & Cash Equivalents: Funds generally invested in actively managed collective trust funds or interest bearing accounts.
(2) Debt: The fixed income securities are primarily valued upon a market approach, using matrix pricing and considering a security's relationship to other securities for which quoted prices in an active market may be available, or an income approach, converting future cash flows to a single present value amount. Inputs used in developing fair value estimates include reported trades, broker quotes, benchmark yields, and base spreads.

The Company valued assets with unobservable inputs (Level 3), primarily insurance contracts, using a crediting rate that approximates market returns and investments in underlying securities whose market values are unobservable and determined using pricing models, discounted cash flow methodologies, or similar techniques.

(Dollars in millions)	Fair Value Measurements Using Significant Unobservable Inputs (Level 3) Other Investments[1] Non-U.S. Pension Plans
Balance at December 31, 2016	$ 44
Unrealized gains	7
Balance at December 31, 2017	51
Unrealized gains	—
Balance at December 31, 2018	$ 51

(1) Primarily consists of insurance contracts.

The following table reflects the target allocation for the Company's U.S. and non-U.S. pension and postretirement benefit plans assets for 2019 and the asset allocation at December 31, 2018 and 2017, by asset category.

	U.S. Pension Plans			Non-U.S. Pension Plans			Postretirement Benefit Plan		
	2019 Target Allocation	Plan Assets at December 31, 2018	Plan Assets at December 31, 2017	2019 Target Allocation	Plan Assets at December 31, 2018	Plan Assets at December 31, 2017	2019 Target Allocation	Plan Assets at December 31, 2018	Plan Assets at December 31, 2017
Asset category									
Equity securities	43%	43%	48%	23%	19%	22%	—%	—%	—%
Debt securities	40%	44%	40%	54%	54%	55%	100%	100%	100%
Real estate	2%	2%	2%	5%	8%	7%	—%	—%	—%
Other investments [1]	15%	11%	10%	18%	19%	16%	—%	—%	—%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%

(1) U.S. primarily consists of private equity and natural resource and energy related limited partnership investments. Non-U.S. primarily consists of annuity contracts and alternative investments.

Investment Strategy

Eastman's investment strategy for its defined benefit pension plans is to maximize the long-term rate of return on plan assets within an acceptable level of risk in order to meet or exceed the plan's actuarially assumed long-term rate of return and to minimize the cost of providing pension benefits. A periodic asset/liability study is conducted in order to assist in the determination and, if necessary, modification of the appropriate long-term investment policy for the plan. The investment policy establishes a target allocation range for each asset class and the fund is managed within those ranges. The plans use a number of investment approaches including investments in equity, real estate, and fixed income funds in which the underlying securities are marketable in order to achieve this target allocation. The plans also invest in private equity and other funds. Diversification is created through investments across various asset classes, geographies, fund managers, and individual securities. This investment process is designed to provide for a well-diversified portfolio with no significant concentration of risk. The investment process is monitored by an investment committee that includes senior management.

Eastman's investment strategy for its VEBA trust is to invest in intermediate-term, well diversified, high quality investment instruments, with a primary objective of capital preservation.

The expected rate of return for all plans was determined primarily by modeling the expected long-term rates of return for the categories of investments held by the plans and the targeted allocation percentage against various potential economic scenarios.

The Company made no contributions to its U.S. defined benefit pension plans in 2018 or 2017. For 2019 calendar year, there are no minimum required cash contributions for the U.S. defined benefit pension plans under the Employee Retirement Income Security Act of 1974, as amended, and the Internal Revenue Code of 1986, as amended.

The estimated future benefit payments, reflecting expected future service, as appropriate, are as follows:

	Pension Plans		Postretirement Benefit Plans
(Dollars in millions)	U.S.	Non-U.S.	
2019	$ 200	$ 22	$ 57
2020	168	25	57
2021	159	24	57
2022	156	25	53
2023	151	27	47
2024-2028	718	167	225

11. COMMITMENTS AND OFF BALANCE SHEET ARRANGEMENTS

Eastman's obligations are summarized in the following table.

(Dollars in millions)	Payments Due for						
Period	Debt Securities	Credit Facilities and Other	Interest Payable	Purchase Obligations	Operating Leases	Other Liabilities	Total
2019	$ —	$ 243	$ 210	$ 275	$ 63	$ 250	$ 1,041
2020	250	50	194	227	51	79	851
2021	482	—	189	136	40	92	939
2022	739	—	176	87	29	99	1,130
2023	855	—	157	77	18	96	1,203
2024 and beyond	3,549	—	1,553	2,046	47	1,010	8,205
Total	$ 5,875	$ 293	$ 2,479	$ 2,848	$ 248	$ 1,626	$ 13,369

Estimated future payments of debt securities assumes the repayment of principal upon stated maturity, and actual amounts and the timing of such payments may differ materially due to repayment or other changes in the terms of such debt prior to maturity.

Eastman had various purchase obligations at December 31, 2018 totaling approximately $2.8 billion over a period of approximately 30 years for materials, supplies, and energy incident to the ordinary conduct of business. The Company also had various lease commitments for property and equipment under noncancelable operating leases totaling $248 million over a period of approximately 40 years. Of the total lease commitments, approximately 50 percent relate to real property, including office space, storage facilities, and land; approximately 40 percent relate to railcars; and approximately 10 percent relate to machinery and equipment, including computer and communications equipment and production equipment. Rental expense, net of sublease income, was $103 million, $94 million, and $90 million in 2018, 2017, and 2016, respectively.

Amounts in other liabilities represent the current estimated cash payments required to be made by the Company primarily for pension and other postretirement benefits, environmental loss contingency reserves, accrued compensation benefits, uncertain tax liabilities, one-time transition tax on deferred foreign income under the Tax Reform Act, and commodity and foreign exchange hedging in the periods indicated. Due to uncertainties in the timing of the effective settlement of tax positions with respect to taxing authorities, management is unable to determine the timing of payments related to uncertain tax liabilities and these amounts are included in the "2024 and beyond" line item.

Guarantees

Eastman has operating leases with terms that require the Company to guarantee a portion of the residual value of the leased assets upon termination of the lease as well as other guarantees. Disclosures about each group of similar guarantees are provided below.

Residual Value Guarantees

The Company has operating leases with terms that require the Company to guarantee a portion of the residual value of the leased assets upon termination of the lease. These residual value guarantees totaled $68 million at December 31, 2018 and consist primarily of leases for railcars that will expire beginning in second quarter 2019. Residual guarantee payments that become probable and estimable are recognized as rent expense over the remaining life of the applicable lease. Management's current expectation is that the likelihood of material residual guarantee payments is remote.

Other Guarantees

Guarantees and claims also arise during the ordinary course of business from relationships with customers, suppliers, joint venture partners, and other parties when the Company undertakes an obligation to guarantee the performance of others if specified triggering events occur. Non-performance under a contract could trigger an obligation of the Company. The Company's current other guarantees include guarantees relating to intellectual property, environmental matters, and other indemnifications and have arisen through the normal course of business. The ultimate effect on future financial results is not subject to reasonable estimation because considerable uncertainty exists as to the final outcome of these claims, if they were to occur. These other guarantees have terms up to 30 years with maximum potential future payments of approximately $35 million in the aggregate, with none of these guarantees being individually significant to the Company's operating results, financial position, or liquidity. Management's current expectation is that future payment or performance related to non-performance under other guarantees is remote.

Other Off Balance Sheet Arrangements

The Company has off balance sheet uncommitted non-recourse factoring facilities that include customer specific receivables in the United States and Europe. The Company sells the receivables at face value, less a transaction fee, which substantially equals the carrying value and fair value with no gain or loss recognized. There is no continuing involvement with these receivables once sold and no credit loss exposure. The total amount of receivables sold during 2018 and 2017 were $169 million and $35 million, respectively.

In October 2018, Eastman added an uncommitted non-recourse factoring facility under which the Company sells undivided interests in certain receivables and provides servicing at market rates with no credit loss exposure. The Company sells the receivables at face value, less a transaction fee, which substantially equals the carrying value and fair value with no gain or loss recognized. The total amount of receivables sold during 2018 was $50 million.

12. ENVIRONMENTAL MATTERS AND ASSET RETIREMENT OBLIGATIONS

Certain Eastman manufacturing facilities generate hazardous and nonhazardous wastes, the treatment, storage, transportation, and disposal of which are regulated by various governmental agencies. In connection with the cleanup of various hazardous waste sites, the Company, along with many other entities, has been designated a potentially responsible party ("PRP") by the U.S. Environmental Protection Agency under the Comprehensive Environmental Response, Compensation and Liability Act, which potentially subjects PRPs to joint and several liability for certain cleanup costs. In addition, the Company will incur costs for environmental remediation and closure and post-closure under the federal Resource Conservation and Recovery Act. Reserves for environmental contingencies have been established in accordance with Eastman's policies described in Note 1, "Significant Accounting Policies". Although the resolution of uncertainties related to these environmental matters may have a material adverse effect on the Company's consolidated results of operations in the period recognized, because of the availability of legal defenses, the Company's preliminary assessment of actions that may be required, and, if applicable, the expected sharing of costs, management does not believe that the Company's liability for these environmental matters, individually or in the aggregate, will be material to the Company's consolidated financial position, results of operations, or cash flows. The Company's total reserve for environmental loss contingencies was $296 million and $304 million at December 31, 2018 and December 31, 2017, respectively.

Environmental Remediation and Environmental Asset Retirement Obligations

The Company's total environmental reserve that management believes to be probable and reasonably estimable for environmental contingencies, including remediation costs and asset retirement obligations, is included as part of "Payables and other current liabilities" and "Other long-term liabilities" in the Consolidated Statements of Financial Position as follows:

(Dollars in millions)	December 31,	
	2018	**2017**
Environmental contingent liabilities, current	$ 25	$ 25
Environmental contingent liabilities, long-term	271	279
Total	$ 296	$ 304

Environmental Remediation

Estimated future environmental expenditures for undiscounted remediation costs ranged from the best estimate or minimum of $271 million to the maximum of $508 million and from the best estimate or minimum of $280 million to the maximum of $483 million at December 31, 2018 and December 31, 2017, respectively. The best estimate or minimum estimated future environmental expenditures are considered to be probable and reasonably estimable and include the amounts accrued at both December 31, 2018 and December 31, 2017.

Costs of certain remediation projects included in the environmental reserve are subject to a cost-sharing arrangement with Monsanto Company ("Monsanto") under the provisions of the Amended and Restated Settlement Agreement effective February 28, 2008 (the "Effective Date"), into which Solutia entered with Monsanto upon its emergence from bankruptcy (the "Monsanto Settlement Agreement"). Under the provisions of the Monsanto Settlement Agreement, Solutia, which became a wholly-owned subsidiary of Eastman on July 2, 2012, shares responsibility with Monsanto for remediation at certain locations outside of the boundaries of plant sites in Anniston, Alabama and Sauget, Illinois (the "Shared Sites"). Solutia is responsible for the funding of environmental liabilities at the Shared Sites up to a total of $325 million from the Effective Date. If remediation costs for the Shared Sites exceed this amount, such costs will thereafter be shared equally between Solutia and Monsanto. Including payments by Solutia prior to its acquisition by Eastman, $93 million had been paid for costs at the Shared Sites as of December 31, 2018. As of December 31, 2018, an additional $203 million has been accrued for estimated future remediation costs at the Shared Sites, over a period of approximately 30 years.

Reserves for environmental remediation include liabilities expected to be paid within approximately 30 years. The amounts charged to pre-tax earnings for environmental remediation and related charges are included within "Cost of sales" in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings. Changes in the reserves for environmental remediation liabilities for twelve months ended 2018 are summarized below:

(Dollars in millions)	Environmental Remediation Liabilities
Balance at December 31, 2017	$ 280
Changes in estimates recorded to earnings and other	7
Cash reductions	(16)
Balance at December 31, 2018	$ 271

Environmental Asset Retirement Obligations

An asset retirement obligation is an obligation for the retirement of a tangible long-lived asset that is incurred upon the acquisition, construction, development, or normal operation of that long-lived asset. Eastman recognizes asset retirement obligations in the period in which they are incurred if a reasonable estimate of fair value can be made. The asset retirement obligations are discounted to expected present value and subsequently adjusted for changes in fair value. The associated estimated asset retirement costs are capitalized as part of the carrying value of the long-lived assets and depreciated over their useful life. Environmental asset retirement obligations consist of primarily closure and post-closure costs. For sites that have environmental asset retirement obligations, the best estimate recognized to date for these environmental asset retirement obligation costs was $25 million and $24 million at December 31, 2018 and December 31, 2017, respectively.

Other

Environmental costs are capitalized if they extend the life of the related property, increase its capacity, or mitigate the possibility of future contamination. The cost of operating and maintaining environmental control facilities is charged to expense as incurred. Eastman's cash expenditures related to environmental protection and improvement were $274 million, $257 million, and $267 million in 2018, 2017, and 2016, respectively, and include operating costs associated with environmental protection equipment and facilities, engineering costs, and construction costs. The cash expenditures above include environmental capital expenditures of approximately $44 million, $38 million, and $45 million in 2018, 2017, and 2016, respectively.

The Company also has contractual asset retirement obligations not associated with environmental liabilities. Eastman's non-environmental asset retirement obligations are primarily associated with the future closure of leased manufacturing assets at Pace, Florida and Oulu, Finland. These recognized non-environmental asset retirement obligations were $46 million and $49 million at December 31, 2018 and December 31, 2017, respectively, and is included as part of "Other long-term liabilities" in the Consolidated Statements of Financial Position.

13. LEGAL MATTERS

From time to time, Eastman and its operations are parties to, or targets of, lawsuits, claims, investigations and proceedings, including product liability, personal injury, asbestos, patent and intellectual property, commercial, contract, environmental, antitrust, health and safety, and employment matters, which are handled and defended in the ordinary course of business. While the Company is unable to predict the outcome of these matters, it does not believe, based upon currently available facts, that the ultimate resolution of any such pending matters will have a material adverse effect on its overall financial condition, results of operations, or cash flows.

14. STOCKHOLDERS' EQUITY

A reconciliation of the changes in stockholders' equity for 2018, 2017, and 2016 is provided below:

(Dollars in millions)	Common Stock at Par Value	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Stock at Cost	Total Eastman Stockholders' Equity	Noncontrolling Interest	Total Equity
Balance at December 31, 2015	$ 2	$ 1,863	$ 5,146	$ (390)	$ (2,680)	$ 3,941	$ 80	$ 4,021
Net Earnings	—	—	854	—	—	854	5	859
Cash Dividends [1]	—	—	(279)	—	—	(279)	—	(279)
Other Comprehensive Income	—	—	—	109	—	109	—	109
Share-Based Compensation Expense [2]	—	35	—	—	—	35	—	35
Stock Option Exercises	—	21	—	—	—	21	—	21
Other	—	(4)	—	—	—	(4)	(1)	(5)
Share Repurchase	—	—	—	—	(145)	(145)	—	(145)
Distributions to noncontrolling interest	—	—	—	—	—	—	(8)	(8)
Balance at December 31, 2016	$ 2	$ 1,915	$ 5,721	$ (281)	$ (2,825)	$ 4,532	$ 76	$ 4,608
Net Earnings	—	—	1,384	—	—	1,384	4	1,388
Cash Dividends [1]	—	—	(303)	—	—	(303)	—	(303)
Other Comprehensive Income	—	—	—	72	—	72	—	72
Share-Based Compensation Expense [2]	—	52	—	—	—	52	—	52
Stock Option Exercises	—	22	—	—	—	22	—	22
Other	—	(6)	—	—	—	(6)	1	(5)
Share Repurchase	—	—	—	—	(350)	(350)	—	(350)
Distributions to noncontrolling interest	—	—	—	—	—	—	(4)	(4)
Balance at December 31, 2017	$ 2	$ 1,983	$ 6,802	$ (209)	$ (3,175)	$ 5,403	$ 77	$ 5,480
Cumulative Effect of Adoption of New Accounting Standards [3]	—	—	16	—	—	16	—	16
Net Earnings	—	—	1,080	—	—	1,080	4	1,084
Cash Dividends [1]	—	—	(325)	—	—	(325)	—	(325)
Other Comprehensive (Loss)	—	—	—	(36)	—	(36)	—	(36)
Share-Based Compensation Expense [2]	—	64	—	—	—	64	—	64
Stock Option Exercises	—	18	—	—	—	18	—	18
Other [4]	—	(17)	—	—	—	(17)	(1)	(18)
Share Repurchase	—	—	—	—	(400)	(400)	—	(400)
Distributions to noncontrolling interest	—	—	—	—	—	—	(5)	(5)
Balance at December 31, 2018	$ 2	$ 2,048	$ 7,573	$ (245)	$ (3,575)	$ 5,803	$ 75	$ 5,878

(1) Cash dividends includes cash dividends paid and dividends declared, but unpaid.
(2) Share-based compensation expense is the fair value of share-based awards.
(3) On January 1, 2018, the Company adopted new accounting standards for revenue recognition, income taxes, and derivatives and hedging, which resulted in adjustments to beginning retained earnings. See Note 1, "Significant Accounting Policies", for specific amounts related to each standard.
(4) Additional paid-in capital includes value of shares withheld for employees' taxes on vesting of share-based compensation awards.

Eastman is authorized to issue 400 million shares of all classes of stock, of which 50 million may be preferred stock, par value $0.01 per share, and 350 million may be common stock, par value $0.01 per share. The Company declared dividends per share of $2.30 in 2018, $2.09 in 2017, and $1.89 in 2016.

The Company established a benefit security trust in 1997 to provide a degree of financial security for unfunded obligations under certain unfunded plans and contributed to the trust a warrant to purchase up to 6 million shares of common stock of the Company for par value. The warrant, which remains outstanding, is exercisable by the trustee if the Company does not meet certain funding obligations, which obligations would be triggered by certain occurrences, including a change in control or potential change in control, as defined, or failure by the Company to meet its payment obligations under certain covered unfunded plans. Such warrant is excluded from the computation of diluted earnings per share because the conditions upon which the warrant becomes exercisable have not been met.

The additions to paid-in capital in 2018, 2017, and 2016 are primarily for compensation expense of equity awards and employee stock option exercises.

In February 2014, the Company's Board of Directors authorized repurchase of up to $1 billion of the Company's outstanding common stock. The Company completed the $1 billion of repurchases in May 2018, acquiring a total of 12,215,950 shares. In February 2018, the Company's Board of Directors authorized repurchase of up to $2 billion of the Company's outstanding common stock at such times, in such amounts, and on such terms, as determined by management to be in the best interests of the Company. As of December 31, 2018, a total of 2,470,755 shares have been repurchased under this authorization for a total of $248 million. During 2018, the Company repurchased 3,959,878 shares of common stock for a cost of approximately $400 million. During 2017, the Company repurchased 4,184,637 shares of common stock for a cost of approximately $350 million. During 2016, the Company repurchased 2,131,501 shares of common stock for a cost of approximately $145 million.

The Company's charitable foundation held 50,798 issued and outstanding shares of the Company's common stock at December 31, 2018, 2017, and 2016 which are included in treasury stock in the Consolidated Statements of Financial Position and excluded from calculations of diluted earnings per share.

The following table sets forth the computation of basic and diluted earnings per share ("EPS"):

	For years ended December 31,		
(In millions, except per share amounts)	**2018**	**2017**	**2016**
Numerator			
Net earnings attributable to Eastman	$ 1,080	$ 1,384	$ 854
Denominator			
Weighted average shares used for basic EPS	141.2	144.8	147.3
Dilutive effect of stock options and other award plans	1.7	1.3	1.1
Weighted average shares used for diluted EPS	142.9	146.1	148.4
EPS [1]			
Basic	$ 7.65	$ 9.56	$ 5.80
Diluted	$ 7.56	$ 9.47	$ 5.75

(1) Earnings per share are calculated using whole dollars and shares.

Stock options excluded from the 2018, 2017, and 2016 calculations of diluted earnings per share were 619,706, 204,978, and 1,072,468, respectively, because the market value of option exercises for these awards were less than the cash proceeds that would be received from these exercises.

Shares of common stock issued, including shares held in treasury, are presented below:

	For years ended December 31,		
	2018	**2017**	**2016**
Balance at beginning of year	218,369,992	217,707,600	216,899,964
Issued for employee compensation and benefit plans	770,531	662,392	807,636
Balance at end of year	219,140,523	218,369,992	217,707,600

Accumulated Other Comprehensive Income (Loss)

(Dollars in millions)	Cumulative Translation Adjustment	Benefit Plans Unrecognized Prior Service Credits	Unrealized Gains (Losses) on Cash Flow Hedges	Unrealized Losses on Investments	Accumulated Other Comprehensive Income (Loss)
Balance at December 31, 2016	$ (381)	$ 163	$ (62)	$ (1)	$ (281)
Period change	85	(27)	14	—	72
Balance at December 31, 2017	(296)	136	(48)	(1)	(209)
Period change	(13)	(30)	7	—	(36)
Balance at December 31, 2018	$ (309)	$ 106	$ (41)	$ (1)	$ (245)

Amounts of other comprehensive income (loss) are presented net of applicable taxes. Eastman records deferred income taxes on the cumulative translation adjustment related to branch operations and income from other entities included in the Company's consolidated U.S. tax return. No deferred income taxes are provided on the cumulative translation adjustment of other subsidiaries outside the United States, as the cumulative translation adjustment is considered to be a component of indefinitely invested, unremitted earnings of these foreign subsidiaries.

Components of total other comprehensive income (loss) recorded in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings are presented below, before tax and net of tax effects:

	For years ended December 31,					
	2018		2017		2016	
(Dollars in millions)	Before Tax	Net of Tax	Before Tax	Net of Tax	Before Tax	Net of Tax
Change in cumulative translation adjustment	$ (13)	$ (13)	$ 85	$ 85	$ (97)	$ (97)
Defined benefit pension and other postretirement benefit plans:						
Prior service credit arising during the period	—	—	—	—	103	64
Amortization of unrecognized prior service credits included in net periodic costs	(40)	(30)	(43)	(27)	(48)	(30)
Change in defined benefit pension and other postretirement benefit plans	(40)	(30)	(43)	(27)	55	34
Derivatives and hedging:						
Unrealized gain (loss) during period	30	22	11	7	150	93
Reclassification adjustment for (gains) losses included in net income, net	(20)	(15)	11	7	127	79
Change in derivatives and hedging	10	7	22	14	277	172
Total other comprehensive income (loss)	$ (43)	$ (36)	$ 64	$ 72	$ 235	$ 109

For additional information regarding the impact of reclassifications into earnings, refer to Note 9, "Derivative and Non-Derivative Financial Instruments", and Note 10, "Retirement Plans".

15. ASSET IMPAIRMENTS AND RESTRUCTURING CHARGES, NET

Components of asset impairments and restructuring charges, net, are presented below:

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Asset impairments	$ —	$ 1	$ 12
Gain on sale of assets, net	—	—	(2)
Intangible asset and goodwill impairments	39	—	—
Severance charges	6	6	32
Site closure and restructuring charges	—	1	3
Total	$ 45	$ 8	$ 45

2018

In 2018 asset impairments and restructuring charges, net consisted of restructuring charges of approximately $6 million for severance. As a result of the annual impairment test of goodwill, the Company recognized a $38 million goodwill impairment in the crop protection reporting unit (part of the AFP segment). Additionally, the Company recognized an intangible asset impairment of $1 million in the Advanced Materials ("AM") segment.

2017

In 2017 asset impairments and restructuring charges, net were $3 million of asset impairment and restructuring charges, including severance, in the AFP segment related to the closure of a facility in China and restructuring charges of approximately $5 million for severance.

2016

The Company impaired a capital project in the AFP segment that resulted in a charge of $12 million and recognized a gain of $2 million in the AFP segment for the sale of previously impaired assets at the Crystex™ insoluble sulfur research and development ("R&D") site in France.

The Company recognized restructuring charges of $35 million, primarily for severance, related to an announced plan to reduce costs primarily in 2017.

Reconciliations of the beginning and ending restructuring liability amounts are as follows:

(Dollars in millions)	Balance at January 1, 2018	Provision/ Adjustments	Non-cash Reductions/ Additions	Cash Reductions	Balance at December 31, 2018
Non-cash charges	$ —	$ 39	$ (39)	$ —	$ —
Severance costs	19	6	1	(20)	6
Site closure & restructuring costs	10	—	—	(2)	8
Total	$ 29	$ 45	$ (38)	$ (22)	$ 14

(Dollars in millions)	Balance at January 1, 2017	Provision/ Adjustments	Non-cash Reductions/ Additions	Cash Reductions	Balance at December 31, 2017
Non-cash charges	$ —	$ 1	$ (1)	$ —	$ —
Severance costs	42	6	—	(29)	19
Site closure & restructuring costs	13	1	1	(5)	10
Total	$ 55	$ 8	$ —	$ (34)	$ 29

(Dollars in millions)	Balance at January 1, 2016	Provision/ Adjustments	Non-cash Reductions/ Additions	Cash Reductions	Balance at December 31, 2016
Non-cash charges	$ —	$ 12	$ (12)	$ —	$ —
Severance costs	55	32	—	(45)	42
Site closure & restructuring costs	11	1	4	(3)	13
Total	$ 66	$ 45	$ (8)	$ (48)	$ 55

Substantially all costs remaining for severance are expected to be applied to the reserves within one year.

16. OTHER (INCOME) CHARGES, NET

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Foreign exchange transaction losses (gains), net [(1)]	$ 12	$ 5	$ 27
Currency transaction costs resulting from tax law changes and outside-U.S. entity reorganizations	13	—	—
(Income) loss from equity investments and other investment (gains) losses, net	(17)	(12)	(13)
Coal gasification incident property insurance	(65)	—	—
Cost of disposition of claims against discontinued Solutia operations	—	9	5
Gains from sale of businesses [(2)]	—	(3)	(17)
Other, net	4	5	(6)
Other (income) charges, net	$ (53)	$ 4	$ (4)

(1) Net impact of revaluation of foreign entity assets and liabilities and effects of foreign exchange non-qualifying derivatives.
(2) Gains resulting from the sale of the formulated electronic cleaning solution business in the AFP segment in 2017 and the sale of the Company's interest in the Primester joint venture equity investment in the Fibers segment in 2016.

17. SHARE-BASED COMPENSATION PLANS AND AWARDS

2017 Omnibus Stock Compensation Plan

Eastman's 2017 Omnibus Stock Compensation Plan ("2017 Omnibus Plan") was approved by stockholders at the May 4, 2017 Annual Meeting of Stockholders and shall remain in effect until its fifth anniversary. The 2017 Omnibus Plan authorizes the Compensation and Management Development Committee of the Board of Directors to grant awards, designate participants, determine the types and numbers of awards, determine the terms and conditions of awards and determine the form of award settlement. Under the 2017 Omnibus Plan, the aggregate number of shares reserved and available for issuance is 10 million, which consist of shares not previously authorized for issuance under any other plan. The number of shares covered by an award is counted against this share reserve as of the grant date of the award. Shares covered by full value awards (e.g. performance shares and restricted stock awards) are counted against the total number of shares available for issuance or delivery under the plan as 2.5 shares for every one share covered by the award. Any stock distributed pursuant to an award may consist of, in whole or in part, authorized and unissued stock, treasury stock, or stock purchased on the open market. Under the 2017 Omnibus Plan and previous plans, the forms of awards have included restricted stock and restricted stock units, stock options, stock appreciation rights ("SARs"), and performance shares. The 2017 Omnibus Plan is flexible as to the number of specific forms of awards, but provides that stock options and SARs are to be granted at an exercise price not less than 100 percent of the per share fair market value on the date of the grant.

Director Stock Compensation Subplan

Eastman's 2018 Director Stock Compensation Subplan ("Directors' Subplan"), a component of the 2017 Omnibus Plan, remains in effect until terminated by the Board of Directors or the earlier termination of the 2017 Omnibus Plan. The Directors' Subplan provides for structured awards of restricted shares to non-employee members of the Board of Directors. Restricted shares awarded under the Directors' Subplan are subject to the same terms and conditions of the 2017 Omnibus Plan. The Directors' Subplan does not constitute a separate source of shares for grant of equity awards and all shares awarded are part of the 10 million shares authorized under the 2017 Omnibus Plan. Shares of restricted stock are granted on the first day of a non-employee director's initial term of service and shares of restricted stock are granted each year to each non-employee director on the date of the annual meeting of stockholders.

It has been the Company's practice to issue new shares rather than treasury shares for equity awards for compensation plans, including the 2017 Omnibus Plan and the Directors' Subplan, that require settlement by the issuance of common stock and to withhold or accept back shares awarded to cover the related income tax obligations of employee participants. Shares of unrestricted common stock owned by non-employee directors are not eligible to be withheld or acquired to satisfy the withholding obligation related to their income taxes. Shares of unrestricted common stock owned by specified senior management level employees are accepted by the Company to pay the exercise price of stock options in accordance with the terms and conditions of their awards.

Compensation Expense

For 2018, 2017, and 2016, total share-based compensation expense (before tax) of approximately $64 million, $52 million, and $36 million, respectively, was recognized in "Selling, general and administrative expense" in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings for all share-based awards of which approximately $9 million, $8 million, and $7 million, respectively, related to stock options. The compensation expense is recognized over the substantive vesting period, which may be a shorter time period than the stated vesting period for qualifying termination eligible employees as defined in the forms of award notice. Approximately $3 million for 2018, and $2 million for both 2017 and 2016, of stock option compensation expense was recognized each year due to qualifying termination eligibility preceding the requisite vesting period.

Stock Option Awards

Options have been granted on an annual basis to non-employee directors under the Directors' Subplan and predecessor plans and by the Compensation and Management Development Committee of the Board of Directors under the 2017 Omnibus Plan and predecessor plans to employees. Option awards have an exercise price equal to the closing price of the Company's stock on the date of grant. The term of options is 10 years with vesting periods that vary up to three years. Vesting usually occurs ratably over the vesting period or at the end of the vesting period. The Company utilizes the Black Scholes Merton option valuation model which relies on certain assumptions to estimate an option's fair value.

The weighted average assumptions used in the determination of fair value for stock options awarded in 2018, 2017, and 2016 are provided in the table below:

Assumptions	2018	2017	2016
Expected volatility rate	19.03%	20.45%	23.71%
Expected dividend yield	2.48%	2.64%	2.31%
Average risk-free interest rate	2.61%	1.91%	1.23%
Expected term years	5.1	5.0	5.0

The volatility rate of grants is derived from historical Company common stock price volatility over the same time period as the expected term of each stock option award. The volatility rate is derived by mathematical formula utilizing the weekly high closing stock price data over the expected term.

The expected dividend yield is calculated using the Company's average of the last four quarterly dividend yields.

The average risk-free interest rate is derived from United States Department of Treasury published interest rates of daily yield curves for the same time period as the expected term.

The weighted average expected term reflects the analysis of historical share-based award transactions and includes option swap and reload grants which may have much shorter remaining expected terms than new option grants.

A summary of the activity of the Company's stock option awards for 2018, 2017, and 2016 is presented below:

	2018		2017		2016	
	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price
Outstanding at beginning of year	2,614,100	$ 70	2,363,700	$ 61	2,434,600	$ 53
Granted	619,700	104	745,800	80	554,000	65
Exercised	(323,000)	55	(489,300)	44	(618,500)	33
Cancelled, forfeited, or expired	(5,200)	78	(6,100)	74	(6,400)	77
Outstanding at end of year	2,905,600	$ 79	2,614,100	$ 70	2,363,700	$ 61
Options exercisable at year-end	1,606,800		1,335,500		1,378,000	
Available for grant at end of year	8,174,614		9,943,033		3,807,724	

The following table provides the remaining contractual term and weighted average exercise prices of stock options outstanding and exercisable at December 31, 2018:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding at December 31, 2018	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number Exercisable at December 31, 2018	Weighted-Average Exercise Price
$38-$50	182,500	2.5	$ 39	182,500	$ 39
$51-$73	742,300	6.2	67	557,500	67
$74-$89	1,361,100	7.1	80	866,800	79
$90-$104	619,700	9.2	104	0	—
	2,905,600	7.0	$ 79	1,606,800	$ 70

The range of exercise prices of options outstanding at December 31, 2018 is approximately $38 to $104 per share. The aggregate intrinsic value of total options outstanding and total options exercisable at December 31, 2018 is $11 million and $10 million, respectively. Intrinsic value is the amount by which the closing market price of the stock at December 31, 2018 exceeds the exercise price of the option grants.

The weighted average remaining contractual life of all exercisable options at December 31, 2018 is 5.8 years.

The weighted average fair value of options granted during 2018, 2017, and 2016 was $15.90, $11.79, and $10.97, respectively. The total intrinsic value of options exercised during the years ended December 31, 2018, 2017, and 2016, was $15 million, $19 million, and $23 million, respectively. Cash proceeds received by the Company from option exercises and the related tax benefit totaled $18 million and $3 million, respectively, for 2018, $22 million and $5 million, respectively, for 2017, and $21 million and $7 million, respectively, for 2016. The total fair value of shares vested during the years ended December 31, 2018, 2017, and 2016 was $7 million, $6 million, and $6 million, respectively.

A summary of the changes in the Company's nonvested options during the year ended December 31, 2018 is presented below:

Nonvested Options	Number of Options	Weighted-Average Grant Date Fair Value
Nonvested at January 1, 2018	1,278,600	$11.82
Granted	619,700	$15.90
Vested	(594,300)	$12.10
Forfeited or expired	(5,200)	$12.74
Nonvested options at December 31, 2018	1,298,800	$13.63

For nonvested options at December 31, 2018, approximately $3 million in compensation expense will be recognized over the next two years.

Other Share-Based Compensation Awards

In addition to stock option awards, Eastman has awarded long-term performance share awards, restricted stock awards, and SARs. The long-term performance share awards are based upon actual return on capital compared to a target return on capital and total stockholder return compared to a peer group ranking by total stockholder return over a three year performance period. The awards are valued using a Monte Carlo Simulation based model and vest pro-rata over the three year performance period. The number of long-term performance award target shares granted for the 2018-2020, 2017-2019, and 2016-2018 periods were 310 thousand, 357 thousand, and 427 thousand, respectively. The target shares granted are assumed to be 100 percent. At the end of the three-year performance period, the actual number of shares awarded can range from zero percent to 250 percent of the target shares granted based on the award notice. The number of restricted stock awards granted during 2018, 2017, and 2016 were 160 thousand, 172 thousand, and 190 thousand, respectively. The fair value of a restricted stock award is equal to the closing stock price of the Company's stock on the date of grant and normally vests over a period of three years. The recognized compensation expense before tax for these other share-based awards in the years ended December 31, 2018, 2017, and 2016 was approximately $55 million, $44 million, and $29 million, respectively. The unrecognized compensation expense before tax for these same type awards at December 31, 2018 was approximately $60 million and will be recognized primarily over a period of two years.

18. SUPPLEMENTAL CASH FLOW INFORMATION

Included in the line item "Other items, net" of the "Operating activities" section of the Consolidated Statements of Cash Flows are specific changes to certain balance sheet accounts as follows:

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Current assets	$ (47)	$ 13	$ (35)
Other assets	43	29	37
Current liabilities	(38)	59	(98)
Long-term liabilities and equity	87	43	(29)
Total	$ 45	$ 144	$ (125)

The above changes included transactions such as accrued taxes, deferred taxes, environmental liabilities, monetized positions from raw material and energy, currency, and certain interest rate hedges, prepaid insurance, miscellaneous deferrals, value-added taxes, and other miscellaneous accruals.

Cash flows from derivative financial instruments accounted for as hedges are classified in the same category as the item being hedged.

Cash paid for interest and income taxes is as follows:

	For years ended December 31,		
(Dollars in millions)	2018	2017	2016
Interest, net of amounts capitalized	$ 239	$ 263	$ 280
Income taxes	202	97	120
Non-cash investing and financing activities:			
Outstanding trade payables related to capital expenditures	18	27	34
(Gain) loss from equity investments	(17)	(14)	(15)

19. SEGMENT INFORMATION

The Company's products and operations are managed and reported in four operating segments: Additives & Functional Products ("AFP"), Advanced Materials ("AM"), Chemical Intermediates ("CI"), and Fibers. Beginning January 1, 2018:

- Eastman's primary measure of operating performance for all periods presented is EBIT on a consolidated and segment basis. Previously, the Company's primary measure of operating performance was operating earnings;
- As a result of recent changes in the management of products and operations to better align resources for growth initiatives, products previously reported in the CI operating segment are reported in the AFP operating segment; and
- Sales revenue and innovation costs from the nonwovens and textiles innovation products previously reported in "Other" are reported in the Fibers operating segment due to accelerating commercial progress of growth initiatives.

Additives & Functional Products Segment

In the AFP segment, the Company manufactures chemicals for products in the transportation, consumables, building and construction, animal nutrition, crop protection, energy, personal and home care, and other markets.

The products the Company manufactures in the coatings and inks additives product line can be broadly classified as polymers and additives and solvents and include specialty coalescents, specialty solvents, paint additives, and specialty polymers. The adhesives resins product line consists of hydrocarbon and rosin resins. The tire additives product line includes insoluble sulfur rubber additives, antidegradant rubber additives, and performance resins. The care chemicals business consists of amine derivative-based building blocks for the production of flocculants and intermediates for surfactants. In the specialty fluids product line, the Company produces heat transfer and aviation fluids products. The animal nutrition business consists of organic acid-based solutions product lines. The crop protection business consists of metam-based soil fumigants, thiram and ziram-based fungicides, and plant growth regulator products.

	Percentage of Total Segment Sales		
Product Lines	**2018**	**2017**	**2016**
Coatings and Inks Additives	23%	23%	24%
Adhesives Resins	16%	18%	21%
Tire Additives	17%	17%	17%
Care Chemicals	17%	17%	15%
Specialty Fluids	13%	13%	11%
Animal Nutrition and Crop Protection	14%	12%	12%
Total	100%	100%	100%

	Percentage of Total Segment Sales		
Sales by Customer Location	**2018**	**2017**	**2016**
United States and Canada	36%	35%	37%
Asia Pacific	24%	23%	21%
Europe, Middle East, and Africa	34%	36%	35%
Latin America	6%	6%	7%
Total	100%	100%	100%

Advanced Materials Segment

In the AM segment, the Company produces and markets polymers, films, and plastics with differentiated performance properties for value-added end-uses in transportation, consumables, building and construction, durable goods, and health and wellness markets.

The specialty plastics product line consists of two primary products: copolyesters and cellulose esters. The advanced interlayers product line includes polyvinyl butyral sheet and specialty polyvinyl butyral intermediates. The performance films product line primarily consists of window film and protective film products for aftermarket applied films.

	Percentage of Total Segment Sales		
Product Lines	**2018**	**2017**	**2016**
Specialty Plastics	49%	51%	50%
Advanced Interlayers	33%	33%	34%
Performance Films	18%	16%	16%
Total	100%	100%	100%

	Percentage of Total Segment Sales		
Sales by Customer Location	**2018**	**2017**	**2016**
United States and Canada	35%	36%	37%
Asia Pacific	33%	33%	32%
Europe, Middle East, and Africa	27%	26%	26%
Latin America	5%	5%	5%
Total	100%	100%	100%

Chemical Intermediates Segment

The CI segment leverages large scale and vertical integration from the cellulose and acetyl, olefins, and alkylamines streams to support the Company's specialty operating segments with advantaged cost positions. The CI segment sells excess intermediates beyond the Company's internal specialty needs into markets such as industrial chemicals and processing, building and construction, health and wellness, and agrochemicals.

In the intermediates product line, the Company produces olefin derivatives, acetyl derivatives, ethylene, and commodity solvents. The plasticizers product line consists of a unique set of primary non-phthalate and phthalate plasticizers and a range of niche non-phthalate plasticizers. The functional amines product lines include methylamines and salts, and higher amines and solvents.

	Percentage of Total Segment Sales		
Product Lines	**2018**	**2017**	**2016**
Intermediates	60%	64%	65%
Plasticizers	20%	19%	20%
Functional Amines	20%	17%	15%
Total	100%	100%	100%

	Percentage of Total Segment Sales		
Sales by Customer Location	**2018**	**2017**	**2016**
United States and Canada	64%	68%	69%
Asia Pacific	15%	14%	12%
Europe, Middle East, and Africa	15%	12%	13%
Latin America	6%	6%	6%
Total	100%	100%	100%

Fibers Segment

In the Fibers segment, Eastman manufactures and sells cellulose acetate tow for use in filtration media, primarily cigarette filters. The acetyl chemicals product line consists of triacetin, cellulose acetate flake, and acetyl raw materials for other acetate fiber producers. The acetate yarn product line consists of natural (undyed) acetate and polyester yarn and solution-dyed acetate yarn for use in apparel, home furnishings, and industrial fabrics. The nonwovens product line consists primarily of the nonwovens innovation products previously reported in "Other".

	Percentage of Total Segment Sales		
Product Lines	**2018**	**2017**	**2016**
Acetate Tow	69%	77%	80%
Acetyl Chemical Products	15%	15%	13%
Acetate Yarn	10%	8%	7%
Nonwovens	6%	—%	—%
Total	100%	100%	100%

	Percentage of Total Segment Sales		
Sales by Customer Location	**2018**	**2017**	**2016**
United States and Canada	26%	22%	21%
Asia Pacific	33%	37%	44%
Europe, Middle East, and Africa	37%	37%	29%
Latin America	4%	4%	6%
Total	100%	100%	100%

Other

Sales revenue in the table below for "Other" in 2017 and 2016 is primarily sales from the nonwovens innovation products. Beginning first quarter 2018, sales revenue and innovation costs from the nonwovens and textiles innovation products previously reported in "Other" are reported in the Fibers operating segment due to accelerating commercial progress of growth initiatives.

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Sales by Segment			
Additives & Functional Products	$ 3,647	$ 3,343	$ 2,979
Advanced Materials	2,755	2,572	2,457
Chemical Intermediates	2,831	2,728	2,534
Fibers	918	852	992
Total Sales by Operating Segment	$ 10,151	$ 9,495	$ 8,962
Other	—	54	46
Total Sales	$ 10,151	$ 9,549	$ 9,008

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Earnings Before Interest and Taxes by Segment			
Additives & Functional Products	$ 639	$ 653	$ 607
Advanced Materials	509	483	472
Chemical Intermediates	308	255	171
Fibers	257	181	331
Total EBIT by Operating Segment	1,713	1,572	1,581
Other			
Growth initiatives and businesses not allocated to operating segments	(114)	(114)	(82)
Pension and other postretirement benefit plans income (expense), net not allocated to operating segments	(17)	93	(44)
Restructuring and acquisition integration and transaction costs	(6)	(5)	(44)
Other income (charges), net not allocated to operating segments	(24)	(16)	(22)
Total EBIT	$ 1,552	$ 1,530	$ 1,389

(Dollars in millions)	December 31, 2018	2017
Assets by Segment [(1)]		
Additives & Functional Products	$ 6,545	$ 6,648
Advanced Materials	4,456	4,379
Chemical Intermediates	2,934	3,000
Fibers	978	929
Total Assets by Operating Segment	14,913	14,956
Corporate Assets	1,082	1,043
Total Assets	$ 15,995	$ 15,999

(1) The chief operating decision maker holds operating segment management accountable for accounts receivable, inventory, fixed assets, goodwill, and intangible assets.

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Depreciation and Amortization Expense by Segment			
Additives & Functional Products	$ 219	$ 213	$ 208
Advanced Materials	169	164	160
Chemical Intermediates	151	148	157
Fibers	64	58	51
Total Depreciation and Amortization Expense by Operating Segment	603	583	576
Other	1	4	4
Total Depreciation and Amortization Expense	$ 604	$ 587	$ 580

(Dollars in millions)	For years ended December 31, 2018	2017	2016
Capital Expenditures by Segment			
Additives & Functional Products	$ 150	$ 229	$ 212
Advanced Materials	187	248	244
Chemical Intermediates	137	116	128
Fibers	50	52	38
Total Capital Expenditures by Operating Segment	524	645	622
Other	4	4	4
Total Capital Expenditures	$ 528	$ 649	$ 626

Sales are attributed to geographic areas based on customer location and long-lived assets are attributed to geographic areas based on asset location.

(Dollars in millions)	For years ended December 31,		
Geographic Information	2018	2017	2016
Sales			
United States	$ 4,118	$ 3,999	$ 3,803
All foreign countries	6,033	5,550	5,205
Total	$ 10,151	$ 9,549	$ 9,008

	December 31, 2018	2017	2016
Net properties			
United States	$ 4,228	$ 4,203	$ 4,066
All foreign countries	1,372	1,404	1,210
Total	$ 5,600	$ 5,607	$ 5,276

20. QUARTERLY SALES AND EARNINGS DATA – UNAUDITED

(Dollars in millions, except per share amounts)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2018				
Sales	$ 2,607	$ 2,621	$ 2,547	$ 2,376
Gross profit	581	704	728	466
Asset impairments and restructuring charges, net	2	4	—	39
Net earnings attributable to Eastman	290	344	412	34
Net earnings per share attributable to Eastman[1]				
Basic	$ 2.03	$ 2.42	$ 2.93	$ 0.25
Diluted	$ 2.00	$ 2.39	$ 2.89	$ 0.24

(1) Each quarter is calculated as a discrete period; the sum of the four quarters may not equal the calculated full year amount.

(Dollars in millions, except per share amounts)	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2017				
Sales	$ 2,303	$ 2,419	$ 2,465	$ 2,362
Gross profit	605	630	671	457
Asset impairments and restructuring charges, net	—	—	—	8
Net earnings attributable to Eastman	278	292	323	491
Net earnings per share attributable to Eastman[1]				
Basic	$ 1.90	$ 2.01	$ 2.24	$ 3.42
Diluted	$ 1.89	$ 2.00	$ 2.22	$ 3.39

(1) Each quarter is calculated as a discrete period; the sum of the four quarters may not equal the calculated full year amount.

21. RESERVE ROLLFORWARDS

Valuation and Qualifying Accounts

(Dollars in millions)		Additions			
	Balance at January 1, 2018	Charges (Credits) to Cost and Expense	Other Accounts	Deductions	Balance at December 31, 2018
Reserve for:					
Doubtful accounts and returns	$ 12	$ —	$ —	$ 1	$ 11
LIFO inventory	288	44	5	—	337
Non-environmental asset retirement obligations	49	(2)	—	1	46
Environmental contingencies	304	9	—	17	296
Deferred tax valuation allowance	410	60	(4)	—	466
	$ 1,063	$ 111	$ 1	$ 19	$ 1,156

(Dollars in millions)

	Balance at January 1, 2017	Additions: Charges (Credits) to Cost and Expense	Additions: Other Accounts	Deductions	Balance at December 31, 2017
Reserve for:					
Doubtful accounts and returns	$ 10	$ 3	$ —	$ 1	$ 12
LIFO inventory	264	24	—	—	288
Non-environmental asset retirement obligations	46	2	1	—	49
Environmental contingencies	321	8	4	29	304
Deferred tax valuation allowance	278	126	6	—	410
	$ 919	$ 163	$ 11	$ 30	$ 1,063

(Dollars in millions)

	Balance at January 1, 2016	Additions: Charges (Credits) to Cost and Expense	Additions: Other Accounts	Deductions	Balance at December 31, 2016
Reserve for:					
Doubtful accounts and returns	$ 13	$ (2)	$ —	$ 1	$ 10
LIFO inventory	296	(32)	—	—	264
Non-environmental asset retirement obligations	46	—	—	—	46
Environmental contingencies	336	10	1	26	321
Deferred tax valuation allowance	254	20	4	—	278
	$ 945	$ (4)	$ 5	$ 27	$ 919

22. REVENUE RECOGNITION

On January 1, 2018, Eastman adopted *ASU 2014-09 Revenue Recognition (ASC 606).* Under this standard, the Company recognizes revenue when performance obligations of the sale are satisfied. Eastman sells to customers through master sales agreements or standalone purchase orders. The majority of the Company's terms of sale have a single performance obligation to transfer products. Accordingly, the Company recognizes revenue when control has been transferred to the customer, generally at the time of shipment of products. Under the previous revenue recognition accounting standard, the Company recognized revenue upon the transfer of title and risk of loss, generally upon delivery of goods. For further information, see Note 1, "Significant Accounting Policies".

The Company's arrangement with a customer may include the act of shipping product to customers after the performance obligation related to that product has been satisfied. The Company has elected to account for shipping and handling as activities to fulfill the promise to transfer the good and has not allocated revenue to the shipping activity. All related shipping and handling costs are recognized at the time of shipment. Further, the Company's sales arrangements may include the collection of sales and other similar taxes that are then remitted to the related taxing authority. The Company has elected to present the amounts collected for these taxes net of the related tax expense rather than presenting them as additional revenue.

The Company has elected to adopt several practical expedients as part of the adoption of ASU 2014-09 / ASC 606. The Company has elected the practical expedient to recognize the incremental cost of obtaining a sale (selling expense) as an expense when incurred given the potential amortization period for such asset is one year or less. Further, the Company has elected to use the practical expedient that allows the Company to ignore the possible existence of a significant financing component within sales arrangements where the time between cash collection and performance is less than one year. Finally, the Company has elected the practical expedient to not disclose unfulfilled obligations as customer purchase order commitments have an original expected duration of one year or less and no consideration from customers was excluded from the transaction price.

The timing of billings does not always match the timing of revenue recognition. When the Company is entitled to bill a customer in advance of the recognition of revenue, a contract liability is recognized. When the Company is not entitled to bill a customer until a period after the related recognition of revenue, a contract asset is recognized. Contract assets represent the Company's right to consideration for the exchange of goods under a contract, but which are not yet billable to a customer for consignment inventory or pursuant to certain shipping terms. Contract liabilities were not material as of January 1, 2018 or December 31, 2018. Contract assets were $42 million as of January 1, 2018 and $62 million as of December 31, 2018 and are included as a component of "Miscellaneous receivables" in the Consolidated Statements of Financial Position.

The economic factors that impact the nature, amount, timing, and uncertainty of revenue and cash flows vary between the Company's business operating segments and the geographical regions in which they serve. For disaggregation of revenue by major product lines and regions for each business operating segment, see Note 19, "Segment Information".

The tables below summarize the impact of adopting the new standard on fourth quarter and full year 2018 financial statements:

	Fourth Quarter 2018			Twelve Months 2018		
(Dollars in millions, except per share amounts)	Previous Standard	Change	Current Standard	Previous Standard	Change	Current Standard
Sales	$ 2,387	$ (11)	$ 2,376	$ 10,108	$ 43	$ 10,151
Cost of sales	1,909	1	1,910	7,642	30	7,672
Gross profit	478	(12)	466	2,466	13	2,479
EBIT	147	(12)	135	1,539	13	1,552
Net earnings attributable to Eastman	44	(10)	34	1,069	11	1,080
Basic earnings per share attributable to Eastman	$ 0.33	$ (0.08)	$ 0.25	$ 7.58	$ 0.07	$ 7.65
Diluted earnings per share attributable to Eastman	$ 0.31	$ (0.07)	$ 0.24	$ 7.49	$ 0.07	$ 7.56

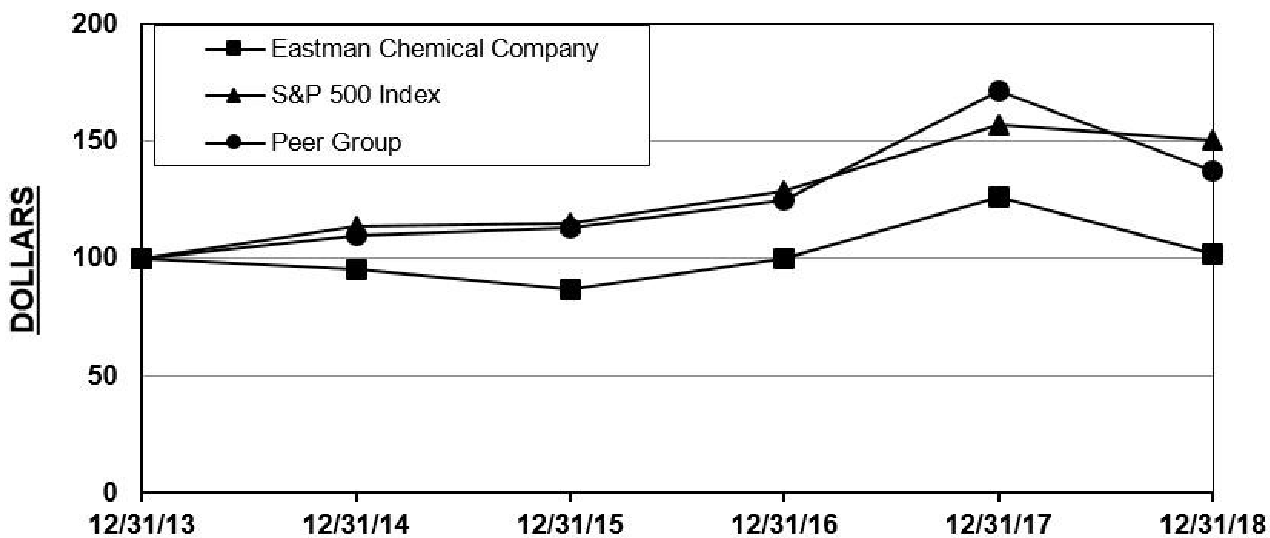
	Fourth Quarter 2018			Twelve Months 2018		
(Dollars in millions)	Previous Standard	Change	Current Standard	Previous Standard	Change	Current Standard
Additives & Functional Products						
Sales	$ 853	$ (2)	$ 851	$ 3,642	$ 5	$ 3,647
EBIT	87	(2)	85	634	5	639
Advanced Materials						
Sales	640	(16)	624	2,741	14	2,755
EBIT	82	(11)	71	506	3	509
Chemical Intermediates						
Sales	682	7	689	2,831	—	2,831
EBIT	41	3	44	312	(4)	308
Fibers						
Sales	212	—	212	894	24	918
EBIT	49	(2)	47	248	9	257
Other						
Sales	—	—	—	—	—	—
EBIT	(112)	—	(112)	(161)	—	(161)

	As of December 31, 2018		
(Dollars in millions)	Previous Standard	Change	Current Standard
Trade receivables, net of allowance for doubtful accounts	$ 968	$ 186	$ 1,154
Miscellaneous receivables	282	47	329
Inventories	1,739	(156)	1,583
Total current assets	3,288	77	3,365

PERFORMANCE GRAPH

The following graph compares the cumulative total return on Eastman Chemical Company common stock from December 31, 2013 through December 31, 2018 to that of the Standard & Poor's ("S&P") 500 Stock Index and a group of peer issuers in the chemical industry. The peer group consists of the thirteen chemical companies which meet three objective criteria: (i) common shares traded on a major trading market; (ii) similar lines of business to those of the Company; and (iii) more than $3 billion in annual sales. Cumulative total return represents the change in stock price and the amount of dividends received during the indicated period, assuming reinvestment of dividends. The graph assumes an investment of $100 on December 31, 2013. All data in the graph have been provided by S&P Capital IQ. The stock performance shown in the graph is included in response to Securities and Exchange Commission ("SEC") requirements and is not intended to forecast or to be indicative of future performance.

COMPARISON OF CUMULATIVE FIVE YEAR TOTAL RETURN



Company Name / Index	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018
Eastman Chemical Company	100	95.66	87.11	99.67	125.87	101.83
S&P 500 Index	100	113.69	115.26	129.05	157.22	150.33
Peer Group (1)	100	109.68	113.27	124.87	171.29	137.28

(1) The peer group for 2018 consists of the following issuers: Akzo Nobel NV; Albemarle Corporation; Ashland Global Holdings Inc.; Celanese Corporation; DowDupont Inc.; FMC Corporation; Huntsman Corporation; International Flavors & Fragrances Inc.; Lanxess AG; LyondellBasell Industries NV; PPG Industries Inc.; The Sherwin Williams Company; and Westlake Chemical Corporation. In accordance with SEC requirements, the return for each issuer has been weighted according to the respective issuer's stock market capitalization at the beginning of each period for which a return is indicated.

STOCKHOLDER INFORMATION

Corporate Offices
Eastman Chemical Company
200 S. Wilcox Drive
P. O. Box 431
Kingsport, TN 37662-5280 U.S.A.
http://www.eastman.com

Eastman Stockholder Information
877-EMN-INFO (877-366-4636)
http://www.eastman.com
Stockholders of record at year-end 2018: 14,610
Shares outstanding at year-end 2018: 139,777,332
Employees at year-end 2018: approximately 14,500

Stock Transfer Agent and Registrar
Inquiries and changes to stockholder accounts should be directed to our transfer agent:
American Stock Transfer & Trust Company
59 Maiden Lane
New York, NY 10038
In the United States: 800-937-5449
Outside the United States: (1) 212-936-5100 or (1) 718-921-8200
http://www.amstock.com

Stock Exchange Listing
Eastman Chemical Company common stock is listed and traded on the New York Stock Exchange under the ticker symbol EMN.

Annual Meeting
Cumberland Amphitheatre
MeadowView Marriott Conference Resort & Convention Center
1901 Meadowview Parkway
Kingsport, Tennessee
May 2, 2019
11:30 a.m.

Annual Report on Form 10-K
Eastman's Annual Report on Form 10-K for the year ended December 31, 2018, as filed with the Securities and Exchange Commission, is available upon written request of any stockholder to Eastman Chemical Company, P.O. Box 431, Kingsport, Tennessee 37662-5280, Attention: Investor Relations. This information is also available via the Internet at Eastman's Web site (www.eastman.com) in the investor information section, and on the SEC's website (www.sec.gov).

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Retired Chief Executive Officer, Global
Yowie Group Ltd.

Brett D. Begemann
Chief Operating Officer of Crop Science Division
Bayer AG

Michael P. Connors
Chairman of the Board and Chief Executive Officer
Information Services Group, Inc.

Mark J. Costa
Board Chair and Chief Executive Officer
Eastman Chemical Company

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Robert M. Hernandez
Retired Vice Chairman and Chief Financial Officer
USX Corporation

Julie F. Holder
Retired Senior Vice President
The Dow Chemical Company

Renée J. Hornbaker
Retired Executive Vice President and Chief Financial Officer
Stream Energy

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David W. Raisbeck
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Executive Vice President, Additives & Functional Products and Chemical Intermediates

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Senior Vice President, Chief Manufacturing, Supply Chain, and Engineering Officer

Stephen G. Crawford
Senior Vice President and Chief Technology Officer

David A. Golden
Senior Vice President, Chief Legal & Sustainability Officer and Corporate Secretary

Perry Stuckey III
Senior Vice President, Chief Human Resources Officer

Damon C. Warmack
Senior Vice President, Corporate Development

Scott V. King
Vice President, Corporate Controller, and Chief Accounting Officer

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