



EASTMAN

CELEBRATING
100 YEARS
1920 – 2020



INNOVATION

THEN. NOW. NEXT.



EMNAR19



Dear fellow Eastman stockholders,

We faced a tough year as global trade conflicts and weakness in many key end markets created a very challenging environment. I'm proud of how Eastman employees around the world collectively managed the things within our control and created our own growth to the extent possible. Even in the difficult environment of 2019, we had a number of highlights that demonstrated our ability to create value.

- We continued to deliver impressive results in Advanced Materials, which outperformed underlying markets despite exposure to transportation and other consumer discretionary markets.
- We continued to make strong progress growing new business revenue from innovation and market development initiatives, delivering approximately \$400 million.
- We generated greater than \$1 billion in free cash flow for the third year in a row.
- We continued to put our cash to work in a disciplined way, including:
 - Significant debt reduction, which will remain a priority for us in 2020
 - Capital returns by share repurchases and an increased dividend for the 10th consecutive year
 - Bolt-on, strategic acquisitions of Marlotherm and INACSA, which are two strategic businesses that are opening new markets for our technologies

While global trade tensions have eased somewhat, the global industrial economy continues to be sluggish. We are also closely monitoring the possible impacts of the new coronavirus on our markets and business. In all, business conditions, particularly for industrial companies, remain challenging.

We enter 2020 in a period of significant uncertainty related to macro factors that are beyond our control. We remain focused on what we can control, including growing new business revenue by leveraging our innovation-driven growth model, aggressive cost management, and disciplined capital allocation.

Multiyear plan to enhance performance

We are not waiting for global conditions to improve; we are taking actions to enhance our performance as we manage through this environment. This broad, multiyear effort focuses on:

- Continuing to grow new business revenue from innovation, which we expect to approach \$500 million in 2020
- Creating a new vector of growth for the company with investments in the circular economy, as outlined below
- Increasing capabilities and improving efficiencies across the company by continuing to build our commercial capability and reducing our cost structure by greater than \$100 million over the next three years through site optimization, digital and other productivity investments, supply chain optimization, and licensing our advantaged technologies
- Utilizing our sites in various ways, including welcoming site tenants

We also remain fully committed to optimizing our portfolio to address the underperforming parts of Additives & Functional Products, which include certain adhesive resins, tire additives, and formic acid products. Most of the segment is performing well, and we expect to make substantial progress in AFP's innovation programs over the next few years.

Taken altogether, this robust, multiyear plan of action is a continuation of the work that we have already started. These actions will allow us to continue funding our innovation-driven growth strategy, remain competitive, and better manage through this industrial recession so that we can continue to build on Eastman's long history.

Addressing the world's big problems

With our world-class scalable technology platforms, applications development capabilities, and manufacturing scale and integration, Eastman is well positioned to be a leader in how our industry can address climate change and enable the circular economy by removing waste from our environment. We have developed multiple solutions to enable the collection of plastic waste to be reused in new products, which also substantially reduces our greenhouse gas footprint compared with processes that use fossil fuels.

Our Advanced Circular Recycling technologies, which 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 through sustainability.

Over the past year, we have made great progress on this front and reached a number of milestones. Those milestones include commercial operation of our carbon renewal technology (CRT) in 2019. We see Eastman Advanced Circular Recycling technologies as a game changer because they can provide an end-of-life solution for plastics that traditional mechanical recycling methods cannot process and are currently being landfilled and incinerated, including materials such as single-use packaging, textiles, and carpet.

With Advanced Circular Recycling technologies, waste plastics can be recycled an infinite number of times without degradation of performance and quality, which means recycled materials will have more possible end uses. We expect to use up to 50 million pounds of waste plastic in CRT operations in 2020. Also, in response to customer demand, we leveraged our expertise to accelerate the timeline for polyester renewal technology (PRT), which just began operation. There are two branches of this technology. Our ultimate and primary PRT branch will operate from methanolysis technology, and we expect to construct and operate a commercial-scale methanolysis facility within 24–36 months. In the short term, we are responding to overwhelming demand from customers who quickly need materials with recycled content, moving swiftly to bring a PRT facility online in early 2020 using glycolysis technology. All of Eastman’s recycled materials are certified by International Sustainability and Carbon Certification (ISCC), an independent agency for tracking sustainable content in a variety of industries.

The world needs a circular economy, and the Eastman team knows we cannot solve it alone. We are committed to innovating with customers and brands and working across the value chain with feedstock suppliers, product manufacturers, and nongovernmental organizations such as the Ellen MacArthur Foundation to deliver large-scale, circular solutions for materials to give them infinite life.

I am proud of our work in this area and the global impact that it can have. I have long said that Eastman is a company of problem solvers, and our people have the capabilities to tackle the world’s biggest problems, which we have demonstrated time and again. Closing the loop

of waste is a complex problem that can only be solved with innovative solutions. With the right people, world-class technologies, and our unique vertical integration, Eastman is uniquely positioned to scale up this solution quickly. With Eastman Advanced Circular Recycling, we will revolutionize recycling at the molecular level.

We have the power to impact global society for the better by directing more of our focus than ever toward climate change.

The Eastman team reached our 2020 goal for reducing our greenhouse gas emissions by 20 percent two years early, and we are close to identifying new goals for 2030. These new goals for emissions reduction will be the most aggressive in the history of the company. Eastman meets the world’s material needs through the power of innovation, and innovation will power our commitment to dramatically reduce our carbon footprint.

Enhancing our culture: Commitment to a zero-incident mindset

As always, we remain fully committed to driving a zero-incident mindset (ZIM) in all that we do — from safety to global business conduct to upholding our core values of health and wellness, sustainability, and inclusion and diversity. In 2019, we appointed a ZIM Steering Team that is tasked with ensuring that ZIM principles are applied across functions and businesses globally, providing education and training to increase awareness, and engaging with employees to assess understanding and acceptance.

Creating a zero-incident mindset across the enterprise is an area where we can always improve, but I am pleased with the strong record that we already have in this area. For example, for the seventh consecutive year, Eastman was recognized by Ethisphere Institute in 2020 as one of the World’s Most Ethical Companies® for our efforts to continually raise the bar on ethical leadership and corporate behavior. We were also named this year to *Newsweek* magazine’s inaugural list of America’s Most Responsible Companies.

Another area we work to continually improve is our culture of inclusivity and diversity. I am proud that this year we were recognized as part of *Forbes* magazine’s annual list of Best Employers for Diversity for 2020. Our success depends on our ability to grow a powerfully diverse workforce with increasingly diverse talents, perspectives, and experiences that bring the best ideas to the table.

Awards like these speak to the strong culture at Eastman and the values that we share around the globe. They are also a testament to the team of 14,500 who show up each day committed to doing the right thing.

Innovation. Then. Now. Next.

As I close this year's letter, I will end at the beginning — Eastman's beginning.

One hundred years ago, George Eastman set out on a nationwide search. After having his raw materials supply disrupted during World War I, he was looking for a site that could reliably supply raw materials to his photographic company, Eastman Kodak. After discovering abundant natural resources and an industrious workforce, his search came to an end in 1920 when he founded Tennessee Eastman Corporation (TEC) in Kingsport, Tennessee.

George Eastman's expectations for the small company were modest, and though he was undoubtedly one of this world's greatest visionaries, it is unlikely that even he knew what the future would hold for TEC. Today, George Eastman's fledgling company, born out of a single need in the hills of East Tennessee, is a multinational, Fortune 500 company that provides materials that offer a better way of life for people all around the world.

We are celebrating this incredible milestone through the centennial theme of "Innovation. Then. Now. Next." Generations of Eastman women and men have been our driving force for 100 years with their ingenuity, forward-thinking ability, and adaptability to changing environments.

Those same qualities will usher in our next century of fostering innovation, providing jobs, and driving economic growth.

Our fundamental centennial message to each of our stakeholders is one of legacy, longevity, and leaving an even stronger company and improved society for the next generation. For our collective, continued success, we remain committed to serving all of our stakeholders by generating long-term value for our owners, delivering consistent value to our customers, continually investing in our employees, dealing fairly and ethically with our suppliers, and supporting the communities in which we work.

Thank you for choosing to be a part of Eastman during this very special and momentous year. We are grateful for your support and your belief in the future that we are creating.

Sincerely,



Mark J. Costa
Board Chair and Chief Executive Officer
March 20, 2020



Non-GAAP financial measure—free cash flow: The Chairman and CEO's letter includes the term "free cash flow," which means cash provided by operating activities less net capital expenditures (typically GAAP cash used in additions to properties and equipment).

Forward-looking statements: This Annual Report, including the Chairman and CEO's letter, 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.



TABLE OF CONTENTS

About Our Business	1
Selected Financial Data	3
Management's Discussion and Analysis of Financial Condition and Results of Operations	4
Quantitative and Qualitative Disclosures About Market Risk	37
Financial Statements and Supplementary Data	39
Performance Graph	95
Stockholder Information	96

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 50 manufacturing facilities and equity interests in three manufacturing joint ventures in 15 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., 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 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 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.

Central to Eastman's innovation-driven growth model is our dedication to enhance the quality of life in a material way with a sustainability strategy to create more value than the resources used by innovating to deliver consumer choices that will sustain and protect our world. Management approaches sustainability as a source of competitive strength by focusing its innovation strategy on opportunities where disruptive macro trends align with the Company's differentiated technology platforms and applications development capabilities to develop innovative products, applications, and technologies that enable customers' development and sales of sustainable products. Eastman's sustainability-related growth initiatives include targeted products utilizing technology that enhance end-use product durability, material usage, recyclability, and health and safety impact characteristics to reduce unnecessary waste, pollution, and greenhouse gas emissions associated with climate change.

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 continued transformation towards a more 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 differentiated 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 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 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 cyclicity, most notably olefin and acetyl-based products. This cyclicity 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 2019 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, internally produced acetate flake supply for Fibers segment's 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 in recent years expected to stabilize segment earnings including, establishing long-term acetate tow customer arrangements and agreements, development of innovative textile and nonwoven applications, and repurposing manufacturing capacity from acetate tow to new products.

SELECTED FINANCIAL DATA

Statements of Earnings Data

(Dollars in millions, except per share amounts)

	Year Ended December 31,				
	2019	2018	2017	2016	2015
Sales	\$ 9,273	\$ 10,151	\$ 9,549	\$ 9,008	\$ 9,648
Earnings before interest and taxes	1,120	1,552	1,530	1,389	1,392
Net earnings	762	1,084	1,388	859	854
Less: Net earnings attributable to noncontrolling interest	3	4	4	5	6
Net earnings attributable to Eastman	\$ 759	\$ 1,080	\$ 1,384	\$ 854	\$ 848
Basic earnings per share attributable to Eastman:	\$ 5.52	\$ 7.65	\$ 9.56	\$ 5.80	\$ 5.71
Diluted earnings per share attributable to Eastman:	\$ 5.48	\$ 7.56	\$ 9.47	\$ 5.75	\$ 5.66

Statements of Financial Position Data

Current assets	\$ 3,321	\$ 3,365	\$ 3,143	\$ 2,866	\$ 2,878
Net properties	5,571	5,600	5,607	5,276	5,130
Goodwill	4,431	4,467	4,527	4,461	4,518
Intangible assets, net of accumulated amortization	2,011	2,185	2,373	2,479	2,650
Total assets	16,008	15,995	15,999	15,457	15,580
Current liabilities	1,789	1,851	1,982	1,795	2,056
Long-term borrowings	5,611	5,925	6,147	6,311	6,577
Total liabilities	9,976	10,117	10,519	10,849	11,559
Total Eastman stockholders' equity	5,958	5,803	5,403	4,532	3,941
Dividends declared per share	2.52	2.30	2.09	1.89	1.66

Statements of Cash Flow Data

Cash provided by operating activities	\$ 1,504	\$ 1,543	\$ 1,657	\$ 1,385	\$ 1,624
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**MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS**

	<u>Page</u>
Critical Accounting Estimates	5
Non-GAAP Financial Measures	10
Overview	14
Results of Operations	15
Summary by Operating Segment	21
Sales by Customer Location	27
Liquidity and Other Financial Information	28
Inflation	31
Recently Issued Accounting Standards	31
Outlook	32
Forward-Looking Statements	32
Risk Factors	33

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 (this "Annual Report"). All references to earnings per share ("EPS") contained in this report are to diluted EPS unless otherwise noted. EBIT is the GAAP measure earnings before interest and taxes.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS****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 contingencies. 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 and definite-lived intangible assets is performed at the asset group 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.

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 discounted cash flow model in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's 2019 goodwill impairment testing included projections of revenues and EBIT determined using the Company's annual multi-year strategic plan, the estimated weighted average cost of capital ("WACC"), 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 estimated fair values of reporting units. 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.

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

As a result of the goodwill impairment testing performed during fourth quarter 2019, fair values were determined to 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 \$45 million goodwill impairment. The impairment was primarily due to the impact of recent regulatory changes in the European Union on the current period and forecasted revenue and EBIT and a decrease in the long-term growth rate assumed in the goodwill impairment model. 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 \$190 million as of December 31, 2019.

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 \$537 million in indefinite-lived intangible assets at the time of impairment testing. There was no impairment of the Company's indefinite-lived intangible assets as a result of the tests performed during fourth quarter 2019.

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

For additional information, see Note 3, "Properties and Accumulated Depreciation", Note 4, "Goodwill and Other Intangible Assets", and Note 15, "Asset Impairments and Restructuring Charges, Net", to the Company's consolidated financial statements in this Annual Report.

Environmental Costs

Eastman recognizes 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 recognizes the minimum undiscounted amount. This undiscounted 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 \$260 million to the maximum of \$487 million and from the best estimate or minimum of \$271 million to the maximum of \$508 million at December 31, 2019 and December 31, 2018, respectively. The best estimate or minimum estimated future environmental expenditures are considered to be probable and reasonably estimable and include the amounts recognized at both December 31, 2019 and December 31, 2018.

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

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 recognized to date was \$27 million and \$25 million at December 31, 2019 and December 31, 2018, respectively.

The Company's total amount reserved for environmental loss contingencies, including the remediation and closure and post-closure costs described above, was \$287 million and \$296 million at December 31, 2019 and December 31, 2018, 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 3.25 percent and 1.56 percent, respectively, and weighted average expected returns on plan assets of 7.37 percent and 4.26 percent, respectively, at December 31, 2019. The Company assumed a weighted average discount rate of 3.21 percent for its other postretirement benefit plans. 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, 2019 and 2020 expense are affected by year-end 2019 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.

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

Change in Assumption	Impact on 2020 Pre-tax Benefits Expense (Excludes mark-to-market impact) for Pension Plans	Impact on December 31, 2019 Projected Benefit Obligation for Pension Plans		Impact on 2020 Pre-tax Benefits Expense (Excludes mark-to-market impact) for Other Postretirement Benefit Plans	Impact on December 31, 2019 Benefit Obligation for Other Postretirement Benefit Plans
		U.S.	Non-U.S.		
25 basis point decrease in discount rate	-\$3 Million	+\$53 Million	+\$49 Million	-\$1 Million	+\$17 Million
25 basis point increase in discount rate	+\$3 Million	-\$51 Million	-\$44 Million	+\$1 Million	-\$16 Million
25 basis point decrease in expected return on plan assets	+\$7 Million	No Impact	No Impact	<+\$0.5 Million	No Impact
25 basis point increase in expected return on plan assets	-\$7 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 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 plans invest their funds, primarily in U.S. and non-U.S. fixed income securities, U.S. and non-U.S. public equity securities, 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.

The Company calculates service and interest cost components of net periodic benefit costs for its significant defined benefit pension and other postretirement benefit plans by applying the specific spot rates along the yield curve to the plans' projected cash flows. This cost approach 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 2019, 2018, and 2017 due to the actual experience versus actuarial assumptions for the defined benefit pension and other postretirement benefit plans were a net loss of \$143 million, a net loss of \$99 million, and a net gain of \$21 million, respectively. The 2019 MTM net loss includes an actuarial loss of approximately \$385 million, resulting primarily from the Company's December 31, 2019 weighted-average assumed discount rate of 2.80 percent, which is lower than for the prior year, and changes in other actuarial assumptions. Overall asset values increased approximately \$240 million due to asset values appreciating in excess of the assumed weighted-average rate of return. The actual gain was approximately \$405 million, or approximately 15 percent, which was above the expected return of approximately \$165 million, or approximately 6 percent.

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

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, retirements, 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 recognizes 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 its overall financial condition, results of operations, or cash flows 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, 2019 and 2018, valuation allowances of \$453 million and \$487 million, respectively, have been provided against the deferred tax assets.

The calculation of income tax liabilities involves uncertainties in the application of complex tax laws and regulations, which are subject to legal interpretation and management judgment. Eastman's income tax returns are regularly examined by federal, state and foreign tax authorities, and those audits may result in proposed adjustments. The Company has evaluated these potential issues under the more-likely-than-not standard of the accounting literature. A tax position is recognized if it meets this standard and is measured at the largest amount of benefit that has a greater than 50 percent likelihood of being realized. Such judgments and estimates may change based on audit settlements, court cases and interpretation of tax laws and regulations. Income tax expense could be materially impacted to the extent the Company prevails in a tax position or when the statute of limitations expires for a tax position for which a liability for unrecognized tax benefits or valuation allowances have been established, or to the extent payments are required in excess of the established liability for unrecognized tax benefits.

The Company accrues interest related to unrecognized income tax positions, which is included as a component of the income tax provision on the balance sheet. For further information, see Note 7, "Income Taxes", to the Company's consolidated financial statements in this Annual Report.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS****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 and Other Financial Information", and "Outlook" in this MD&A.

Management discloses non-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, closure, or shutdowns of businesses or assets, 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 in both 2019 and 2018 unusual net decreases to earnings from adjustments of the net tax benefit recognized in fourth quarter 2017, resulting from tax law changes, primarily the 2017 Tax Cuts and Jobs Act (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, management believes it is appropriate to evaluate the financial measures prepared and calculated in accordance with both 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.

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS*****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 net 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, including severance costs and site closure or shutdown charges, net, of which asset impairments are non-cash transactions impacting profitability;
- 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; 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 and 2019.

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

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

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

(Dollars in millions)	2019	2018	2017
Non-core items impacting EBIT:			
Mark-to-market pension and other postretirement benefits (gain) loss, net	\$ 143	\$ 99	\$ (21)
Asset impairments and restructuring charges, net	126	45	8
Cost of disposition of claims against discontinued Solutia operations	—	—	9
Gains from sale of businesses	—	—	(3)
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	269	81	105
Non-core item impacting earnings before income taxes:			
Early debt extinguishment and other related costs	—	7	—
Total non-core item impacting earnings before income taxes	—	7	—
Less: Items impacting provision for (benefit from) income taxes:			
Tax effect for non-core and unusual items	47	16	30
Tax benefit associated with previously impaired site	—	—	8
Estimated net tax (expense) benefit from tax law changes and tax loss from outside-U.S. entity reorganizations	(7)	(20)	339
Total items impacting provision for (benefit from) income taxes	40	(4)	377
Total items impacting net earnings attributable to Eastman	\$ 229	\$ 92	\$ (272)

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)	2019	2018	2017
Other components of post-employment (benefit) cost, net	\$ 60	\$ (21)	\$ (135)
Service cost	41	49	53
Net periodic benefit (credit) cost	101	28	(82)
Less: Mark-to-market (gain) loss	143	99	(21)
Components of post-employment (benefit) cost, net included in non-GAAP earnings measures	\$ (42)	\$ (71)	\$ (61)

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

(Dollars in millions)	2019	2018	2017
Actual return and percentage of return on assets	\$ 406 15%	\$ (82) (3)%	\$ 314 11%
Less: expected return on assets	165 6%	189 7 %	180 7%
Mark-to-market (loss) gain on assets	241	(271)	134
Actuarial (loss) gain	(384)	172	(113)
Total mark-to-market (loss) gain	\$ (143)	\$ (99)	\$ 21

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.

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

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

- Gross profit,
- Selling, general and administrative ("SG&A") expenses,
- Other components of post-employment (benefit) cost, net,
- Other (income) charges, net,
- EBIT,
- 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 or used in 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 or used in 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 or used in operating activities because it believes it is an 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 that it considers not 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.

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

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, animal nutrition, and chemical and plastics recycling technologies. The Company engages the market by working directly with customers and downstream users, targeting attractive niche markets, and leveraging disruptive macro trends. 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 \$9.3 billion and \$10.2 billion for 2019 and 2018, respectively. EBIT was \$1.1 billion and \$1.6 billion in 2019 and 2018, respectively. Excluding the non-core and unusual items referenced in "Non-GAAP Financial Measures", adjusted EBIT was \$1.4 billion and \$1.6 billion in 2019 and 2018, respectively. 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 and adjusted net earnings and EPS were as follows:

	2019		2018	
	\$	EPS	\$	EPS
(Dollars in millions, except diluted EPS)				
Net earnings attributable to Eastman	\$ 759	\$ 5.48	\$ 1,080	\$ 7.56
Total non-core and unusual items, net of tax	229	1.65	92	0.64
Net earnings attributable to Eastman excluding non-core and unusual items	<u>\$ 988</u>	<u>\$ 7.13</u>	<u>\$ 1,172</u>	<u>\$ 8.20</u>

The Company generated \$1.5 billion of cash from operating activities in both 2019 and 2018. Free cash flow was \$1.1 billion in both 2019 and 2018.

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.

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

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

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Sales	\$ 9,273	\$ 10,151	(9)%	\$ 10,151	\$ 9,549	6%
Volume / product mix effect			(4)%			2%
Price effect			(4)%			3%
Exchange rate effect			(1)%			1%

2019 Compared to 2018

Sales revenue decreased as a result of decreases in all operating segments. Further discussion by operating segments is presented in "Summary of Operating Segment" in this MD&A.

2018 Compared to 2017

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

Gross Profit

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Gross profit	\$ 2,234	\$ 2,479	(10)%	\$ 2,479	\$ 2,363	5 %
Net coal gasification incident (insurance) costs	—	(18)		(18)	112	
Gross profit excluding unusual item	\$ 2,234	\$ 2,461	(9)%	\$ 2,461	\$ 2,475	(1)%

2019 Compared to 2018

Gross profit included coal gasification incident insurance in excess of costs in 2018. Excluding this unusual item, gross profit decreased due to lower sales volume and an unfavorable shift in foreign currency exchange rates across all operating segments. Further discussion by operating segment is presented in "Summary by Operating Segment" in this MD&A.

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.

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

Selling, General and Administrative Expenses

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Selling, general and administrative expenses	\$ 691	\$ 721	(4)%	\$ 721	\$ 729	(1)%
Costs resulting from tax law changes and outside-U.S. entity reorganizations	—	(7)		(7)	—	
Selling, general and administrative expenses excluding unusual item	\$ 691	\$ 714	(3)%	\$ 714	\$ 729	(2)%

2019 Compared to 2018

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 item, SG&A expenses decreased primarily due to lower variable compensation costs resulting from Company performance and cost management actions.

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 item, SG&A expenses decreased primarily due to lower variable compensation costs mostly offset by higher costs of growth initiatives.

Research and Development Expenses

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Research and development expenses	\$ 234	\$ 235	— %	\$ 235	\$ 227	4%

2019 Compared to 2018

R&D expenses were relatively unchanged.

2018 Compared to 2017

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

Asset Impairments and Restructuring Charges, Net

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Asset impairments	\$ 27	\$ —	\$ 1
Intangible asset and goodwill impairments	45	39	—
Severance charges	45	6	6
Site closure and restructuring charges	9	—	1
Total	\$ 126	\$ 45	\$ 8

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

In December 2019, management approved a plan to discontinue production of certain products at the Singapore manufacturing site by the end of 2020 resulting in an asset impairment charge of \$27 million. Eastman is evaluating alternative uses for the site after the end of 2020. Additional restructuring charges of up to \$50 million are expected in 2020. This action is projected to result in an estimated annual earnings benefit of approximately \$25 million within the AFP and CI segments beginning mostly in 2021.

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 segment) to its estimated fair value through recognition of a \$45 million goodwill impairment. The impairment was primarily due to the recent and expected continuing impact of recent regulatory changes in the European Union and a decrease in the long-term growth rate assumed for the reporting unit in the goodwill impairment model.

In 2019, as part of business improvement and cost reduction initiatives, the Company recognized restructuring charges of \$45 million for severance and \$5 million for related costs. Management anticipated total cost savings from these actions of approximately \$50 million, most of which was recognized in 2019 primarily in cost of sales and SG&A expenses. Additionally, in 2019 the Company recognized a \$4 million restructuring charge related to a capital project in the AFP segment that was discontinued in 2016.

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 segment) to its estimated fair value through recognition of a \$38 million goodwill impairment. The impairment was primarily due to 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.

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

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Other components of post-employment (benefit) cost, net	\$ 60	\$ (21)	>(100%)	\$ (21)	\$ (135)	(84)%
Mark-to-market pension and other postretirement benefit gain (loss), net	(143)	(99)		(99)	21	
Other components of post-employment (benefit) cost, net excluding non-core item	<u>\$ (83)</u>	<u>\$ (120)</u>	(31)%	<u>\$ (120)</u>	<u>\$ (114)</u>	5 %

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.

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

Other (Income) Charges, Net

(Dollars in millions)	2019	2018	2017
Foreign exchange transaction losses (gains), net ⁽¹⁾	\$ 9	\$ 12	\$ 5
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	(10)	(17)	(12)
Coal gasification incident property insurance	—	(65)	—
Cost of disposition of claims against discontinued Solutia operations	—	—	9
Gain from sale of business ⁽²⁾	—	—	(3)
Other, net	4	4	5
Other (income) charges, net	\$ 3	\$ (53)	\$ 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)
Gain from sale of business ⁽²⁾	—	—	3
Other (income) charges, net excluding non-core and unusual items	\$ 3	\$ (1)	\$ (2)

⁽¹⁾ Net impact of revaluation of foreign entity assets and liabilities and effect of foreign exchange non-qualifying derivatives.

⁽²⁾ Gain from sale of the AFP segment formulated electronic cleaning solution business.

Earnings Before Interest and Taxes

	2019 Compared to 2018			2018 Compared to 2017		
(Dollars in millions)	2019	2018	Change	2018	2017	Change
EBIT	\$ 1,120	\$ 1,552	(28)%	\$ 1,552	\$ 1,530	1 %
Mark-to-market pension and other postretirement benefit (gain) loss, net	143	99		99	(21)	
Net coal gasification incident (insurance) costs	—	(83)		(83)	112	
Asset impairments and restructuring charges, net	126	45		45	8	
Costs resulting from tax law changes and outside-U.S. entity reorganizations	—	20		20	—	
Cost of disposition of claims against discontinued Solutia operations	—	—		—	9	
Gains from sale of businesses	—	—		—	(3)	
EBIT excluding non-core and unusual items	\$ 1,389	\$ 1,633	(15)%	\$ 1,633	\$ 1,635	— %

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

Net Interest Expense

(Dollars in millions)	2019 Compared to 2018			2018 Compared to 2017		
	2019	2018	Change	2018	2017	Change
Gross interest expense	\$ 225	\$ 242		\$ 242	\$ 251	
Less: Capitalized interest	4	4		4	7	
Interest Expense	221	238		238	244	
Less: Interest income	3	3		3	3	
Net interest expense	\$ 218	\$ 235	(7)%	\$ 235	\$ 241	(2)%

2019 Compared to 2018

Net interest expense decreased \$17 million primarily as a result of U.S. dollar to euro cross-currency swaps, reduced debt balances, and lower interest rates.

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.

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 prepayments 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 was 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.

Provision for (Benefit from) Income Taxes

(Dollars in millions)	2019		2018		2017	
	\$	%	\$	%	\$	%
Provision for (benefit from) income taxes and effective tax rate	\$ 140	16%	\$ 226	17%	\$ (99)	(8)%
Tax provision for non-core and unusual items ⁽¹⁾	47		16		30	
Tax benefit associated with previously impaired site	—		—		8	
Estimated net tax (expense) benefit from tax law changes and tax loss from outside-U.S. entity reorganizations	(7)		(20)		339	
Adjusted provision for income taxes and effective tax rate	\$ 180	15%	\$ 222	16%	\$ 278	20 %

⁽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.

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

The 2019 effective tax rate includes a \$7 million increase to the provision for income taxes resulting from adjustments to the net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act and from outside-U.S. entity reorganizations. The 2019 effective tax rate also includes adjustments to the tax provision to reflect finalization of prior year's income tax returns and an increase to state income taxes related to additional valuation allowance provided against state income tax credits.

The 2018 effective tax rate included a \$20 million increase to the provision for income taxes resulting from adjustments to the net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act, and from outside-U.S. entity reorganizations. 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.

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

(Dollars in millions, except per share amounts)	2019		2018		2017	
	\$	EPS	\$	EPS	\$	EPS
Net earnings and diluted earnings per share attributable to Eastman	\$ 759	\$ 5.48	\$ 1,080	\$ 7.56	\$ 1,384	\$ 9.47
Non-core items, net of tax: ⁽¹⁾						
Mark-to-market pension and other postretirement benefit (gain) loss, net	109	0.79	75	0.52	(14)	(0.09)
Asset impairments and restructuring charges (gain), net	113	0.81	43	0.30	(3)	(0.02)
Early debt extinguishment and other related costs	—	—	6	0.04	—	—
Cost of disposition of claims against discontinued Solutia operations	—	—	—	—	5	0.03
Gains from sale of businesses	—	—	—	—	(1)	(0.01)
Unusual items, net of tax: ⁽¹⁾						
Net coal gasification incident (insurance) costs	—	—	(67)	(0.47)	80	0.55
Estimated net tax expense (benefit) from tax law changes and tax loss from outside-U.S. entity reorganizations	7	0.05	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	<u>\$ 988</u>	<u>\$ 7.13</u>	<u>\$ 1,172</u>	<u>\$ 8.20</u>	<u>\$ 1,112</u>	<u>\$ 7.61</u>

⁽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.

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

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 and Regional Sales Information", to the Company's consolidated financial statements in this Annual Report.

Additives & Functional Products Segment

(Dollars in millions)	2019 Compared to 2018				2018 Compared to 2017			
	2019	2018	Change		2018	2017	Change	
			\$	%			\$	%
Sales	\$ 3,273	\$ 3,647	\$ (374)	(10)%	\$ 3,647	\$ 3,343	\$ 304	9 %
Volume / product mix effect			(177)	(5)%			151	4 %
Price effect			(133)	(3)%			98	3 %
Exchange rate effect			(64)	(2)%			55	2 %
EBIT	\$ 496	\$ 639	\$ (143)	(22)%	\$ 639	\$ 653	\$ (14)	(2)%
Asset impairments and restructuring charges, net	54	38	16		38	3	35	
Gain from sale of business	—	—	—		—	(3)	3	
Net coal gasification incident (insurance) costs	—	(6)	6		(6)	8	(14)	
EBIT excluding non-core and unusual items	550	671	(121)	(18)%	671	661	10	2 %

2019 Compared to 2018

Sales revenue decreased primarily due to lower sales volume, lower selling prices, and an unfavorable shift in foreign currency exchange rates. The lower sales volume was primarily attributed to weaker end-market demand resulting from global trade-related pressures, particularly in transportation markets and other consumer discretionary end markets. Lower selling prices were primarily due to lower raw material prices, including for care chemicals, and increased competitive pressure in markets for tire additives, animal nutrition, and adhesives resins.

EBIT in 2019 included a \$45 million goodwill impairment of the crop protection business, an asset impairment charge of \$5 million resulting from management's approval of a plan to discontinue production of certain products at the Singapore manufacturing site by the end of 2020, and a \$4 million restructuring charge related to a capital project. EBIT in 2018 included a goodwill impairment charge related to the crop protection business and coal gasification incident insurance in excess of costs. Excluding these non-core and unusual items, EBIT decreased primarily due to lower selling prices of \$133 million, lower sales volume of \$101 million, and an unfavorable shift in foreign currency exchange rates of \$22 million, partially offset by lower raw material costs of \$136 million.

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 segment.

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

EBIT in 2018 included a goodwill impairment charge related to the crop protection business 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.

Growth Initiatives

In 2019, the AFP segment:

- advanced growth and innovation of Regalite™ UltraPure hydrocarbon resin, a new class of clean tackifying hydrocarbon resins, through a capacity expansion at the Middelburg, Netherlands manufacturing site;
- acquired the Marlotherm™ heat transfer assets in Marl, Germany and the related formulations, intellectual property, and customer contracts, as a targeted addition to the specialty fluids business;
- advanced growth of Impera™ resins through capacity expansions for the production of performance resins for tires at both the Middelburg, Netherlands, and Jefferson, Pennsylvania, manufacturing sites to serve demand from tire manufacturers around the world for product solutions that enable improved safety, efficiency, and performance;
- continued to enhance our ability to serve the global customer base in low volatile organic compound ("VOC") coatings and other markets by completing the final phase of a ketones capacity expansion at the Kingsport, Tennessee manufacturing site in fourth quarter 2019; and
- responded to growing demand for purified water and sustainable waste water treatment across the globe with world scale production units for Dimethylaminoethanol ("DMAE"/"DMEA") in Europe (Belgium) and North America (Louisiana) and decided to expand capacity in China to respond to stricter regulation and rapidly growing demand in Asia (DMAE is used as a key component into flocculants that are critical for municipal and industrial water treatments).

Advanced Materials Segment

(Dollars in millions)	2019 Compared to 2018				2018 Compared to 2017			
	2019	2018	Change		2018	2017	Change	
			\$	%			\$	%
Sales	\$ 2,688	\$ 2,755	\$ (67)	(2)%	\$ 2,755	\$ 2,572	\$ 183	7%
Volume / product mix effect			(25)	(1)%			130	5%
Price effect			—	— %			22	1%
Exchange rate effect			(42)	(1)%			31	1%
EBIT	\$ 517	\$ 509	\$ 8	2 %	\$ 509	\$ 483	\$ 26	5%
Asset impairments and restructuring charges, net	1	1	—		1	—	1	
Net coal gasification incident (insurance) costs	—	(9)	9		(9)	11	(20)	
EBIT excluding non-core and unusual items	518	501	17	3 %	501	494	7	1%

**MANAGEMENT'S DISCUSSION AND ANALYSIS OF
FINANCIAL CONDITION AND RESULTS OF OPERATIONS*****2019 Compared to 2018***

Sales revenue decreased due to lower sales volume and an unfavorable shift in foreign currency exchange rates. Increased sales volume of premium products, including paint protection film, Tritan[™] copolyester, and Saflex[™] acoustic and architectural interlayers, was more than offset by decreased sales volume of standard copolyester and interlayers products related to underlying market declines in transportation and consumer durable end markets.

EBIT in 2019 included a restructuring charge for severance costs. EBIT in 2018 included coal gasification incident insurance in excess of costs and a charge for an impairment of an indefinite-lived intangible asset. Excluding these non-core and unusual items, EBIT increased primarily due to lower raw material costs of \$49 million, mostly offset by an unfavorable shift in foreign currency exchange rates of \$23 million and lower sales volume of \$16 million. The impact of lower sales volume was mostly offset by increased sales of certain premium products.

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.

Growth Initiatives

In 2019, the AM segment:

- continued the growth of Tritan[™] copolyester in the durable goods and health and wellness markets, supported by continued market and application development;
- strengthened growth in automotive paint protection films in North America and China through an improved sales channel, marketing, and commercial execution strategies and capabilities;
- finalized development and announced the launch of Eastman CORE (trademark and patent pending) next generation analytics-based software platform for automotive window and paint protection film products, enabling more efficient application and overall business management for dealers; and
- developed and enhanced Eastman's sustainability capabilities and commercial opportunities, including strategic collaborations with third parties to secure a consistent source of recyclable copolyester feedstock and to innovate new sustainable specialty plastic solutions.

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

Chemical Intermediates Segment

(Dollars in millions)	2019 Compared to 2018				2018 Compared to 2017			
	2019	2018	Change		2018	2017	Change	
			\$	%			\$	%
Sales	\$ 2,443	\$ 2,831	\$ (388)	(14)%	\$ 2,831	\$ 2,728	\$ 103	4 %
Volume / product mix effect			(122)	(4)%			(142)	(5)%
Price effect			(247)	(9)%			229	8 %
Exchange rate effect			(19)	(1)%			16	1 %
EBIT	\$ 170	\$ 308	\$ (138)	(45)%	\$ 308	\$ 255	\$ 53	21 %
Asset impairments and restructuring charges, net	22	—	22		—	—	—	
Net coal gasification incident (insurance) costs	—	(30)	30		(30)	44	(74)	
EBIT excluding unusual item	192	278	(86)	(31)%	278	299	(21)	(7)%

2019 Compared to 2018

Sales revenue decreased primarily due to lower selling prices across the segment attributed to lower raw material prices and increased competitive activity. Sales revenue was also negatively impacted by lower functional amines products sales volume attributed to weaker demand in agricultural end-markets resulting from wet weather in North America and lower intermediates products sales volume attributed to increased competitive activity.

EBIT in 2019 included an asset impairment charge resulting from management's approval of a plan to discontinue production of certain products at the Singapore manufacturing site by the end of 2020. EBIT in 2018 included coal gasification incident insurance in excess of costs. Excluding these non-core and unusual items, EBIT decreased primarily due to lower selling prices more than offsetting lower raw material costs of \$63 million and lower sales volumes of \$9 million.

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.

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

Cost and Growth Initiatives

To maintain and enhance its status as a low-cost producer and optimize earnings, the CI segment continuously focuses on cost control, operational efficiency, and capacity utilization. This includes focusing on products used internally by other operating segments, thereby supporting growth in specialty product lines throughout the Company, and also external licensing opportunities.

In 2018, the Company completed modifications to the olefin cracking units at the Longview, Texas manufacturing site. These modifications allowed for the introduction of refinery-grade propylene ("RGP") into the feedstock mix while also reducing the amount of other purchased feedstocks. This feedstock shift resulted in a significant decrease in ethylene production and excess ethylene sales in 2019, while maintaining historical levels of propylene production. The RGP project provided the flexibility to significantly reduce the Company's 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)	2019 Compared to 2018				2018 Compared to 2017			
	2019	2018	Change		2018	2017	Change	
			\$	%			\$	%
Sales	\$ 869	\$ 918	\$ (49)	(5)%	\$ 918	\$ 852	\$ 66	8 %
Volume / product mix effect			(38)	(4)%			95	11 %
Price effect			(7)	(1)%			(30)	(3)%
Exchange rate effect			(4)	— %			1	— %
EBIT	\$ 194	\$ 257	\$ (63)	(25)%	\$ 257	\$ 181	\$ 76	42 %
Net coal gasification incident (insurance) costs	—	(38)	38		(38)	49	(87)	
EBIT excluding non-core and unusual items	194	219	(25)	(11)%	219	230	(11)	(5)%

2019 Compared to 2018

Sales revenue decreased primarily due to lower acetate tow sales volume attributed to weakened market demand resulting from general market decline and customer buying patterns.

EBIT included coal gasification incident insurance in excess of costs in 2018. Excluding this unusual item, EBIT decreased primarily due to lower acetate tow sales volume of \$24 million.

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.

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

Cost and Growth Initiatives

In 2019 the Company acquired Industrias del Acetato de Celulosa, S.A. ("INACSA"), a cellulosic yarn business in LA Batllòria, Spain as a targeted addition to the Fibers segment's acetate yarn business.

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™ yarn for the apparel market developed from Eastman's proprietary cellulose ester technology; Avra™ 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™ wood pulp-based alternative for the nonwoven industry used in personal hygiene applications.

Other

(Dollars in millions)

	2019	2018	2017
Sales	\$ —	\$ —	\$ 54
Loss before interest and taxes			
Growth initiatives and businesses not allocated to operating segments	\$ (102)	\$ (114)	\$ (114)
Pension and other postretirement benefit plans income (expense), net not allocated to operating segments	(97)	(17)	93
Asset impairments and restructuring charges, net	(49)	(6)	(5)
Other income (charges), net not allocated to operating segments	(9)	(24)	(16)
Loss before interest and taxes before non-core and unusual items	\$ (257)	\$ (161)	\$ (42)
Mark-to-market pension and other postretirement benefit plans (gain) loss, net	143	99	(21)
Asset impairments and restructuring charges, net	49	6	5
Cost of disposition of claims against discontinued Solutia operations	—	—	9
Costs resulting from tax law changes and outside-U.S. entity reorganizations	—	20	—
Loss before interest and taxes excluding non-core and unusual items	(65)	(36)	(49)

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 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 segment due to accelerating commercial progress of growth initiatives. See Note 19, "Segment and Regional Sales Information", to the Company's consolidated financial statements in this Annual Report.

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

SALES BY CUSTOMER LOCATION

(Dollars in millions)	Sales Revenue							
	2019	2018	Change		2018	2017	Change	
			\$	%			\$	%
United States and Canada	\$ 3,885	\$ 4,303	\$ (418)	(10)%	\$ 4,303	\$ 4,189	\$ 114	3%
Europe, Middle East, and Africa	2,544	2,756	(212)	(8)%	2,756	2,539	217	9%
Asia Pacific	2,278	2,504	(226)	(9)%	2,504	2,306	198	9%
Latin America	566	588	(22)	(4)%	588	515	73	14%
Total	<u>\$ 9,273</u>	<u>\$ 10,151</u>	<u>\$ (878)</u>	<u>(9)%</u>	<u>\$ 10,151</u>	<u>\$ 9,549</u>	<u>\$ 602</u>	<u>6%</u>

2019 Compared to 2018

Sales revenue in United States and Canada decreased primarily due to lower selling prices and lower sales volume in all operating segments, particularly in the CI and AFP segments.

Sales revenue in Europe, Middle East, and Africa decreased primarily due to unfavorable foreign currency exchange rates in all operating segments, lower AFP segment selling prices, and lower AFP and CI segments sales volume. These items were partially offset by higher sales volume in the AM segment.

Sales revenue in Asia Pacific decreased primarily due to lower sales volume in all operating segments, particularly in the AFP and AM segments, and lower CI and AFP segments selling prices.

Sales revenue in Latin America decreased primarily due to lower selling prices, particularly in the CI segment.

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.

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.

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

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

LIQUIDITY AND OTHER FINANCIAL INFORMATION

Cash Flows

The Company had cash and cash equivalents as follows:

(Dollars in millions)

	2019	December 31, 2018	2017
Cash and cash equivalents	\$ 204	\$ 226	\$ 191

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 strategy and financial flexibility.

	For years ended December 31,		
	2019	2018	2017
(Dollars in millions)			
Net cash provided by (used in):			
Operating activities	\$ 1,504	\$ 1,543	\$ 1,657
Investing activities	(480)	(463)	(643)
Financing activities	(1,043)	(1,040)	(1,006)
Effect of exchange rate changes on cash and cash equivalents	(3)	(5)	2
Net change in cash and cash equivalents	(22)	35	10
Cash and cash equivalents at beginning of period	226	191	181
Cash and cash equivalents at end of period	\$ 204	\$ 226	\$ 191

2019 Compared to 2018

Cash provided by operating activities decreased primarily due to lower net earnings, partially offset by lower net working capital (trade receivables, inventories, and trade payables).

Cash used in investing activities increased \$17 million. Twelve months 2018 included \$65 million proceeds from coal gasification incident insurance for property damage. Excluding this item, cash used in investing activities decreased \$48 million due to lower capital expenditures partially offset by acquisitions of businesses in the AFP and Fibers segments. Lower capital expenditures were due to significant capital projects related to key growth initiatives being completed and put into service during 2018.

Cash used in financing activities was relatively unchanged with increased net debt repayments and dividend payments offset by lower share repurchases.

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 were completed and 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 net debt repayments.

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

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Net cash provided by operating activities	\$ 1,504	\$ 1,543	\$ 1,657
Capital expenditures			
Additions to properties and equipment	(425)	(528)	(649)
Proceeds from property insurance ⁽¹⁾	—	65	—
Net capital expenditures	(425)	(463)	(649)
Free cash flow	\$ 1,079	\$ 1,080	\$ 1,008

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

Working Capital Management and Off Balance Sheet Arrangements

Eastman applies a proactive and disciplined approach to working capital management to optimize cash flow and to enable a full range of capital allocation options in support of the Company's strategy. Eastman expects to continue utilizing the programs described below to support free cash flow consistent with our past practices.

Eastman works with suppliers to optimize payment terms and conditions on accounts payable to enhance timing of working capital and cash flows. As part of these efforts, in 2019, the Company introduced a voluntary supply chain finance program to provide suppliers with the opportunity to sell receivables due from Eastman to a participating financial institution. A downgrade in Eastman's credit rating or changes in the financial markets could limit the financial institution's willingness to commit funds to, and participate in, the program. Management does not believe such risk would have a material impact on the Company's working capital or cash flows. See Note 1, "Significant Accounting Policies", to the Company's consolidated financial statements in this Annual Report for additional information regarding the program.

In 2019, the Company expanded off balance sheet, uncommitted accounts receivable factoring agreements under which entire invoices may be sold, without recourse, to third-party financial institutions. Available capacity under these agreements, which the Company uses as a source of working capital funding, is dependent on the level of accounts receivable eligible to be sold and the financial institutions' willingness to purchase such receivables. The total amount of receivables sold in 2019 and 2018 were \$857 million and \$219 million, respectively. Based on the original terms of receivables sold for certain agreements and actual outstanding balance of receivables under service agreements, the Company estimates that \$169 million and \$76 million of these receivables would have been outstanding as of December 31, 2019 and December 31, 2018, respectively, had they not been sold under these factoring agreements.

Revolving Credit Facilities and Commercial Paper Borrowings

The Company has access to a \$1.50 billion revolving credit agreement (the "Credit Facility") expiring 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, 2019, the Company had no outstanding borrowings under the Credit Facility. At December 31, 2019, commercial paper borrowings were \$170 million with a weighted average interest rate of 2.03 percent. See Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

The Company has access to up to \$250 million under an 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, 2019, the Company had no borrowings under the A/R Facility. See Note 8, "Borrowings", to the Company's consolidated financial statements in this Annual Report.

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

The Credit Facility and A/R Facility contain customary covenants, including requirements to maintain certain financial ratios, that determine the events of default, amounts available, and terms of borrowings. The Company was in compliance with all covenants at both December 31, 2019 and December 31, 2018. The amount of available borrowings under the A/R and Credit Facilities was approximately \$1.75 billion as of December 31, 2019. For additional information, see Section 5.03 of the Credit Facility at Exhibit 10.01 to the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2018.

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
2020	\$ —	\$ 171	\$ 173	\$ 181	\$ 62	\$ 241	\$ 828
2021	483	—	186	156	49	81	955
2022	741	—	175	102	38	87	1,143
2023	840	—	156	91	25	87	1,199
2024	240	—	137	100	14	89	580
2025 and beyond	3,307	—	1,414	1,967	30	1,106	7,824
Total	\$ 5,611	\$ 171	\$ 2,241	\$ 2,597	\$ 218	\$ 1,691	\$ 12,529

At December 31, 2019, Eastman's borrowings totaled approximately \$5.8 billion with various maturities. In fourth quarter 2019, the Company repaid the 2.7% notes due January 2020 (\$250 million principal) using available cash. 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, "Leases and Other Commitments", 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, 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 "2025 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.

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

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.

Capital Expenditures

Capital expenditures were \$425 million, \$528 million (\$463 million net of proceeds from property damage insurance for 2017 coal gasification incident), and \$649 million in 2019, 2018, and 2017, respectively. Capital expenditures in 2019 were primarily for targeted growth initiatives and site modernization projects at the Longview, Texas; Kingsport, Tennessee; and Jefferson, Pennsylvania manufacturing sites.

The Company expects that 2020 capital spending will be between \$450 million and \$475 million, primarily for targeted growth initiatives and site modernization projects.

The Company had capital expenditures related to environmental protection and improvement of approximately \$27 million, \$44 million, and \$38 million in 2019, 2018, and 2017, 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 interest of the Company. As of December 31, 2019, a total of 6,753,164 shares have been repurchased under the February 2018 authorization for a total amount of \$573 million. During 2019, the Company repurchased a total of 4,282,409 shares for a total cost of approximately \$325 million.

The Board of Directors has declared a cash dividend of \$0.66 per share during the first quarter of 2020, payable on April 3, 2020 to stockholders of record on March 16, 2020.

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.

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

In 2020, management expects adjusted EPS to be between \$7.20 to \$7.60 and free cash flow to be between \$1.0 billion to \$1.1 billion. These expectations assume:

- earnings to benefit from higher sales volume due to increased new business revenue, less market and customer inventory destocking, and stable growth in some end-markets, actions to reduce operating costs by \$20 million to \$40 million, and lower pension and depreciation costs;
- earnings to be negatively impacted by lower product margins in the CI segment and adhesive resins, tire additives, and animal nutrition products in the AFP segment, higher variable compensation costs, and a stronger U.S. dollar;
- interest expense of approximately \$215 million;
- the full-year effective tax rate on reported earnings before income tax to be similar to 2019;
- depreciation and amortization of approximately \$560 million;
- capital expenditures between \$450 million and \$475 million;
- debt reduction greater than \$400 million; and
- continued share repurchases.

The Company's 2020 financial results forecasts do not include non-core, unusual, or non-recurring items. Accordingly, management is unable to reconcile projected full-year 2020 earnings excluding non-core, unusual, or non-recurring items to projected reported GAAP earnings without unreasonable efforts. These forecasts also do not include the possible impact on business and financial results of the recent coronavirus outbreak, including negative impact on overall business and market conditions; Eastman manufacturing sites and distribution, sales, and service facilities closure or reduced availability, including for employee health and safety; and Eastman products market demand weakness and supply chain disruption.

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 and opportunities (including potential risks associated with physical impacts of climate change and related voluntary and regulatory carbon requirements); 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, decisions, 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, benefits from the integration of, and expected business and financial performance of acquired businesses as well as the subsequent impairment assessments of acquired long-lived assets; strategic, 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 interest costs.

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

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, Company press releases, or pre-noticed public investor presentations) 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. Continued 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, pandemic illness (including the recent coronavirus outbreak), 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.

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

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 (including the recent coronavirus outbreak), 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.

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

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 2019 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 (including the U.K. departure from the European Union, also known as "Brexit") 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, regulatory, or voluntary actions could increase the Company's future health, safety, and environmental compliance costs.

Eastman and its facilities and businesses are subject to complex health, safety, and environmental laws, regulations and related voluntary actions, both in the U.S. and internationally, which require and will continue to require significant expenditures to remain in compliance with such laws, regulations, and voluntary actions. 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 actions, and testing requirements could result in higher costs. Specifically, future changes in legislation and regulation and related voluntary actions associated with physical impacts of climate change may increase the likelihood that the Company's manufacturing facilities will in the future be impacted by carbon requirements, regulation of greenhouse gas emissions, and energy policy, and 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.

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

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 and businesses (such as the previous acquisitions of Taminco Corporation and Solutia, Inc.) 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 actual and projected future financial performance of the acquired business may be significantly worse than expected and that, as reported in "Critical Accounting Estimates - Impairment of Long-Lived Assets - Goodwill" in this Annual Report, the carrying values of certain assets from acquisitions may be impaired resulting in charges to future earnings; 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, 2019, 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 \$74 million, with an additional \$7 million exposure for each additional one percentage point adverse change in those foreign currency rates. At December 31, 2018, 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 \$28 million, with an additional \$3 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, 2019, a 10 percent fluctuation in the euro currency rate would have had a \$235 million impact on the designated net investment values in the foreign subsidiaries. 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. 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, 2019 and December 31, 2018, 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 \$9 million and \$25 million, respectively, with an additional \$1 million and \$3 million of exposure at December 31, 2019 and December 31, 2018, respectively, 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 \$171 million and \$293 million at December 31, 2019 and 2018, respectively. These borrowings represented approximately 3 percent and 5 percent of total outstanding debt and bore weighted average interest rates of 2.03 percent and 2.53 percent at December 31, 2019 and 2018, respectively. A hypothetical 10 percent increase in the average interest rate applicable to these borrowings would have no material impact on the annualized interest expense as of December 31, 2019 and change annualized interest expense by approximately \$1 million as of December 31, 2018.

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, 2019 and 2018, 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, 2019 and December 31, 2018.

FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

	Page
Management's Responsibility for Financial Statements	40
Report of Independent Registered Public Accounting Firm	41
Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings	43
Consolidated Statements of Financial Position	44
Consolidated Statements of Cash Flows	45
Notes to the Audited Consolidated Financial Statements	
Note 1. Significant Accounting Policies	46
Note 2. Inventories	53
Note 3. Properties and Accumulated Depreciation	53
Note 4. Goodwill and Other Intangible Assets	53
Note 5. Equity Investments	55
Note 6. Payables and Other Current Liabilities	55
Note 7. Income Taxes	56
Note 8. Borrowings	60
Note 9. Derivative and Non-Derivative Financial Instruments	62
Note 10. Retirement Plans	68
Note 11. Leases and Other Commitments	75
Note 12. Environmental Matters and Asset Retirement Obligations	77
Note 13. Legal Matters	79
Note 14. Stockholders' Equity	80
Note 15. Asset Impairments and Restructuring Charges, Net	83
Note 16. Other (Income) Charges, Net	84
Note 17. Share-Based Compensation Plans and Awards	84
Note 18. Supplemental Cash Flow Information	87
Note 19. Segment and Regional Sales Information	88
Note 20. Quarterly Sales and Earnings Data - Unaudited	93
Note 21. Reserve Rollforwards	93

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

Mark J. Costa
Chief Executive Officer

February 26, 2020

/s/ Curtis E. Espeland

Curtis E. Espeland
Executive Vice President and
Chief Financial Officer

February 26, 2020

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, 2019 and 2018, 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, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Changes in Accounting Principles

As discussed in Note 1 to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019 and the manner in which 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.

Critical Audit Matters

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

Goodwill Impairment Assessment - Crop Protection Reporting Unit

As described in Note 4 to the consolidated financial statements, the Company's consolidated goodwill balance was \$4.4 billion as of December 31, 2019. The Company conducts testing of goodwill annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. 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 discounted cash flow model in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's goodwill impairment testing included projections of revenues and earnings before interest and income taxes ("EBIT") determined using the Company's annual multi-year strategic plan, the estimated weighted average cost of capital ("WACC"), and a projected long-term growth rate. As a result of the goodwill impairment testing performed during fourth quarter 2019, fair values were determined to exceed the carrying values for each reporting unit tested with the exception of crop protection (part of the Additives & Functional Products ("AFP") operating segment). The Company recognized a goodwill impairment of \$45 million in the crop protection reporting unit. The impairment was primarily due to the impact of recent regulatory changes in the European Union on current period and forecasted revenue and EBIT and a decrease in the long-term growth rate. The crop protection reporting unit's goodwill after the reduction for impairment was \$190 million as of December 31, 2019.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment of the crop protection reporting unit is a critical audit matter are there was significant judgment by management when developing the fair value measurement of the reporting unit. This in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures and in evaluating the audit evidence supporting management's significant assumptions, including projections of revenue and EBIT determined using the Company's annual multi-year strategic plan, the estimated WACC, and the projected long-term growth rate. In addition, the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the valuation of the Company's reporting units. These procedures also included, among others (i) testing management's process for developing the fair value estimate of the crop protection reporting unit, (ii) evaluating the appropriateness of the discounted cash flow model, (iii) testing the completeness, accuracy and relevance of underlying data used in the model, and (iv) evaluating the significant assumptions used by management, including projections of revenue and EBIT determined using the Company's annual multi-year strategic plan, the estimated WACC, and the projected long-term growth rate. Evaluating management's assumptions related the impact of recent regulatory changes in the European Union on current period and forecasted revenue and EBIT and the long-term growth rate involved evaluating (i) the current and past performance of the reporting unit, (ii) the consistency with external industry reports, and (iii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in the evaluation of the Company's discounted cash flow model, including the evaluation of the WACC.

/s/ PricewaterhouseCoopers LLP

Cincinnati, OH

February 26, 2020

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

**CONSOLIDATED STATEMENTS OF EARNINGS,
COMPREHENSIVE INCOME AND RETAINED EARNINGS**

For years ended December 31,

(Dollars in millions, except per share amounts)

	2019	2018	2017
Sales	\$ 9,273	\$ 10,151	\$ 9,549
Cost of sales	7,039	7,672	7,186
Gross profit	2,234	2,479	2,363
Selling, general and administrative expenses	691	721	729
Research and development expenses	234	235	227
Asset impairments and restructuring charges, net	126	45	8
Other components of post-employment (benefit) cost, net	60	(21)	(135)
Other (income) charges, net	3	(53)	4
Earnings before interest and taxes	1,120	1,552	1,530
Net interest expense	218	235	241
Early debt extinguishment and other related costs	—	7	—
Earnings before income taxes	902	1,310	1,289
Provision for (benefit from) income taxes	140	226	(99)
Net earnings	762	1,084	1,388
Less: Net earnings attributable to noncontrolling interest	3	4	4
Net earnings attributable to Eastman	\$ 759	\$ 1,080	\$ 1,384
Basic earnings per share attributable to Eastman	\$ 5.52	\$ 7.65	\$ 9.56
Diluted earnings per share attributable to Eastman	\$ 5.48	\$ 7.56	\$ 9.47

Comprehensive Income

Net earnings including noncontrolling interest	\$ 762	\$ 1,084	\$ 1,388
Other comprehensive income (loss), net of tax:			
Change in cumulative translation adjustment	45	(13)	85
Defined benefit pension and other postretirement benefit plans:			
Amortization of unrecognized prior service credits included in net periodic costs	(29)	(30)	(27)
Derivatives and hedging:			
Unrealized gain (loss) during period	(20)	22	7
Reclassification adjustment for (gains) losses included in net income, net	15	(15)	7
Total other comprehensive income (loss), net of tax	11	(36)	72
Comprehensive income including noncontrolling interest	773	1,048	1,460
Less: Comprehensive income attributable to noncontrolling interest	3	4	4
Comprehensive income attributable to Eastman	\$ 770	\$ 1,044	\$ 1,456

Retained Earnings

Retained earnings at beginning of period	\$ 7,573	\$ 6,802	\$ 5,721
Cumulative effect adjustment resulting from adoption of new accounting standards	(20)	16	—
Net earnings attributable to Eastman	759	1,080	1,384
Cash dividends declared	(347)	(325)	(303)
Retained earnings at end of period	\$ 7,965	\$ 7,573	\$ 6,802

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

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

	December 31, 2019	December 31, 2018
(Dollars in millions, except per share amounts)		
Assets		
Current assets		
Cash and cash equivalents	\$ 204	\$ 226
Trade receivables, net of allowance for doubtful accounts	980	1,154
Miscellaneous receivables	395	329
Inventories	1,662	1,583
Other current assets	80	73
Total current assets	3,321	3,365
Properties		
Properties and equipment at cost	12,904	12,731
Less: Accumulated depreciation	7,333	7,131
Net properties	5,571	5,600
Goodwill	4,431	4,467
Intangible assets, net of accumulated amortization	2,011	2,185
Other noncurrent assets	674	378
Total assets	\$ 16,008	\$ 15,995
Liabilities and Stockholders' Equity		
Current liabilities		
Payables and other current liabilities	\$ 1,618	\$ 1,608
Borrowings due within one year	171	243
Total current liabilities	1,789	1,851
Long-term borrowings	5,611	5,925
Deferred income tax liabilities	915	884
Post-employment obligations	1,016	925
Other long-term liabilities	645	532
Total liabilities	9,976	10,117
Commitments and contingencies (Note 11)		
Stockholders' equity		
Common stock (\$0.01 par value per share – 350,000,000 shares authorized; shares issued – 219,638,646 and 219,140,523 for 2019 and 2018, respectively)	2	2
Additional paid-in capital	2,105	2,048
Retained earnings	7,965	7,573
Accumulated other comprehensive loss	(214)	(245)
	9,858	9,378
Less: Treasury stock at cost (83,696,398 shares for 2019 and 79,413,989 shares for 2018)	3,900	3,575
Total Eastman stockholders' equity	5,958	5,803
Noncontrolling interest	74	75
Total equity	6,032	5,878
Total liabilities and stockholders' equity	\$ 16,008	\$ 15,995

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

CONSOLIDATED STATEMENTS OF CASH FLOWS

	For years ended December 31,		
	2019	2018	2017
(Dollars in millions)			
Operating activities			
Net earnings	\$ 762	\$ 1,084	\$ 1,388
Adjustments to reconcile net earnings to net cash provided by operating activities:			
Depreciation and amortization	611	604	587
Mark-to-market pension and other postretirement benefit plans (gain) loss, net	143	99	(21)
Asset impairment charges	72	39	1
Early debt extinguishment and other related costs	—	7	—
Gains from sale of assets and businesses	—	(4)	(3)
Gain from property insurance	—	(65)	—
Provision for (benefit from) deferred income taxes	23	(51)	(394)
Changes in operating assets and liabilities, net of effect of acquisitions and divestitures:			
(Increase) decrease in trade receivables	170	16	(53)
(Increase) decrease in inventories	(80)	(224)	(71)
Increase (decrease) in trade payables	(27)	90	123
Pension and other postretirement contributions (in excess of) less than expenses	(119)	(152)	(115)
Variable compensation (in excess of) less than expenses	38	55	71
Other items, net	(89)	45	144
Net cash provided by operating activities	1,504	1,543	1,657
Investing activities			
Additions to properties and equipment	(425)	(528)	(649)
Proceeds from property insurance	—	65	—
Proceeds from sale of assets and businesses	—	5	14
Acquisitions, net of cash acquired	(48)	(3)	(4)
Other items, net	(7)	(2)	(4)
Net cash used in investing activities	(480)	(463)	(643)
Financing activities			
Net increase (decrease) in commercial paper and other borrowings	(70)	(146)	(19)
Proceeds from borrowings	460	1,604	675
Repayment of borrowings	(760)	(1,774)	(1,025)
Dividends paid to stockholders	(343)	(318)	(296)
Treasury stock purchases	(325)	(400)	(350)
Other items, net	(5)	(6)	9
Net cash used in financing activities	(1,043)	(1,040)	(1,006)
Effect of exchange rate changes on cash and cash equivalents	(3)	(5)	2
Net change in cash and cash equivalents	(22)	35	10
Cash and cash equivalents at beginning of period	226	191	181
Cash and cash equivalents at end of period	\$ 204	\$ 226	\$ 191

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.

Recently Adopted Accounting Standards

Accounting Standards Update ("ASU") 2016-02 Leases: On January 1, 2019, Eastman adopted this standard, and related releases, under the modified retrospective optional transition method such that prior period financial statements have not been adjusted to reflect the impact of the new standard and adoption did not result in an impact to retained earnings. Upon adoption, operating right-to-use assets and lease liabilities were \$219 million. The new standard establishes two types of leases: finance and operating. Both finance and operating leases have associated right-to-use assets and lease liabilities that have been valued at the present value of the lease payments and recognized on the Consolidated Statement of Financial Position. For further information, see Note 11, "Leases and Other Commitments".

ASU 2018-02 Income Statement - Reporting Comprehensive Income: On January 1, 2019, Eastman adopted this standard in the current period resulting in the reclassification of \$20 million of stranded tax expense from accumulated other comprehensive income (loss) ("AOCI") to retained earnings as a result of 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.

ASU 2018-15 Internal-Use Software - Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract: On January 1, 2019, Eastman adopted this standard prospectively which did not result in a material impact on the Company's financial statements and related disclosures.

ASU 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: On January 1, 2019, Eastman adopted this standard prospectively for qualifying new or redesignated hedging relationships. Management does not expect the adoption of this standard will materially impact the Company's financial statements and related disclosures.

Accounting Standards Issued But Not Adopted as of December 31, 2019

ASU 2016-13 Financial Instruments - Credit Losses: In June 2016, the Financial Accounting Standards Board ("FASB") issued this standard relating to credit losses and subsequent related releases. 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. 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 2018-13 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. The primary changes applicable to Eastman in this update are the disclosures of fair value levels, assessment thereof, and transfers between those levels. This standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019. 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 does not expect that changes required by the new standard will materially impact the Company's related disclosures.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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. The primary change impacting Eastman is the addition of disclosures related to significant gains and losses related to changes in the benefit obligation for the period and weighted-average interest crediting rates for cash balance plans. 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 does not expect that changes required by the new standard will materially impact the Company's related disclosures.

ASU 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 pronouncements. This standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. 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.

ASU 2019-01 Leases - Codification Improvements: In March 2019, the FASB issued this update in response to stakeholder inquiries regarding the new leasing standard. This standard is effective for fiscal years beginning after December 15, 2019, and interim periods within those fiscal years. Upon adoption, this update is to be applied as of the adoption date and under the same transition methodology of *ASU 2016-02 Leases*. Management is currently evaluating the impact on the Company's financial statements and related disclosures.

ASU 2019-12 Income Taxes - Simplifying the Accounting for Income Taxes: In December 2019, the FASB issued this update as part of its initiative to reduce complexity in accounting standards which removes certain exceptions and provides simplification to specific tax items. This standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Early adoption is permitted, including adoption in any interim period for which financial statements have not yet been issued. Adoption methods vary based on the specific items impacted. Management is currently evaluating the impact on the Company's financial statements and related disclosures.

Revenue Recognition

On January 1, 2018, Eastman adopted *ASU 2014-09 Revenue Recognition (ASC 606)* 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.

Eastman 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.

Eastman accounts for shipping and handling as activities to fulfill the promise to transfer the good and does not allocate revenue to those activities. All related shipping and handling costs are recognized at the time of shipment. Amounts collected for sales or other similar taxes are presented net of the related tax expense rather than presenting them as additional revenue. The incremental cost of obtaining a sales contract is recognized as a selling expense when incurred given the potential amortization period for such an asset is one year or less. The possible existence of a significant financing component within a sales contract is ignored when the time between cash collection and performance is less than one year. Finally, the Company does not disclose any unfulfilled obligations as customer purchase order commitments have an original expected duration of one year or less and no consideration from customers is excluded from the transaction price.

The timing of Eastman's customer 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 December 31, 2019 or December 31, 2018. Contract assets were \$65 million and \$62 million as of December 31, 2019 and December 31, 2018, respectively, and are included as a component of "Miscellaneous receivables" in the Consolidated Statements of Financial Position.

For additional information, see Note 19, "Segment and Regional Sales Information".

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 recognizes 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 recognizes the minimum undiscounted amount. This undiscounted 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".

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".

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".

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.

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 at both December 31, 2019 and 2018. 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 measured by the last-in, first-out ("LIFO") method are valued at the lower of cost or market and inventories measured by the first-in, first-out ("FIFO") method are valued at lower cost or net realizable value. Eastman determines the cost of most raw materials, work in process, and finished goods inventories in the United States and Switzerland by the LIFO method. The cost of all other inventories is determined by the average cost method, which approximates the FIFO method. The Company writes-down its inventories equal to the difference between the carrying value of inventory and the estimated market value or net realizable 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. Amortization expense is reported in cost of sales.

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 and the review of definite-lived intangible assets is performed at the asset group 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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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 discounted cash flow model in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's 2019 goodwill impairment testing included projections of revenues and earnings before interest and taxes ("EBIT") determined using the Company's annual multi-year strategic plan, the estimated weighted average cost of capital ("WACC") 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 estimated fair values of reporting units. 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".

Leases

As noted above, On January 1, 2019, Eastman adopted *ASU 2016-02 Leases*. For accounting policy and elections, see Note 11, "Leases and Other Commitments".

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. The Company includes its share of earnings and losses of such investments in "Net earnings attributable to Eastman" and "Comprehensive income attributable to Eastman" located in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings and in "Total equity" located in the Consolidated Statements of Financial Position.

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" in the Consolidated Statements of Financial Position. The Company includes its share of earnings and losses of such investments in "Other (income) charges, net" located in the Consolidated Statements of Earnings, Comprehensive Income and Retained Earnings.

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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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.

Working Capital Management and Off Balance Sheet Arrangements

The Company works with suppliers to optimize payment terms and conditions on accounts payable to enhance timing of working capital and cash flows. As part of these efforts, in 2019, the Company introduced a voluntary supply chain finance program to provide suppliers with the opportunity to sell receivables due from Eastman to a participating financial institution. Eastman's responsibility is limited to making payments on the terms originally negotiated with suppliers, regardless of whether the suppliers sell their receivables to the financial institution. The range of payment terms Eastman negotiates with suppliers are consistent, regardless of whether a supplier participates in the program. All of Eastman's accounts payable and associated payments are reported consistently in the Company's Consolidated Statements of Financial Position and Consolidated Statements of Cash Flows regardless of whether they are associated with a vendor who participates in the program.

In 2019, the Company expanded off balance sheet, uncommitted accounts receivable factoring agreements under which entire invoices may be sold, without recourse, to third-party financial institutions. Under these agreements, the Company sells the invoices at face value, less a transaction fee, which substantially equals the carrying value and fair value with no gain or loss recognized and no credit loss exposure is retained. Available capacity under these agreements, which the Company uses as a source of working capital funding, is dependent on the level of accounts receivable eligible to be sold and the financial institutions' willingness to purchase such receivables. In addition, certain agreements also require that the Company continue to service, administer, and collect the sold accounts receivable at market rates. The total amount of receivables sold in 2019 and 2018 were \$857 million and \$219 million, respectively, representing less than full capacity due to implementation of new agreements across periods.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

2. INVENTORIES

(Dollars in millions)	December 31,	
	2019	2018
Finished goods	\$ 1,114	\$ 1,143
Work in process	220	262
Raw materials and supplies	576	515
Total inventories at FIFO or average cost	1,910	1,920
Less: LIFO reserve	248	337
Total inventories	<u>\$ 1,662</u>	<u>\$ 1,583</u>

Inventories valued on the LIFO method were approximately 50 percent and 55 percent of total inventories at December 31, 2019 and December 31, 2018, respectively.

3. PROPERTIES AND ACCUMULATED DEPRECIATION

(Dollars in millions)	December 31,	
	2019	2018
Properties		
Land	\$ 158	\$ 158
Buildings	1,430	1,385
Machinery and equipment	10,960	10,801
Construction in progress	356	387
Properties and equipment at cost	\$ 12,904	\$ 12,731
Less: Accumulated depreciation	7,333	7,131
Net properties	<u>\$ 5,571</u>	<u>\$ 5,600</u>

Depreciation expense was \$450 million, \$437 million, and \$420 million for 2019, 2018, and 2017, respectively.

Cumulative construction-period interest of \$98 million and \$115 million, reduced by accumulated depreciation of \$38 million and \$54 million, is included in net properties at December 31, 2019 and 2018, respectively.

Eastman capitalized \$4 million of interest in 2019, \$4 million of interest in 2018, and \$8 million of interest in 2017.

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, 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
Acquisitions	15	—	—	—	15
Impairments recognized	(45)	—	—	—	(45)
Currency translation adjustments	(3)	(1)	(2)	—	(6)
Balance at December 31, 2019	<u>\$ 2,377</u>	<u>\$ 1,282</u>	<u>\$ 762</u>	<u>\$ 10</u>	<u>\$ 4,431</u>

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Eastman conducts testing of goodwill annually in the fourth quarter or more frequently when events and circumstances indicate an impairment may have occurred. 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 discounted cash flow model in testing the carrying value of goodwill for each reporting unit. Key assumptions and estimates used in the Company's 2019 goodwill impairment testing included projections of revenues and EBIT determined using the Company's annual multi-year strategic plan, the estimated WACC, and a projected long-term growth rate. As a result of the goodwill impairment testing performed during fourth quarter 2019, fair values were determined to exceed the carrying values for each reporting unit tested with the exception of crop protection (part of the Additives & Functional Products ("AFP") segment).

In fourth quarter 2019 and 2018, as a result of the annual impairment test of goodwill, the Company recognized goodwill impairments of \$45 million and \$38 million, respectively, in the crop protection reporting unit. The impairment in 2019 was primarily due to the impact of recent regulatory changes in the European Union on current period and forecasted revenue and EBIT and a decrease in the long-term growth rate for the reporting unit assumed in the goodwill impairment model. The impairment in 2018 was primarily due to the WACC applied to the impairment analysis and the estimated impact of future regulatory changes. The crop protection reporting unit's goodwill after the reduction for impairment was \$190 million as of December 31, 2019.

As of December 31, 2019, the reported balance of goodwill included accumulated impairment losses of \$106 million, \$12 million, and \$14 million in the AFP segment, Chemical Intermediates ("CI") segment, and other segments, respectively. 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, CI segment, and other segments, respectively.

The carrying amounts of intangible assets follow:

		December 31, 2019			December 31, 2018		
	Estimated Useful Life in Years	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
(Dollars in millions)							
Amortizable intangible assets:							
Customer relationships	8 - 25	\$ 1,566	\$ 494	\$ 1,072	\$ 1,567	\$ 419	\$ 1,148
Technology	7 - 20	677	343	334	680	294	386
Contracts	5	—	—	—	180	147	33
Other	5 - 37	88	22	66	102	23	79
Indefinite-lived intangible assets:							
Tradenames		529	—	529	529	—	529
Other		10	—	10	10	—	10
Total identified intangible assets		\$ 2,870	\$ 859	\$ 2,011	\$ 3,068	\$ 883	\$ 2,185

Amortization expense of definite-lived intangible assets was \$160 million, \$164 million, and \$164 million for 2019, 2018, and 2017, respectively. Estimated amortization expense for future periods is \$130 million in 2020, \$125 million in 2021, and \$115 million each year for 2022 through 2024.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

5. EQUITY INVESTMENTS

Eastman owns a 50 percent or less interest in joint ventures which are accounted for under the equity method. These include a 45 percent interest in a joint venture with China National Tobacco Corporation that manufactures acetate tow in Hefei, China. The Company owns 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. At December 31, 2019 and 2018, the Company's total investment in these joint ventures was \$106 million and \$100 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,	
	2019	2018
Trade creditors	\$ 890	\$ 914
Accrued payrolls, vacation, and variable-incentive compensation	176	197
Accrued taxes	89	94
Post-employment obligations	93	80
Dividends payable to shareholders	90	87
Other	280	236
Total payables and other current liabilities	<u>\$ 1,618</u>	<u>\$ 1,608</u>

The "Other" above consists primarily of accruals for the current portion of operating lease liabilities, interest payable, the current portion of derivative hedging liabilities, the current portion of environmental liabilities, and miscellaneous accruals.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

7. 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,		
	2019	2018	2017
Earnings before income taxes			
United States	\$ 454	\$ 718	\$ 654
Outside the United States	448	592	635
Total	<u>\$ 902</u>	<u>\$ 1,310</u>	<u>\$ 1,289</u>
Provision for (benefit from) income taxes			
United States Federal			
Current ⁽¹⁾	\$ 55	\$ 161	\$ 220
Deferred ⁽²⁾	19	(11)	(383)
Outside the United States			
Current	62	86	62
Deferred	(32)	(22)	2
State and other			
Current	—	30	13
Deferred	36	(18)	(13)
Total	<u>\$ 140</u>	<u>\$ 226</u>	<u>\$ (99)</u>

⁽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 remeasurement 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,		
	2019	2018	2017
Defined benefit pension and other postretirement benefit plans	\$ (10)	\$ (10)	\$ (16)
Derivatives and hedging	(2)	3	8
Total	<u>\$ (12)</u>	<u>\$ (7)</u>	<u>\$ (8)</u>

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

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Earnings before income taxes	\$ 140	\$ 226	\$ (99)
Other comprehensive income	(12)	(7)	(8)
Total	<u>\$ 128</u>	<u>\$ 219</u>	<u>\$ (107)</u>

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Amount computed using the statutory rate	\$ 189	\$ 274	\$ 450
State income taxes, net	36	6	(4)
Foreign rate variance	(68)	(52)	(150)
Domestic manufacturing deduction	—	—	(18)
Change in reserves for tax contingencies	36	21	20
General business credits	(52)	(60)	(65)
U.S. tax on foreign earnings	(17)	10	29
Foreign tax credits	—	(12)	(26)
Tax law changes and tax loss from outside-U.S. entity reorganizations ⁽¹⁾	7	20	(339)
Other	9	19	4
Provision for (benefit from) income taxes	<u>\$ 140</u>	<u>\$ 226</u>	<u>\$ (99)</u>
Effective income tax rate	16%	17%	(8)%

⁽¹⁾ Includes a one-time net benefit primarily due to the remeasurement 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 and 2019.

The 2019 effective tax rate includes a \$7 million increase to the provision for income taxes resulting from adjustments to the net tax benefit recognized in fourth quarter 2017 resulting from tax law changes, primarily the Tax Reform Act. The 2019 effective tax rate also includes adjustments to the tax provision to reflect finalization of prior year's income tax returns and an increase to state income taxes related to additional valuation allowance provided against state income tax credits.

The 2018 effective tax rate included 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 included a \$20 million increase to the provision for income taxes resulting from adjustments to the 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 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 benefit from the one-time revaluation of deferred tax liabilities, partially offset by a 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 also included 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 included an \$8 million tax benefit due to a tax ruling permitting deductibility of a liquidation loss on a previously impaired site.

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 future periods may result in changes in the period of enactment to the amounts currently reported in the Consolidated Statements of Financial Position.

As of December 31, 2019 and 2018, a non-current income tax payable of approximately \$6 million and \$56 million, respectively, attributable to the transition tax is reflected in "Other long-term liabilities" of the Consolidated Statements of Financial Position.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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.

The significant components of deferred tax assets and liabilities follow:

(Dollars in millions)	December 31,	
	2019	2018 ⁽¹⁾
Deferred tax assets		
Post-employment obligations	\$ 247	\$ 230
Net operating loss carryforwards	606	634
Tax credit carryforwards	239	239
Environmental reserves	68	70
Unrealized derivative loss	18	18
Other	173	94
Total deferred tax assets	1,351	1,285
Less: Valuation allowance	453	487
Deferred tax assets less valuation allowance	\$ 898	\$ 798
Deferred tax liabilities		
Property, plant, and equipment	\$ (895)	\$ (856)
Intangible assets	(439)	(473)
Investments	(235)	(179)
Other	(178)	(131)
Total deferred tax liabilities	\$ (1,747)	\$ (1,639)
Net deferred tax liabilities	\$ (849)	\$ (841)
As recorded in the Consolidated Statements of Financial Position:		
Other noncurrent assets	\$ 66	\$ 43
Deferred income tax liabilities	(915)	(884)
Net deferred tax liabilities	\$ (849)	\$ (841)

⁽¹⁾ Revised from Note 7, "Income Taxes", to the Company's 2018 Annual Report on Form 10-K, which reported net operating loss carryforwards as \$708 million, valuation allowance as \$466 million, and investments as \$(274) million.

Beginning January 1, 2019, the Company did not assert indefinite reinvestment on short-term liquid assets of certain foreign subsidiaries. All other foreign earnings, including basis differences, continue to be considered indefinitely reinvested. As of December 31, 2019 unremitted earnings of subsidiaries outside the U.S. totaled approximately \$2.5 billion of which a substantial portion has already been subject to U.S. tax. The Company has not determined the deferred tax liability associated with these unremitted earnings and basis differences, as such determination is not practicable.

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 \$24 million at December 31, 2019 has been provided against the deferred tax asset resulting from these operating loss carryforwards.

At December 31, 2019, foreign net operating loss carryforwards totaled \$2.1 billion. Of this total, \$23 million will expire in 1 to 20 years and \$2.1 billion have no expiration date. A valuation allowance of approximately \$262 million has been provided against such net operating loss carryforwards.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

At December 31, 2019, federal net operating loss carryforwards of \$8 million were available to offset future taxable income, which expire from 2028 to 2030. At December 31, 2019, foreign tax credit carryforwards of approximately \$75 million were available to reduce possible future U.S. income taxes and which expire from 2020 to 2028. As a result of the Tax Reform Act, the Company may no longer be able to utilize certain U.S. foreign tax credit carryforwards. A valuation allowance of \$45 million has been established on a portion of deferred tax assets as of December 31, 2019.

At December 31, 2019, a partial valuation allowance of \$72 million has been provided against state tax credits that the Company may not be able to utilize.

A partial valuation allowance of \$47 million has been established for the Solutia, Inc. ("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:

(Dollars in millions)	December 31,	
	2019	2018
Miscellaneous receivables	\$ 211	\$ 135
Payables and other current liabilities	\$ 36	\$ 43
Other long-term liabilities	139	162
Total income taxes payable	\$ 175	\$ 205

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

(Dollars in millions)	2019	2018	2017
Balance at January 1	\$ 182	\$ 142	\$ 114
Adjustments based on tax positions related to current year	22	44	29
Lapse of statute of limitations	(2)	(4)	(1)
Balance at December 31 ⁽¹⁾	\$ 202	\$ 182	\$ 142

⁽¹⁾ All of the unrecognized tax benefits would, if recognized, impact the Company's effective tax rate.

A reconciliation of the beginning and ending amounts of accrued interest related to unrecognized tax positions is as follows:

(Dollars in millions)	2019	2018	2017
Balance at January 1	\$ 10	\$ 6	\$ 4
Expense for interest, net of tax	5	4	3
Income for interest, net of tax	(2)	—	(1)
Balance at December 31	\$ 13	\$ 10	\$ 6

Accrued penalties related to unrecognized tax positions were immaterial as of December 31, 2019, 2018, and 2017.

Eastman files income tax returns in the U.S. 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 \$28 million.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

8. BORROWINGS

(Dollars in millions)	December 31,	
	2019	2018
Borrowings consisted of:		
2.7% notes due January 2020	\$ —	\$ 250
4.5% notes due January 2021	185	185
3.5% notes due December 2021	298	297
3.6% notes due August 2022	741	739
1.50% notes due May 2023 ⁽¹⁾	840	855
7 1/4% debentures due January 2024	198	197
7 5/8% debentures due June 2024	43	43
3.8% notes due March 2025	695	691
1.875% notes due November 2026 ⁽¹⁾	556	566
7.60% debentures due February 2027	195	195
4.5% notes due December 2028	493	492
4.8% notes due September 2042	493	493
4.65% notes due October 2044	874	872
Commercial paper and short-term borrowings	171	243
Credit facilities borrowings	—	50
Total borrowings	5,782	6,168
Borrowings due within one year	171	243
Long-term borrowings	\$ 5,611	\$ 5,925

⁽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 2019, the Company repaid the 2.7% notes due January 2020 (\$250 million principal) using available cash. There were no material debt extinguishment costs associated with the early repayment of this debt. The total consideration for this redemption is reported under financing activities on the Consolidated Statements of Cash Flows.

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 was \$806 million (\$800 million total principal and \$6 million for the early redemption premiums) and is 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.

Revolving Credit Facilities and Commercial Paper Borrowings

The Company has access to a \$1.50 billion revolving credit agreement (the "Credit Facility") expiring 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, 2019 and 2018, the Company had no outstanding borrowings under the Credit Facility. At December 31, 2019, commercial paper borrowings were \$170 million with a weighted average interest rate of 2.03 percent. At December 31, 2018, the Company's commercial paper borrowings were \$130 million with a weighted average interest rate of 2.91 percent.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

The Company has access to up to \$250 million under an 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, 2019, the Company had no borrowings under the A/R Facility. At December 31, 2018, the Company's borrowings under the A/R Facility were \$50 million with an interest rate of 3.39 percent.

Through September 2019, the Company had access to borrowings of up to €150 million (\$163 million) under a receivables facility based on the discounted value of selected customer accounts receivable. These arrangements included receivables in the United States, Belgium, and Finland, and were subject to various eligibility requirements. Borrowings under this facility were subject to interest at an agreed spread above LIBOR and EURIBOR plus administration and insurance fees and were classified as short-term. In October 2019, this receivables facility was terminated and the balance was repaid using available A/R Facility borrowings. At December 31, 2018, the Company's amount of outstanding borrowings under this facility were \$112 million with a weighted average interest rate of 1.70 percent.

The Credit Facility and A/R Facility contain customary covenants, including requirements to maintain certain financial ratios, that determine the events of default, amounts available, and terms of borrowings. The Company was in compliance with all covenants at both December 31, 2019 and December 31, 2018.

Fair Value of Borrowings

Eastman has classified its total borrowings at December 31, 2019 and 2018 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 commercial paper and receivables facility equals the carrying value and is classified as Level 2. At December 31, 2019 and 2018, the fair value of total borrowings was \$6.275 billion and \$6.216 billion, respectively. The Company had no borrowings classified as Level 1 or Level 3 as of December 31, 2019 and 2018.

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. Cash flows from cash flow hedges are classified as operating activities in the Consolidated Statements of Cash Flows.

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. Cash flows from fair value hedges are classified as operating activities in the Consolidated Statements of Cash Flows.

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. In the event of a complete or substantially complete liquidation of the net investment, cash flows from net investment hedges are classified as investing activities in the Consolidated Statements of Cash Flows.

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. Cash flows from excluded components are classified as operating activities in the Consolidated Statements of Cash Flows.

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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Summary of Financial Position and Financial Performance of Hedging Instruments

The following table presents the notional amounts outstanding at December 31, 2019 and 2018 associated with Eastman's hedging programs.

<i>Notional Outstanding</i>	December 31, 2019	December 31, 2018
Derivatives designated as cash flow hedges:		
Foreign Exchange Forward and Option Contracts (in millions)		
EUR/USD (in EUR)	€630	€263
Commodity Forward and Collar Contracts		
Feedstock (in million barrels)	1	5
Energy (in million british thermal units)	27	40
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	€851
Non-derivatives designated as net investment hedges:		
Foreign Currency Net Investment Hedges (in millions)		
EUR/USD (in EUR)	€1,243	€1,241

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, 2019 or 2018.

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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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, 2019 and 2018.

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, 2019 Level 2	December 31, 2018 Level 2
Derivatives designated as cash flow hedges:			
Commodity contracts	Other current assets	\$ —	\$ 4
Foreign exchange contracts	Other current assets	13	15
Foreign exchange contracts	Other noncurrent assets	2	4
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	68	26
Total Derivative Assets		\$ 84	\$ 50
Derivatives designated as cash flow hedges:			
Commodity contracts	Payables and other current liabilities	\$ 26	\$ 24
Commodity contracts	Other long-term liabilities	2	5
Foreign exchange contracts	Payables and other current liabilities	1	—
Foreign exchange contracts	Other long-term liabilities	2	—
Derivatives designated as fair value hedges:			
Fixed-for-floating interest rate swap	Long-term borrowings	1	4
Total Derivative Liabilities		\$ 32	\$ 33
Total Net Derivative Assets (Liabilities)		\$ 52	\$ 17

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 associated with non-derivative instruments designated as foreign currency net investment hedges as of both December 31, 2019 and 2018. The designated foreign currency-denominated borrowings are included as part of "Long-term borrowings" within the Consolidated Statements of Financial Position.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

As of December 31, 2019 and 2018, the following amounts were included within the Consolidated Statements of Financial Position related to cumulative basis adjustments for fair value hedges.

(Dollars in millions) Line item in the Consolidated Statements of Financial Position in which the hedged item is included	Carrying amount of the hedged liabilities		Cumulative amount of fair value hedging loss adjustment included in the carrying amount of the hedged liability	
	December 31, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Long-term borrowings ⁽¹⁾	\$ 763	\$ 759	\$ (7)	\$ (12)

⁽¹⁾ At both December 31, 2019 and 2018, the cumulative amount of fair value hedging loss adjustment remaining for hedged liabilities for which hedge accounting has been discontinued was \$7 million.

The following table presents the effect of the Company's hedging instruments on Other comprehensive income (loss), net of tax ("OCI") and financial performance for the twelve months ended December 31, 2019 and 2018:

(Dollars in millions) Hedging Relationships	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, 2019	December 31, 2018	December 31, 2019	December 31, 2018
Derivatives in cash flow hedging relationships:				
Commodity contracts	\$ (2)	\$ —	\$ (40)	\$ (3)
Foreign exchange contracts	(5)	3	26	29
Forward starting interest rate and treasury lock swap contracts	4	4	(6)	(5)
Non-derivatives in net investment hedging relationships (pre-tax):				
Net investment hedges	26	67	—	—
Derivatives in net investment hedging relationships (pre-tax):				
Cross-currency interest rate swaps	19	26	—	—
Cross-currency interest rate swaps excluded component	23	—	—	—

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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 2019 and 2018.

Location and Amount of Gain or (Loss) Recognized in Earnings on Fair Value and Cash Flow Hedging Relationships						
	Twelve Months					
	2019			2018		
	Sales	Cost of Sales	Net interest expense	Sales	Cost of Sales	Net interest expense
(Dollars in millions)						
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	\$ 9,273	\$ 7,039	\$ 218	\$ 10,151	\$ 7,672	\$ 235
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			1			—
Derivatives designated as hedging instruments			(1)			—
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			(6)			(5)
Commodity Contracts:						
Amount reclassified from AOCI into earnings		(40)			(3)	
Foreign Exchange Contracts:						
Amount reclassified from AOCI into earnings	26			29		

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 \$2 million and net loss of \$13 million during 2019 and 2018, 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 \$50 million at December 31, 2019 and losses of \$112 million at December 31, 2018. Losses in AOCI decreased in 2019 compared to 2018 primarily as a result of a decrease in foreign currency exchange rates, particularly the euro. If realized, approximately \$24 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 2020 to the EIP/ESOP for substantially all U.S. employees equal to 5 percent of their eligible compensation for the 2019 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 2,076,203; 2,119,614; and 2,130,176 shares as of December 31, 2019, 2018, and 2017, 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 ("EPS").

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 \$68 million, \$67 million, and \$64 million for 2019, 2018, and 2017, 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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Below is a summary balance sheet of the change in plan assets during 2019 and 2018, the funded status of the plans and amounts recognized in the Consolidated Statements of Financial Position.

Summary of Changes

	Pension Plans				Postretirement Benefit Plans	
	2019		2018		2019	2018
	U.S.	Non-U.S.	U.S.	Non-U.S.		
(Dollars in millions)						
Change in projected benefit obligation:						
Benefit obligation, beginning of year	\$ 1,959	\$ 840	\$ 2,154	\$ 893	\$ 672	\$ 738
Service cost	27	14	35	14	—	—
Interest cost	76	20	67	20	25	22
Actuarial (gain) loss	200	113	(119)	(20)	71	(33)
Plan participants' contributions	—	1	—	1	10	11
Effect of currency exchange	—	11	—	(45)	1	(1)
Benefits paid	(195)	(27)	(178)	(23)	(63)	(65)
Benefit obligation, end of year	<u>\$ 2,067</u>	<u>\$ 972</u>	<u>\$ 1,959</u>	<u>\$ 840</u>	<u>\$ 716</u>	<u>\$ 672</u>
Change in plan assets:						
Fair value of plan assets, beginning of year	\$ 1,820	\$ 713	\$ 2,054	\$ 773	\$ 135	\$ 148
Actual return on plan assets	289	102	(61)	(19)	27	(6)
Effect of currency exchange	—	9	—	(39)	—	—
Company contributions	5	22	5	20	42	43
Reserve for third party contributions	—	—	—	—	(12)	4
Plan participants' contributions	—	1	—	1	10	11
Benefits paid	(195)	(27)	(178)	(23)	(63)	(65)
Fair value of plan assets, end of year	<u>\$ 1,919</u>	<u>\$ 820</u>	<u>\$ 1,820</u>	<u>\$ 713</u>	<u>\$ 139</u>	<u>\$ 135</u>
Funded status at end of year	<u>\$ (148)</u>	<u>\$ (152)</u>	<u>\$ (139)</u>	<u>\$ (127)</u>	<u>\$ (577)</u>	<u>\$ (537)</u>
Amounts recognized in the Consolidated Statements of Financial Position consist of:						
Other noncurrent assets	\$ 13	\$ —	\$ 2	\$ —	\$ 50	\$ 41
Current liabilities	(3)	(1)	(4)	(1)	(47)	(45)
Post-employment obligations	(158)	(151)	(137)	(126)	(580)	(533)
Net amount recognized, end of year	<u>\$ (148)</u>	<u>\$ (152)</u>	<u>\$ (139)</u>	<u>\$ (127)</u>	<u>\$ (577)</u>	<u>\$ (537)</u>
Accumulated benefit obligation	<u>\$ 2,005</u>	<u>\$ 919</u>	<u>\$ 1,900</u>	<u>\$ 796</u>		
Amounts recognized in accumulated other comprehensive income consist of:						
Prior service (credit) cost	<u>\$ 2</u>	<u>\$ —</u>	<u>\$ 2</u>	<u>\$ —</u>	<u>\$ (143)</u>	<u>\$ (182)</u>

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

	2019		2018	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Projected benefit obligation	\$ 1,673	\$ 972	\$ 1,726	\$ 840
Fair value of plan assets	1,512	820	1,585	713

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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

	2019		2018	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Projected benefit obligation	\$ 1,673	\$ 651	\$ 1,726	\$ 568
Accumulated benefit obligation	1,611	625	1,667	547
Fair value of plan assets	1,512	513	1,585	448

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

	Pension Plans						Postretirement Benefit Plans		
	2019		2018		2017		2019	2018	2017
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.			
(Dollars in millions)									
Components of net periodic benefit (credit) cost:									
Service cost	\$ 27	\$ 14	\$ 35	\$ 14	\$ 37	\$ 13	\$ —	\$ —	\$ 3
Interest cost	76	20	67	20	66	20	25	22	23
Expected return on plan assets	(128)	(32)	(147)	(37)	(140)	(35)	(5)	(5)	(5)
Amortization of:									
Prior service (credit) cost	—	—	(1)	1	(4)	1	(39)	(40)	(40)
Mark-to-market pension and other postretirement benefits (gain) loss, net	39	43	89	36	(37)	(7)	61	(26)	23
Net periodic benefit (credit) cost	<u>\$ 14</u>	<u>\$ 45</u>	<u>\$ 43</u>	<u>\$ 34</u>	<u>\$ (78)</u>	<u>\$ (8)</u>	<u>\$ 42</u>	<u>\$ (49)</u>	<u>\$ 4</u>
Other changes in plan assets and benefit obligations recognized in other comprehensive income:									
Amortization of:									
Prior service (credit) cost	\$ —	\$ —	\$ (1)	\$ 1	\$ (4)	\$ 1	\$ (39)	\$ (40)	\$ (40)
Total	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (1)</u>	<u>\$ 1</u>	<u>\$ (4)</u>	<u>\$ 1</u>	<u>\$ (39)</u>	<u>\$ (40)</u>	<u>\$ (40)</u>

The estimated prior service credit for the other postretirement benefit plans that will be amortized from AOCI into net periodic cost in 2020 is \$38 million.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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		
	2019		2018		2017		2019	2018	2017
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.			
Weighted-average assumptions used to determine benefit obligations for years ended December 31:									
Discount rate	3.25%	1.56%	4.29%	2.35%	3.57%	2.25%	3.21%	4.26%	3.54%
Rate of compensation increase	3.25%	2.94%	3.25%	2.94%	3.25%	2.95%	3.25%	3.25%	3.25%
Health care cost trend									
Initial							6.50%	6.50%	6.75%
Decreasing to ultimate trend of							5.00%	5.00%	5.00%
in year							2026	2025	2025
Weighted-average assumptions used to determine net periodic cost for years ended December 31:									
Discount rate	4.29%	2.35%	3.57%	2.25%	3.89%	2.33%	4.26%	3.54%	3.91%
Discount rate for service cost	4.32%	2.35%	3.64%	2.25%	3.89%	2.33%	4.05%	3.28%	4.31%
Discount rate for interest cost	3.96%	2.35%	3.18%	2.25%	3.24%	2.33%	3.93%	3.14%	3.28%
Expected return on assets	7.43%	4.49%	7.48%	4.83%	7.49%	5.02%	3.75%	3.75%	3.75%
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

The Company calculates service and interest cost components of net periodic benefit costs for its significant defined benefit pension and other postretirement benefit plans by applying the specific spot rates along the yield curve to the plans' projected cash flows.

A 6.50 percent rate of increase in per capita cost of covered health care benefits is assumed for 2020. The rate is assumed to decrease gradually to five percent in 2026 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 2019 service and interest costs or the 2019 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, 2019 and 2018 was \$1.9 billion and \$1.8 billion, respectively, while the fair value of plan assets at December 31, 2019 and 2018 for non-U.S. pension plans was \$820 million and \$713 million, respectively. At December 31, 2019 and 2018, the expected weighted-average long-term rate of return on U.S. pension plan assets was 7.37 percent and 7.43 percent, respectively. The expected weighted-average long-term rate of return on non-U.S. pension plans assets was 4.26 percent and 4.49 percent at December 31, 2019 and 2018, respectively.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Plan Assets

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

(Dollars in millions)

Description	Total Fair Value		Fair Value Measurements at December 31, 2019					
			Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Significant Unobservable Inputs (Level 3)	
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
Pension Assets:								
Cash & Cash Equivalents ⁽¹⁾	\$ 35	\$ 72	\$ 35	\$ 72	\$ —	\$ —	\$ —	\$ —
Public Equity - United States ⁽²⁾	1	—	1	—	—	—	—	—
Other Investments ⁽³⁾	—	57	—	—	—	—	—	57
Total Assets at Fair Value	\$ 36	\$ 129	\$ 36	\$ 72	\$ —	\$ —	\$ —	\$ 57
Investments Measured at Net Asset Value ⁽⁴⁾	1,883	691						
Total Assets	<u>\$ 1,919</u>	<u>\$ 820</u>						

(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)	
	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.	U.S.	Non-U.S.
Pension Assets:								
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	<u>\$ 1,820</u>	<u>\$ 713</u>						

- (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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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)

		Fair Value Measurements at December 31, 2019		
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)
Postretirement Benefit Plan Assets:				
Debt ⁽¹⁾ :				
Fixed Income (U.S.)	\$ 85	\$ —	\$ 85	\$ —
Fixed Income (Non-U.S.)	26	—	26	—
Total	\$ 111	\$ —	\$ 111	\$ —

(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)
Postretirement Benefit Plan Assets:				
Cash & Cash Equivalents ⁽²⁾	\$ 3	\$ 3	\$ —	\$ —
Debt ⁽¹⁾ :				
Fixed Income (U.S.)	78	—	78	—
Fixed Income (Non-U.S.)	26	—	26	—
Total	\$ 107	\$ 3	\$ 104	\$ —

- ⁽¹⁾ 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.

- ⁽²⁾ Cash & Cash Equivalents: Funds generally invested in actively managed collective trust funds or interest bearing accounts.

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.

		Fair Value Measurements Using Significant Unobservable Inputs (Level 3)
		Other Investments⁽¹⁾
		Non-U.S. Pension Plans
(Dollars in millions)		
Balance at December 31, 2017	\$	51
Unrealized gains		—
Balance at December 31, 2018		51
Unrealized gains		5
Purchases, issuances, sales, and settlements		1
Balance at December 31, 2019	\$	57

- ⁽¹⁾ Primarily consists of insurance contracts.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

The following table reflects the target allocation for the Company's U.S. and non-U.S. pension and postretirement benefit plans assets for 2020 and the asset allocation at December 31, 2019 and 2018, by asset category.

Asset category	U.S. Pension Plans			Non-U.S. Pension Plans			Postretirement Benefit Plan		
	2020 Target Allocation	Plan Assets at December 31, 2019	Plan Assets at December 31, 2018	2020 Target Allocation	Plan Assets at December 31, 2019	Plan Assets at December 31, 2018	2020 Target Allocation	Plan Assets at December 31, 2019	Plan Assets at December 31, 2018
Equity securities	44%	50%	43%	24%	21%	19%	—%	—%	—%
Debt securities	39%	37%	44%	57%	53%	54%	100%	100%	100%
Real estate	2%	2%	2%	5%	8%	8%	—%	—%	—%
Other investments ⁽¹⁾	15%	11%	11%	14%	18%	19%	—%	—%	—%
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 2019 or 2018. For 2020 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:

(Dollars in millions)	Pension Plans		Postretirement Benefit Plans
	U.S.	Non-U.S.	
2020	\$ 197	\$ 31	\$ 57
2021	161	30	57
2022	156	31	53
2023	151	34	47
2024	151	38	47
2025-2029	686	210	223

11. LEASES AND OTHER COMMITMENTS

Leases

On January 1, 2019, Eastman adopted *ASU 2016-02 Leases* and related releases under the modified retrospective optional transition method such that prior period financial statements have not been adjusted to reflect the impact of the new standard. The new standard establishes two types of leases: finance and operating. Both types of leases have associated right-to-use assets and lease liabilities that have been valued at the present value of the lease payments and recognized on the Consolidated Statements of Financial Position which did not result in an impact to retained earnings. The discount rate used in the measurement of a right-to-use asset and lease liability is the rate implicit in the lease whenever that rate is readily determinable. If the rate implicit in the lease is not readily determinable, the collateralized incremental borrowing rate is used.

Upon adoption, the Company elected the practical expedient package wherein: expired or existing contracts were not reassessed as to whether these contracts are or contained a lease; expired or existing contracts were not reassessed for operating or financing classification; and initial direct costs for existing leases were not reassessed. The Company also elected the practical expedient not to assess whether existing or expired land easements that were not previously accounted for under the prior standard are or contain a lease. Lastly, the Company elected the accounting policy not to apply the recognition and measurement requirements to short-term leases with a term of 12 months or less that do not include a bargain purchase option.

The Company has operating leases, as a lessee, with customary terms that do not include: significant variable lease payments; significant reasonably certain extensions or options required to be included in the lease term; restrictions; or other covenants for real property, rolling stock, and machinery and equipment. Real property leases primarily consist of office space and rolling stock leases primarily for railcars and fleet vehicles. At December 31, 2019, operating right-to-use assets of \$197 million are included as a part of "Other noncurrent assets" in the Consolidated Statements of Financial Position and includes \$8 million of assets previously classified as lease intangibles. Operating lease liabilities are included as a part of "Payables and other current liabilities" and "Other long-term liabilities" in the Consolidated Statements of Financial Position.

As of December 31, 2019, maturities of operating lease liabilities is provided below:

(Dollars in millions)	Operating lease liabilities
2020	\$ 62
2021	49
2022	38
2023	25
2024	14
2025 and beyond	30
Total lease payments	218
Less: amounts of lease payments representing interest	22
Present value of future lease payments	196
Less: current obligations under leases	55
Long-term lease obligations	\$ 141

There have been no material changes to the future minimum lease payments as of December 31, 2018 as accounted for under the previous lease standard.

The Company has operating leases, primarily leases for railcars, with terms that require the Company to guarantee a portion of the residual value of the leased assets upon termination of the lease that will expire beginning in first quarter 2020. 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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Lease costs during the period and other information is provided below:

	For year ended December 31, 2019
(Dollars in millions)	
Lease costs:	
Operating lease costs	\$ 70
Short-term lease costs	40
Sublease income	(2)
Total	<u>\$ 108</u>
Other operating lease information:	
Cash paid for amounts included in the measurement of lease liabilities	\$ 72
Right-to-use assets obtained in exchange for new lease liabilities	54
Weighted-average remaining lease term, in years	5
Weighted-average discount rate	4.0%

Debt and Other Commitments

Eastman's obligations are summarized in the following table.

	Payments Due for						
(Dollars in millions)							
Period	Debt Securities	Credit Facilities and Other	Interest Payable	Purchase Obligations	Operating Leases	Other Liabilities	Total
2020	\$ —	\$ 171	\$ 173	\$ 181	\$ 62	\$ 241	\$ 828
2021	483	—	186	156	49	81	955
2022	741	—	175	102	38	87	1,143
2023	840	—	156	91	25	87	1,199
2024	240	—	137	100	14	89	580
2025 and beyond	3,307	—	1,414	1,967	30	1,106	7,824
Total	<u>\$ 5,611</u>	<u>\$ 171</u>	<u>\$ 2,241</u>	<u>\$ 2,597</u>	<u>\$ 218</u>	<u>\$ 1,691</u>	<u>\$ 12,529</u>

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, 2019 totaling approximately \$2.6 billion over a period of approximately 30 years for materials, supplies, and energy incident to the ordinary conduct of business.

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, 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 "2025 and beyond" line item.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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.

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". The resolution of uncertainties related to environmental matters 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 the extended period of time that the obligations are expected to be satisfied, management does not believe that the Company's liability for these environmental matters, individually or in the aggregate, will have a material adverse effect on the Company's future liquidity or financial condition. The Company's total reserve for environmental loss contingencies was \$287 million and \$296 million at December 31, 2019 and December 31, 2018, 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,	
	2019	2018
Environmental contingent liabilities, current	\$ 20	\$ 25
Environmental contingent liabilities, long-term	267	271
Total	<u>\$ 287</u>	<u>\$ 296</u>

Environmental Remediation

Estimated future environmental expenditures for undiscounted remediation costs ranged from the best estimate or minimum of \$260 million to the maximum of \$487 million and from the best estimate or minimum of \$271 million to the maximum of \$508 million at December 31, 2019 and December 31, 2018, respectively. The best estimate or minimum estimated future environmental expenditures are considered to be probable and reasonably estimable and include the amounts recognized at both December 31, 2019 and December 31, 2018.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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, \$99 million had been paid for costs at the Shared Sites as of December 31, 2019. As of December 31, 2019, an additional \$197 million has been recognized 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 2019 are summarized below:

	Environmental Remediation Liabilities
(Dollars in millions)	
Balance at December 31, 2017	\$ 280
Changes in estimates recognized in earnings and other	7
Cash reductions	(16)
Balance at December 31, 2018	271
Changes in estimates recognized in earnings and other	4
Cash reductions	(15)
Balance at December 31, 2019	<u>\$ 260</u>

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 \$27 million and \$25 million at December 31, 2019 and December 31, 2018, 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 \$244 million, \$274 million, and \$257 million in 2019, 2018, and 2017, 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 \$27 million, \$44 million, and \$38 million in 2019, 2018, and 2017, 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 \$48 million and \$46 million at December 31, 2019 and December 31, 2018, respectively, and are 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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

14. STOCKHOLDERS' EQUITY

A reconciliation of the changes in stockholders' equity for 2019, 2018, and 2017 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, 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
Cumulative Effect of Adoption of New Accounting Standards ⁽⁵⁾	—	—	(20)	20	—	—	—	—
Net Earnings	—	—	759	—	—	759	3	762
Cash Dividends ⁽¹⁾	—	—	(347)	—	—	(347)	—	(347)
Other Comprehensive Income	—	—	—	11	—	11	—	11
Share-Based Compensation Expense ⁽²⁾	—	59	—	—	—	59	—	59
Stock Option Exercises	—	9	—	—	—	9	—	9
Other ⁽⁴⁾	—	(11)	—	—	—	(11)	—	(11)
Share Repurchase	—	—	—	—	(325)	(325)	—	(325)
Distributions to noncontrolling interest	—	—	—	—	—	—	(4)	(4)
Balance at December 31, 2019	\$ 2	\$ 2,105	\$ 7,965	\$ (214)	\$ (3,900)	\$ 5,958	\$ 74	\$ 6,032

⁽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 and derivatives and hedging, which resulted in increases to beginning retained earnings of \$53 million and \$2 million, respectively. The Company also adopted a new accounting standard for income taxes, which resulted in a decrease to beginning retained earnings of \$39 million.

⁽⁴⁾ Additional paid-in capital includes value of shares withheld for employees' taxes on vesting of share-based compensation awards.

⁽⁵⁾ On January 1, 2019, the Company adopted a new accounting standard for reporting comprehensive income, which resulted in a reclassification of stranded tax effects from the Tax Reform Act from AOCI to retained earnings. See Note 1, "Significant Accounting Policies", for additional information.

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 \$2.52 in 2019, \$2.30 in 2018, and \$2.09 in 2017.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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 EPS because the conditions upon which the warrant becomes exercisable have not been met.

The additions to paid-in capital in 2019, 2018, and 2017 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 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 \$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 interest of the Company. As of December 31, 2019, a total of 6,753,164 shares have been repurchased under this authorization for a total of \$573 million. During 2019, the Company repurchased 4,282,409 shares of common stock for a cost of approximately \$325 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.

The Company's charitable foundation held 50,798 issued and outstanding shares of the Company's common stock at December 31, 2019, 2018, and 2017 which are included in treasury stock in the Consolidated Statements of Financial Position and excluded from calculations of diluted EPS.

The following table sets forth the computation of basic and diluted EPS:

	For years ended December 31,		
	2019	2018	2017
(In millions, except per share amounts)			
Numerator			
Net earnings attributable to Eastman	\$ 759	\$ 1,080	\$ 1,384
Denominator			
Weighted average shares used for basic EPS	137.4	141.2	144.8
Dilutive effect of stock options and other award plans	1.1	1.7	1.3
Weighted average shares used for diluted EPS	138.5	142.9	146.1
EPS ⁽¹⁾			
Basic	\$ 5.52	\$ 7.65	\$ 9.56
Diluted	\$ 5.48	\$ 7.56	\$ 9.47

⁽¹⁾ EPS is calculated using whole dollars and shares.

Shares underlying stock options excluded from the 2019, 2018, and 2017 calculations of diluted EPS were 2,183,875, 619,706, and 204,978, respectively, because the grant price of these options was greater than the average market price of the Company's common stock and the effect of including them in the calculation of diluted EPS would have been antidilutive.

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

	For years ended December 31,		
	2019	2018	2017
Balance at beginning of year	219,140,523	218,369,992	217,707,600
Issued for employee compensation and benefit plans	498,123	770,531	662,392
Balance at end of year	219,638,646	219,140,523	218,369,992

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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, 2017	\$ (296)	\$ 136	\$ (48)	\$ (1)	\$ (209)
Period change	(13)	(30)	7	—	(36)
Balance at December 31, 2018	(309)	106	(41)	(1)	(245)
Period change ⁽¹⁾	45	—	(14)	—	31
Balance at December 31, 2019	\$ (264)	\$ 106	\$ (55)	\$ (1)	\$ (214)

⁽¹⁾ Benefit plans unrecognized prior service credits includes \$29 million reclassification of stranded tax expense from AOCI to retained earnings and unrealized gains (losses) on derivative instruments includes \$9 million reclassification of stranded tax benefit from AOCI to retained earnings. See Note 1, "Significant Accounting Policies", for additional information.

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 recognized 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:

(Dollars in millions)	For years ended December 31,					
	2019		2018		2017	
	Before Tax	Net of Tax	Before Tax	Net of Tax	Before Tax	Net of Tax
Change in cumulative translation adjustment	\$ 45	\$ 45	\$ (13)	\$ (13)	\$ 85	\$ 85
Defined benefit pension and other postretirement benefit plans:						
Amortization of unrecognized prior service credits included in net periodic costs	(39)	(29)	(40)	(30)	(43)	(27)
Derivatives and hedging:						
Unrealized gain (loss) during period	(27)	(20)	30	22	11	7
Reclassification adjustment for (gains) losses included in net income, net	20	15	(20)	(15)	11	7
Total other comprehensive income (loss)	\$ (1)	\$ 11	\$ (43)	\$ (36)	\$ 64	\$ 72

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".

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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,		
	2019	2018	2017
Asset impairments	\$ 27	\$ —	\$ 1
Intangible asset and goodwill impairments	45	39	—
Severance charges	45	6	6
Site closure and restructuring charges	9	—	1
Total	<u>\$ 126</u>	<u>\$ 45</u>	<u>\$ 8</u>

2019

In December 2019, management approved a plan to discontinue production of certain products at the Singapore manufacturing site by the end of 2020 resulting in an asset impairment charge of \$27 million impacting the AFP and CI segments. As a result of the annual impairment test of goodwill, the Company recognized a \$45 million goodwill impairment in the crop protection reporting unit (part of the AFP segment). Additionally, in 2019, as part of business improvement and cost reduction initiatives, the Company recognized restructuring charges of \$45 million for severance and \$5 million for related costs. Also included was an additional \$4 million restructuring charge related to a capital project in the AFP segment that was discontinued in 2016.

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.

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

(Dollars in millions)	Balance at January 1, 2019	Provision/ Adjustments	Non-cash Reductions/ Additions	Cash Reductions	Balance at December 31, 2019
Non-cash charges	\$ —	\$ 72	\$ (72)	\$ —	\$ —
Severance costs	6	45	—	(34)	17
Site closure & restructuring costs	8	9	1	(7)	11
Total	<u>\$ 14</u>	<u>\$ 126</u>	<u>\$ (71)</u>	<u>\$ (41)</u>	<u>\$ 28</u>

(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	<u>\$ 29</u>	<u>\$ 45</u>	<u>\$ (38)</u>	<u>\$ (22)</u>	<u>\$ 14</u>

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

(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	<u>\$ 55</u>	<u>\$ 8</u>	<u>\$ —</u>	<u>\$ (34)</u>	<u>\$ 29</u>

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

16. OTHER (INCOME) CHARGES, NET

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Foreign exchange transaction losses (gains), net ⁽¹⁾	\$ 9	\$ 12	\$ 5
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	(10)	(17)	(12)
Coal gasification incident property insurance	—	(65)	—
Cost of disposition of claims against discontinued Solutia operations	—	—	9
Gain from sale of business ⁽²⁾	—	—	(3)
Other, net	4	4	5
Other (income) charges, net	<u>\$ 3</u>	<u>\$ (53)</u>	<u>\$ 4</u>

⁽¹⁾ Net impact of revaluation of foreign entity assets and liabilities and effects of foreign exchange non-qualifying derivatives.

⁽²⁾ Gain resulting from the sale of the formulated electronic cleaning solution business in the AFP segment in 2017.

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 2019, 2018, and 2017, total share-based compensation expense (before tax) of approximately \$59 million, \$64 million, and \$52 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, \$9 million, and \$8 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 both 2019 and 2018 and \$2 million for 2017 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 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 2019, 2018, and 2017 are provided in the table below:

Assumptions	2019	2018	2017
Expected volatility rate	19.80%	19.03%	20.45%
Expected dividend yield	2.51%	2.48%	2.64%
Average risk-free interest rate	2.44%	2.61%	1.91%
Expected term years	5.7	5.1	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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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 2019, 2018, and 2017 is presented below:

	2019		2018		2017	
	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price
Outstanding at beginning of year	2,905,600	\$ 79	2,614,100	\$ 70	2,363,700	\$ 61
Granted	786,000	81	619,700	104	745,800	80
Exercised	(135,700)	67	(323,000)	55	(489,300)	44
Cancelled, forfeited, or expired	(76,600)	88	(5,200)	78	(6,100)	74
Outstanding at end of year	<u>3,479,300</u>	\$ 80	<u>2,905,600</u>	\$ 79	<u>2,614,100</u>	\$ 70
Options exercisable at year-end	<u>2,077,600</u>		<u>1,606,800</u>		<u>1,335,500</u>	
Available for grant at end of year	<u>6,085,857</u>		<u>8,174,614</u>		<u>9,943,033</u>	

The following table provides the remaining contractual term and weighted average exercise prices of stock options outstanding and exercisable at December 31, 2019:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding at December 31, 2019	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Number Exercisable at December 31, 2019	Weighted-Average Exercise Price
\$38-\$50	176,700	1.5	\$ 39	176,700	\$ 39
\$51-\$73	720,500	5.9	67	625,100	66
\$74-\$89	1,985,100	7.1	81	1,076,800	79
\$90-\$104	597,000	8.2	104	199,000	104
	<u>3,479,300</u>	6.8	\$ 80	<u>2,077,600</u>	\$ 74

The range of exercise prices of options outstanding at December 31, 2019 is approximately \$38 to \$104 per share. The aggregate intrinsic value of total options outstanding and total options exercisable at December 31, 2019 is \$18 million and \$17 million, respectively. Intrinsic value is the amount by which the closing market price of the stock at December 31, 2019 exceeds the exercise price of the option grants.

The weighted average remaining contractual life of all exercisable options at December 31, 2019 is 5.5 years.

The weighted average fair value of options granted during 2019, 2018, and 2017 was \$13.12, \$15.90, and \$11.79, respectively. The total intrinsic value of options exercised during the years ended December 31, 2019, 2018, and 2017, was \$2 million, \$15 million, and \$19 million, respectively. Cash proceeds received by the Company from option exercises totaled \$9 million and the related tax benefit was de minimis for 2019. Cash proceeds received by the Company from option exercises and the related tax benefit totaled \$18 million and \$3 million, respectively, for 2018 and \$22 million and \$5 million, respectively, for 2017. The total fair value of shares vested during the years ended December 31, 2019, 2018, and 2017 was \$8 million, \$7 million, and \$6 million, respectively.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

A summary of the changes in the Company's nonvested options during the year ended December 31, 2019 is presented below:

Nonvested Options	Number of Options	Weighted-Average Grant Date Fair Value
Nonvested at January 1, 2019	1,298,800	\$13.63
Granted	786,000	\$13.12
Vested	(608,200)	\$12.89
Cancelled, forfeited, or expired	(74,900)	\$13.43
Nonvested options at December 31, 2019	1,401,700	\$13.68

For nonvested options at December 31, 2019, approximately \$5 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 2019-2021, 2018-2020, and 2017-2019 periods were 412 thousand, 310 thousand, and 357 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 2019, 2018, and 2017 were 189 thousand, 160 thousand, and 172 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, 2019, 2018, and 2017 was approximately \$50 million, \$55 million, and \$44 million, respectively. The unrecognized compensation expense before tax for these same type awards at December 31, 2019 was approximately \$55 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:

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Current assets	\$ (5)	\$ (47)	\$ 13
Other assets	15	43	29
Current liabilities	(82)	(38)	59
Long-term liabilities and equity	(17)	87	43
Total	\$ (89)	\$ 45	\$ 144

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.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

Cash paid for interest and income taxes is as follows:

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Interest, net of amounts capitalized	\$ 235	\$ 239	\$ 263
Income taxes	217	202	97
Non-cash investing and financing activities:			
Outstanding trade payables related to capital expenditures	22	18	27
(Gain) loss from equity investments	(10)	(17)	(14)

19. SEGMENT AND REGIONAL SALES 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.

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.

Product Lines	Percentage of Total Segment Sales		
	2019	2018	2017
Coatings and Inks Additives	24%	23%	23%
Adhesives Resins	15%	16%	18%
Tire Additives	16%	17%	17%
Care Chemicals	18%	17%	17%
Specialty Fluids	14%	13%	13%
Animal Nutrition and Crop Protection	13%	14%	12%
Total	100%	100%	100%

Sales by Customer Location	Percentage of Total Segment Sales		
	2019	2018	2017
United States and Canada	37%	36%	35%
Asia Pacific	24%	24%	23%
Europe, Middle East, and Africa	33%	34%	36%
Latin America	6%	6%	6%
Total	100%	100%	100%

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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.

Product Lines	Percentage of Total Segment Sales		
	2019	2018	2017
Specialty Plastics	49%	49%	51%
Advanced Interlayers	32%	33%	33%
Performance Films	19%	18%	16%
Total	100%	100%	100%

Sales by Customer Location	Percentage of Total Segment Sales		
	2019	2018	2017
United States and Canada	34%	35%	36%
Asia Pacific	32%	33%	33%
Europe, Middle East, and Africa	28%	27%	26%
Latin America	6%	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.

Product Lines	Percentage of Total Segment Sales		
	2019	2018	2017
Intermediates	59%	60%	64%
Plasticizers	21%	20%	19%
Functional Amines	20%	20%	17%
Total	100%	100%	100%

Sales by Customer Location	Percentage of Total Segment Sales		
	2019	2018	2017
United States and Canada	64%	64%	68%
Asia Pacific	14%	15%	14%
Europe, Middle East, and Africa	15%	15%	12%
Latin America	7%	6%	6%
Total	100%	100%	100%

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

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".

Product Lines	Percentage of Total Segment Sales		
	2019	2018	2017
Acetate Tow	68%	69%	77%
Acetyl Chemical Products	15%	15%	15%
Acetate Yarn	12%	10%	8%
Nonwovens	5%	6%	—%
Total	100%	100%	100%

Sales by Customer Location	Percentage of Total Segment Sales		
	2019	2018	2017
United States and Canada	25%	26%	22%
Asia Pacific	32%	33%	37%
Europe, Middle East, and Africa	39%	37%	37%
Latin America	4%	4%	4%
Total	100%	100%	100%

Other

Sales revenue in the table below for "Other" in 2017 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 segment due to accelerating commercial progress of growth initiatives.

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Sales by Segment			
Additives & Functional Products	\$ 3,273	\$ 3,647	\$ 3,343
Advanced Materials	2,688	2,755	2,572
Chemical Intermediates	2,443	2,831	2,728
Fibers	869	918	852
Total Sales by Operating Segment	9,273	10,151	9,495
Other	—	—	54
Total Sales	<u>\$ 9,273</u>	<u>\$ 10,151</u>	<u>\$ 9,549</u>

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Earnings Before Interest and Taxes by Segment			
Additives & Functional Products	\$ 496	\$ 639	\$ 653
Advanced Materials	517	509	483
Chemical Intermediates	170	308	255
Fibers	194	257	181
Total EBIT by Operating Segment	1,377	1,713	1,572
Other			
Growth initiatives and businesses not allocated to operating segments	(102)	(114)	(114)
Pension and other postretirement benefit plans income (expense), net not allocated to operating segments	(97)	(17)	93
Asset impairments and restructuring charges, net	(49)	(6)	(5)
Other income (charges), net not allocated to operating segments	(9)	(24)	(16)
Total EBIT	<u>\$ 1,120</u>	<u>\$ 1,552</u>	<u>\$ 1,530</u>

(Dollars in millions)	December 31,	
	2019	2018
Assets by Segment ⁽¹⁾		
Additives & Functional Products	\$ 6,387	\$ 6,545
Advanced Materials	4,415	4,456
Chemical Intermediates	2,775	2,934
Fibers	1,014	978
Total Assets by Operating Segment	14,591	14,913
Corporate Assets	1,417	1,082
Total Assets	<u>\$ 16,008</u>	<u>\$ 15,995</u>

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

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Depreciation and Amortization Expense by Segment			
Additives & Functional Products	\$ 218	\$ 219	\$ 213
Advanced Materials	172	169	164
Chemical Intermediates	150	151	148
Fibers	64	64	58
Total Depreciation and Amortization Expense by Operating Segment	604	603	583
Other	7	1	4
Total Depreciation and Amortization Expense	\$ 611	\$ 604	\$ 587

(Dollars in millions)	For years ended December 31,		
	2019	2018	2017
Capital Expenditures by Segment			
Additives & Functional Products	\$ 152	\$ 150	\$ 229
Advanced Materials	130	187	248
Chemical Intermediates	98	137	116
Fibers	42	50	52
Total Capital Expenditures by Operating Segment	422	524	645
Other	3	4	4
Total Capital Expenditures	\$ 425	\$ 528	\$ 649

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,		
	2019	2018	2017
Geographic Information			
Sales			
United States	\$ 3,720	\$ 4,118	\$ 3,999
All foreign countries	5,553	6,033	5,550
Total	\$ 9,273	\$ 10,151	\$ 9,549

	December 31,		
	2019	2018	2017
Net properties			
United States	\$ 4,178	\$ 4,228	\$ 4,203
All foreign countries	1,393	1,372	1,404
Total	\$ 5,571	\$ 5,600	\$ 5,607

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

20. QUARTERLY SALES AND EARNINGS DATA – UNAUDITED

(Dollars in millions, except per share amounts)

2019

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Sales	\$ 2,380	\$ 2,363	\$ 2,325	\$ 2,205
Gross profit	574	589	574	497
Asset impairments and restructuring charges, net	32	18	2	74
Net earnings attributable to Eastman	209	258	266	26
Net earnings per share attributable to Eastman ⁽¹⁾				
Basic	\$ 1.50	\$ 1.87	\$ 1.95	\$ 0.19
Diluted	\$ 1.49	\$ 1.85	\$ 1.93	\$ 0.19

⁽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)

2018

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
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.

21. RESERVE ROLLFORWARDS

Valuation and Qualifying Accounts

(Dollars in millions)

	Balance at January 1, 2019	Additions			Balance at December 31, 2019
		Charges (Credits) to Cost and Expense	Other Accounts	Deductions	
Reserve for:					
Doubtful accounts and returns	\$ 11	\$ —	\$ —	\$ —	\$ 11
LIFO inventory	337	(89)	—	—	248
Non-environmental asset retirement obligations	46	2	—	—	48
Environmental contingencies	296	7	—	16	287
Deferred tax valuation allowance	487	(20)	(14)	—	453
	<u>\$ 1,177</u>	<u>\$ (100)</u>	<u>\$ (14)</u>	<u>\$ 16</u>	<u>\$ 1,047</u>

NOTES TO THE AUDITED CONSOLIDATED FINANCIAL STATEMENTS

(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 ⁽¹⁾	410	81	(4)	—	487
	<u>\$ 1,063</u>	<u>\$ 132</u>	<u>\$ 1</u>	<u>\$ 19</u>	<u>\$ 1,177</u>

(Dollars in millions)

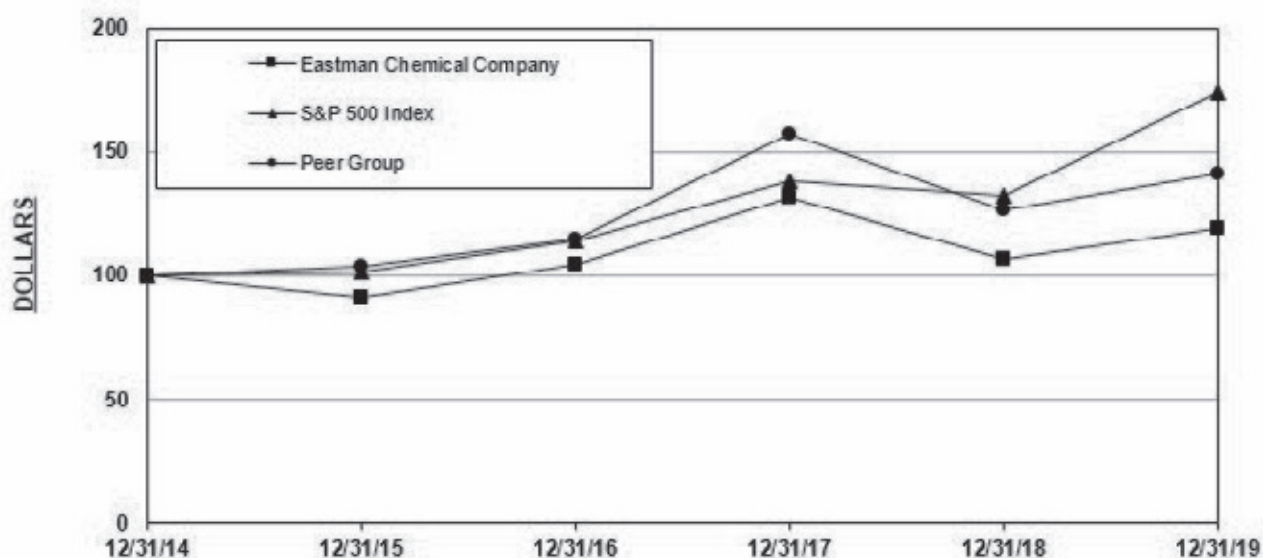
		Additions			
	Balance at January 1, 2017	Charges (Credits) to Cost and Expense	Other Accounts	Deductions	Balance at December 31, 2017
Reserve for:					
Doubtful accounts and returns	\$ 10	\$ 3	\$ —	\$ 1	\$ 12
LIFO inventory	264	24	—	—	288
Non-environmental asset retirement obligations	46	2	1	—	49
Environmental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

⁽¹⁾ Revised from Note 21, "Reserve Rollforwards", to the Company's 2018 Annual Report on Form 10-K, which reported deferred tax valuation allowance as \$466 million.

PERFORMANCE GRAPH

The following graph compares the cumulative total return on Eastman Chemical Company common stock from December 31, 2014 through December 31, 2019 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 fourteen 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, 2014. 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	12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018	12/31/2019
Eastman Chemical Company	100	91.06	104.20	131.58	106.45	119.23
S&P 500 Index	100	101.38	113.51	138.29	132.23	173.86
Peer Group ⁽¹⁾	100	103.40	114.45	157.28	126.70	141.22

⁽¹⁾ The peer group for 2019 consists of the following issuers: Akzo Nobel NV; Albemarle Corporation; Ashland Global Holdings Inc.; Celanese Corporation; Dow Inc.; DuPont de Nemours, 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>

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>

2020 Annual Meeting *

Cumberland Amphitheatre
MeadowView Marriott Conference Resort & Convention Center
1901 Meadowview Parkway
Kingsport, Tennessee
May 7, 2020
11:30 a.m.

Eastman Stockholder Information

877-EMN-INFO (877-366-4636)
<http://www.eastman.com>
Stockholders of record at year-end 2019: 13,222
Shares outstanding at year-end 2019: 135,993,046
Employees at year-end 2019: approximately 14,500

Stock Exchange Listing

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

Annual Report on Form 10-K

Eastman's Annual Report on Form 10-K for the year ended December 31, 2019, 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).

* See "Information about Eastman, the Meeting, and Voting -- Proxy Statement and Annual Meeting" in the Proxy Statement for the 2020 Annual Meeting of Stockholders for information about possible alternative arrangements in the event that we do not hold the meeting in person.

Board of Directors**Humberto P. Alfonso**

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

Chief Executive Officer
and Board of Directors Chair
Eastman Chemical Company

Edward L. Doheny II

President and Chief Executive
Officer
Sealed Air Corporation

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

Lewis M. Kling

Retired Vice Chairman and Chief
Executive Officer
Flowserve Corporation

Kim Ann Mink

Retired President and Chief
Executive Officer
Innophos Holdings, Inc.

James J. O'Brien

Retired Chairman of the Board and
Chief Executive Officer
Ashland, Inc.

David W. Raisbeck

Retired Vice Chairman of the Board
Cargill, Incorporated

Charles K Stevens III

Retired Executive Vice President
and Chief Financial Officer
General Motors Company

Executive Officers**Mark J. Costa**

Chief Executive Officer

Brad A. Lich

Executive Vice President and Chief
Commercial Officer

Clark L. Jordan

Vice President, Interim Chief Legal
Officer and Corporate Secretary

William T. McLain, Jr.

Senior Vice President and Chief
Financial Officer

Mark K. Cox

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

Scott V. King

Vice President, Corporate Controller,
and Chief Accounting Officer

Lucian Boldea

Executive Vice President, Additives
& Functional Products and Chemical
Intermediates

Stephen G. Crawford

Senior Vice President, Chief
Technology & Sustainability Officer

Curtis E. Espeland

Executive Vice President

Perry Stuckey III

Senior Vice President and Chief
Human Resources Officer



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