

2022

ANNUAL
REPORT

Dear Celanese Shareholders,

In the second half of 2019, not long after I joined Celanese, we set out to refresh our strategy. It was an opportunity to critically review and refresh our strategy and a perfect way for me to learn what really makes Celanese successful.

What defines Celanese and, I believe, what makes us unique was clear. We are an active organization. Employees are agile. Decisions are made quickly. Teams continuously optimize. There is no organization I have observed across my career that is better at moving collectively and collaboratively at speed. It was also clear to me that we had a tremendous opportunity to multiply the shareholder value we create through that effort.

We started to share the results of our strategic refresh across 2020. We formally presented it at our Investor Day in March 2021, under the theme *Multiplying our Momentum*. We had given a lot of thought to the meaning packed into those three words.

Personally, *momentum* took me back to some of my first courses as a young engineering student at Iowa State University.

$$p = mv$$

Momentum (p) is the product of mass and velocity. Momentum has movement. It has direction. It builds on itself. As it grows, it becomes more resistant to deviation by external forces. At Celanese, we have always looked to build momentum. This simple formula helps to frame some of my first observations of Celanese.

Celanese really embodies the second half of the formula: velocity. Movement. Action. Agility. Optionality. Optimization. Execution. We demonstrate this quality in our productivity programs, pricing actions, business models, and in how we respond to external challenges each day. No one does better with what they have than our amazing Celanese team.

The first half of the formula was where I saw the opportunity in 2019. At the time I referred to it as

“building our base,” a phrase I brought from many years as a manufacturing leader. Simply, it is about building mass. For a company as active and dynamic as Celanese, there is a multiplicative effect if we can strategically build our mass as well.

Let me be clear. Mass is not simply size. It also has depth, breadth, and density. For Celanese, it represents things like our business portfolio, production and supply chain networks, joint ventures, leadership positions, systems, product portfolios, technology, and, of course, people. It is the base from which our actions drive shareholder value. I challenged our teams in 2019 to “build our base.”

Let me highlight some of the ways we have accomplished this over the last few years.

- We built targeted growth programs in Engineered Materials (EM) in areas like medical, electric vehicles, 5G, and sustainability. We brought in resources and built our solutions portfolio for each. We are a global materials leader in these rapidly growing areas.
- We established more control over our earnings. We monetized our stake in Polyplastics, a JV where we had limited control, for \$1.575 billion. We restructured our KEPCO JV to a manufacturing entity for greater commercial control of the product.
- We extended the Acetyl Chain’s (AC) leading chain of integrated products one step further downstream with the acquisition of Elotex redispersible powders. It has enhanced our optionality in a way that far exceeds its size.
- We transformed Celanese into the preeminent global specialty materials company with the acquisitions of Santoprene and Mobility & Materials. Our preeminence spans flagship brands, breadth of polymer solutions, backward integration, global footprint, and leadership positions.
- We completed a strategic overhaul of our acetate flake and tow products and folded them into AC. The power of AC’s integrated product model is enhanced as are the earnings contribution from flake and tow.

- We are nearly complete building a second world-scale acetic acid production unit at our Clear Lake facility. That facility was built for a fraction of competitor cost and will significantly enhance AC's leadership cost position. We have also systematically executed on a number of smaller projects across the AC network to enhance our manufacturing capacity and flexibility.
- We executed a number of capital efficient EM investments including a sold-out expansion of GUR to meet EV growth as well as continued localization of our footprint in Asia.
- We have elevated our ESG leadership in a way that creates shareholder value. We have launched a portfolio of bio-based products that span EM and AC. We have developed new bio-based products using our acetate flake. We are in the final stages of completing a Fairway Methanol capacity expansion that will utilize Clear Lake's vented process CO₂ to produce green methanol.
- We continue to invest in the digitalization of our plants, our customer experience, and our back office automation while strengthening our IT foundation through cloud infrastructure, 5G, and cyber security enhancements.
- We continue to strengthen a diverse and inclusive culture at Celanese and are attracting, retaining, and promoting more talent than ever before.

I thank our team for delivering against the strategy we developed a few years ago. These actions we have taken to "build our base" multiply the impact of our day to day efforts and will support our growth for years to come.

Celanese remains an action-oriented and agile company at heart. I am committed to continuing that legacy. Because of our work over the last few years, we have opened more opportunities to create shareholder value than at any time in our history. Over the coming quarters you will hear much more about our actions underway to deliver against those opportunities.

I thank you for the trust you place in our team through your investment in Celanese and reiterate our commitment as an organization to multiply our momentum.

Sincerely,



Lori Ryerkerk

Chair of the Board and Chief Executive Officer

This letter includes forward-looking statements. For more information about the risks associated with forward-looking statements, please see the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of the accompanying Annual Report on Form 10-K, which follows.

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

Form 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended
December 31, 2021

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

(Commission File Number) 001-32410



Celanese

CELANESE CORPORATION

(Exact Name of Registrant as Specified in its Charter)

Delaware

(State or Other Jurisdiction of Incorporation or Organization)

98-0420726

(I.R.S. Employer Identification No.)

222 W. Las Colinas Blvd., Suite 900N

Irving, TX 75039-5421

(Address of Principal Executive Offices and zip code)

(972) 443-4000

(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act

<u>Title of Each Class</u>	<u>Trading Symbol(s)</u>	<u>Name of Each Exchange on Which Registered</u>
Common Stock, par value \$0.0001 per share	CE	New York Stock Exchange
1.125% Senior Notes due 2023	CE /23	New York Stock Exchange
1.250% Senior Notes due 2025	CE /25	New York Stock Exchange
2.125% Senior Notes due 2027	CE /27	New York Stock Exchange
0.625% Senior Notes due 2028	CE /28	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act

None

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

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

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

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

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

Large accelerated Filer Accelerated filer Non-accelerated filer Smaller reporting company Emerging growth company

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

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

The aggregate market value of the registrant's common stock held by non-affiliates as of June 30, 2021 (the last business day of the registrants' most recently completed second fiscal quarter) was \$16,818,745,123.

The number of outstanding shares of the registrant's common stock, \$0.0001 par value, as of January 28, 2022 was 108,029,161.

DOCUMENTS INCORPORATED BY REFERENCE

Certain portions of the registrant's Definitive Proxy Statement relating to the 2022 annual meeting of stockholders, to be filed with the Securities and Exchange Commission, are incorporated by reference into Part III.

CELANESE CORPORATION
Form 10-K
For the Fiscal Year Ended December 31, 2021

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Special Note Regarding Forward-Looking Statements

Certain statements in this Annual Report on Form 10-K ("Annual Report") or in other materials we have filed or will file with the Securities and Exchange Commission ("SEC"), and incorporated herein by reference, are forward-looking in nature as defined in Section 27A of the Securities Act of 1933, as amended, Section 21E of the Securities Exchange Act of 1934, as amended, and the Private Securities Litigation Reform Act of 1995. You can identify these statements by the fact that they do not relate to matters of a strictly factual or historical nature and generally discuss or relate to forecasts, estimates or other expectations regarding future events. Generally, the words "believe," "expect," "intend," "estimate," "anticipate," "project," "plan," "may," "can," "could," "might," "will" and similar expressions identify forward-looking statements, including statements that relate to such matters as planned and expected capacity increases and utilization rates; anticipated capital spending; environmental matters; legal proceedings; sources of raw materials and exposure to, and effects of hedging of raw material and energy costs and foreign currencies; interest rate fluctuations; global and regional economic, political, business and regulatory conditions; expectations, strategies, and plans for individual assets and products, business segments, as well as for the whole Company; cash requirements and uses of available cash; financing plans; pension expenses and funding; anticipated restructuring, divestiture, and consolidation activities; planned construction or operation of facilities; cost reduction and control efforts and targets and integration of acquired businesses.

Forward-looking statements are not historical facts or guarantees of future performance but instead represent only our beliefs at the time the statements were made regarding future events, which are subject to significant risks, uncertainties, and other factors, many of which are outside of our control and certain of which are listed above. Any or all of the forward-looking statements included in this Annual Report and in any other materials incorporated by reference herein may turn out to be materially inaccurate. This can occur as a result of incorrect assumptions, in some cases based upon internal estimates and analyses of current market conditions and trends, management plans and strategies, economic conditions, or as a consequence of known or unknown risks and uncertainties. Many of the risks and uncertainties mentioned in this Annual Report, such as those discussed in [Item 1A. Risk Factors](#), [Item 3. Legal Proceedings](#) and [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#) will be important in determining whether these forward-looking statements prove to be accurate. Consequently, neither our stockholders nor any other person should place undue reliance on our forward-looking statements and should recognize that actual results may differ materially from those anticipated by us.

All forward-looking statements made in this Annual Report are made as of the date hereof, and the risk that actual results will differ materially from expectations expressed in this Annual Report will increase with the passage of time. We undertake no obligation, and disclaim any duty, to publicly update or revise any forward-looking statements, whether as a result of new information, future events, changes in our expectations or otherwise. However, we may make further disclosures regarding future events, trends and uncertainties in our subsequent reports on Forms 10-K, 10-Q and 8-K to the extent required under the Exchange Act. The above cautionary discussion of risks, uncertainties and possible inaccurate assumptions relevant to our business includes factors we believe could cause our actual results to differ materially from expected and historical results. Other factors beyond those listed above or in [Item 1A. Risk Factors](#), [Item 3. Legal Proceedings](#) and [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#) below, including factors unknown to us and factors known to us which we have determined not to be material, could also adversely affect us.

Item 1. Business

Basis of Presentation

In this Annual Report on Form 10-K, the term "Celanese" refers to Celanese Corporation, a Delaware corporation, and not its subsidiaries. The terms "Company," "we," "our" and "us" refer to Celanese and its subsidiaries on a consolidated basis. The term "Celanese U.S." refers to the Company's subsidiary, Celanese US Holdings LLC, a Delaware limited liability company, and not its subsidiaries.

Industry

This Annual Report on Form 10-K includes industry data obtained from industry publications and surveys, as well as our own internal company surveys. Third-party industry publications, surveys and forecasts generally state that the information contained therein has been obtained from sources believed to be reliable.

Overview

We are a global chemical and specialty materials company. We are a leading global producer of high performance engineered polymers that are used in a variety of high-value applications, as well as one of the world's largest producers of acetyl products, which are intermediate chemicals for nearly all major industries. As a recognized innovator in the chemicals industry, we engineer and manufacture a wide variety of products essential to everyday living. Our broad product portfolio serves a diverse set of end-use applications including automotive, chemical additives, construction, consumer and industrial adhesives, consumer and medical, energy storage, filtration, food and beverage, paints and coatings, paper and packaging, performance industrial and textiles. Our products enjoy leading global positions due to our differentiated business models, large global production capacity, operating efficiencies, proprietary technology and competitive cost structures.

Our large and diverse global customer base primarily consists of major companies across a broad array of industries. We hold geographically balanced global positions and participate in diversified end-use applications. We combine a demonstrated track record of execution, strong performance built on differentiated business models and a clear focus on growth and value creation. Known for operational excellence, reliability and execution of our business strategies, we partner with our customers around the globe to deliver best-in-class technologies and solutions.

Celanese's history began in 1918, the year that its predecessor company, The American Cellulose & Chemical Manufacturing Company, was incorporated. The company, which manufactured cellulose acetate, was founded by Swiss brothers Drs. Camille and Henri Dreyfus. The current Celanese was incorporated in 2004 under the laws of the State of Delaware and is a U.S.-based public company traded on the New York Stock Exchange under the ticker symbol CE.

Headquartered in Irving, Texas, our operations are primarily located in North America, Europe and Asia and consist of 35 global production facilities and an additional 6 strategic affiliate production facilities. As of December 31, 2021, we employed 8,529 people worldwide.

Business Segment Overview

We operate principally through three business segments: Engineered Materials, Acetate Tow and the Acetyl Chain. See *Business Segments* below and [Note 22 - Segment Information](#) and [Note 23 - Revenue Recognition](#) in the accompanying consolidated financial statements for further information.

Business Segments

Engineered Materials

Products	Major End-Use Applications	Principal Competitors	Key Raw Materials
<ul style="list-style-type: none"> • Polyoxymethylene ("POM") • Ultra-high molecular weight polyethylene ("UHMW-PE") • Polybutylene terephthalate ("PBT") • Long-fiber reinforced thermoplastics ("LFRT") • Liquid crystal polymers ("LCP") • Thermoplastic elastomers ("TPE") • Thermoplastic vulcanizates ("TPV") • Nylon compounds or formulations • Polypropylene compounds or formulations • Polyphenylene sulfide ("PPS") • Acesulfame potassium ("Ace-K") • Preservatives 	<ul style="list-style-type: none"> • Automotive • Medical • Industrial • Energy storage • Consumer electronics • Appliances • Construction • Filtration equipment • Telecommunications • Beverages • Baked goods 	<ul style="list-style-type: none"> • Ajinomoto Co. Inc. • Anhui Jinhe Industrial Co., Ltd. • BASF SE • Daicel Corporation ("Daicel") • E. I. du Pont de Nemours and Company • Koninklijke DSM N.V. • Nantong Acetic Acid Chemical Co., Ltd. • The NutraSweet Company • SABIC Innovative Plastics • Solvay S.A. • Suzhou Hope Technology Co., Ltd. • Tate & Lyle PLC <p>Other regional competitors:</p> <ul style="list-style-type: none"> • Asahi Kasei Corporation • Braskem S.A. • Lanxess AG • Mitsubishi Gas Chemical Company, Inc. • Sumitomo Corporation • Teijin Limited • Toray Industries, Inc. 	<ul style="list-style-type: none"> • Formaldehyde • Ethylene • Polypropylene • Fibers • Acetic anhydride • Propylene • Styrene • Butadiene • Ethylene propylene diene monomer • Oil • PA6 • PA66 • Para-dichlorobenzene • Diketene

• ***Overview***

Our Engineered Materials segment includes our engineered materials business, our food ingredients business and certain strategic affiliates. The engineered materials business leverages our leading project pipeline model to more rapidly commercialize projects. Our unique approach is based on deep customer engagement to develop new projects that are aligned with our skill domains to address critical customer needs and ensure our success and growth.

Engineered Materials is a project-based business where growth is driven by increasing new project commercializations from the pipeline. Our project pipeline model leverages competitive advantages that include our global assets and resources, marketplace presence, broad materials portfolio and differentiated capabilities. Our global assets and resources are represented by our operations, including polymerization, compounding, research and development, and customer technology centers in all regions of the world, including Brazil, China, Germany, India, Italy, Mexico, South Korea, the United Kingdom and the U.S., along with sites associated with our three strategic affiliates in Saudi Arabia, South Korea and the U.S. In July 2020, we announced that we are establishing a European Compounding Center of Excellence at our Forli, Italy facility, which includes the intended consolidation of our compounding operations in Kaiserslautern, Germany; Wehr, Germany; and Ferrara Marconi, Italy. These operations are included in our Engineered Materials segment. We expect to complete the consolidation of the compounding operations by 2023. On December 1, 2021, we acquired the Santoprene™ TPV elastomers business of Exxon Mobil Corporation ("Santoprene") for a purchase price of \$1.15 billion in an all-cash transaction. See [Note 4 - Acquisitions, Dispositions and Plant Closures](#) in the accompanying consolidated financial statements for further information.

Our broad marketplace presence reflects our deep understanding of global and customer trends, including the growing global demand for more sophisticated vehicles, elevated environmental considerations, increased global connectivity, and improved health and wellness. These global trends drive a range of needed customer solutions, such as vehicle lightweighting, precise components, aesthetics and appearance, low emissions, heat resistance and low-friction for medical applications, that we are

uniquely positioned to address with our materials portfolio. In addition, the opportunity pipeline process identifies a number of emerging trends early, enabling faster growth.

Our materials portfolio offers differentiated chemical and physical properties that enable them to perform in a variety of conditions. These include enduring a wide range of temperatures, resisting adverse chemical interactions and withstanding deformation. POM, PBT and LFRT are used in a broad range of performance-demanding applications, including fuel system components, automotive safety systems, consumer electronics, appliances, industrial products and medical applications. UHMW-PE is used in battery separators, industrial products, filtration equipment, coatings and medical applications. Primary end uses for LCP are electrical applications or products and consumer electronics. Thermoplastic elastomers offer unique attributes for use in automotive, appliances, consumer goods, electrical, electronic and industrial applications. Nylon compounds are used in a range of applications including automotive, consumer, electrical, electronic and industrial. These value-added applications in diverse end uses support the business' global growth objectives.

We also have several differentiated polymer technologies designed for the utility industry, the oil and gas industry, original equipment manufacturers and companies that enhance supply chain efficiency. These include composite technologies for the utility industry that deliver greater reliability, capacity and performance for utility transmission lines.

Our differentiated capabilities are highlighted in our intimate and unique customer engagement which allows us to work across the entirety of our customers' value chain. For example, in the automotive industry we work with original equipment manufacturers as well as system and tier suppliers and injection molders in numerous areas, including polymer formulation and functionality, part and structural design, mold design, color development, part testing and part processing. This broad access allows us to create a demand pull for our solutions. This business segment also includes three strategic affiliates that complement our global reach, improve our ability to capture growth opportunities in emerging economies and positions us as a leading participant in the global specialty polymers industry.

We are a leading global supplier of Ace-K for the food and beverage industry and a leading producer of food protection ingredients, such as potassium sorbate and sorbic acid. We have over fifty years of experience in developing and marketing specialty ingredients for the food and beverage industry and are the only western producer of Ace-K. We have a production facility in Germany, with sales and distribution facilities in all major regions of the world.

- **Key Products**

POM. Commonly known as polyacetal in the chemical industry, POM is sold by our engineered materials business under the trademarks Celcon[®], Hostaform[®] and Tarnoform[®]. POM is used for diverse end-use applications in the automotive, industrial, consumer and medical industries. These applications include mechanical parts in automotive fuel system components and window lift systems, water handling, conveyor belts, sprinkler systems, drug delivery systems and gears in large and small home appliances.

We continue to innovate and broaden the portfolio of Celcon[®], Hostaform[®] and Tarnoform[®] in order to support the industry needs for higher performing polyacetal. We have expanded our portfolio to include products with higher impact resistance and stiffness, low emissions, improved wear resistance and enhanced appearance such as laser marking and metallic effects. We launched POM ECO-B, a sustainable polyacetal, which allows customers to realize reduction in carbon dioxide emissions in their end-use products and advance toward their renewable content goals.

Korea Engineering Plastics Co., Ltd., our 50%-owned strategic affiliate ("KEPCO"), manufactures POM and other engineering resins in the Asia-Pacific region. For further discussion of KEPCO, see *Strategic Affiliates* in this *Item 1. Business*.

National Methanol Company ("Ibn Sina"), our 25% owned strategic affiliate, produces methanol which is a key feedstock for POM production. Its production facilities are located in Saudi Arabia. For further discussion of Ibn Sina, see *Strategic Affiliates* in this *Item 1. Business*.

The primary raw material for POM is formaldehyde, which is manufactured from methanol. Raw materials are sourced from internal production and from third parties, generally through long-term contracts.

UHMW-PE. Celanese is a global leader in UHMW-PE products, which are sold under the GUR[®] trademark. They are highly engineered thermoplastics designed for a variety of industrial, consumer and medical applications. Primary applications for the material include lead acid battery separators, heavy machine components, lithium ion separator membranes, and noise and vibration dampening tapes. Several specialty grades are also produced for applications in high performance filtration equipment, ballistic fibers, thermoplastic and elastomeric additives, as well as medical implants.

Polyesters. Our products include a series of thermoplastic polyesters including Celanex[®] PBT and Thermx[®] PCT (polycyclohexylene-dimethylene terephthalate), as well as Riteflex[®], a thermoplastic polyester elastomer. These products are used in a wide variety of automotive, electrical and consumer applications, including ignition system parts, radiator grilles, electrical switches, appliance and sensor housings, light emitting diodes and technical fibers.

Nylon. Our nylon products include Nylfor[®] A (PA 6.6), Nylfor[®] B (PA 6), NILAMID[®] (PA 6, PA 66, PPA), FRIANYL[®] (flame retardant PA 6, PA 66, PPA compounds) and ECOMID[®] (recycled polyamide) and are used in automotive, appliances, industrial and consumer applications due to their mechanical properties, high impact resistance, resistance to organic solvents, high wear and fatigue resistance even at high temperatures, and easy processing and molding.

LFRT. Celstran[®] and Factor[®], our LFRT products, impart extra strength and stiffness, making them more suitable for larger parts than conventional thermoplastics. These products are used in automotive, transportation and industrial applications, such as instrument panels, consoles and front end modules. LFRTs meet a wide range of end-user requirements and are excellent candidates for metal replacement where they provide the required structural integrity with significant weight reduction, corrosion resistance and the potential to lower manufacturing costs.

LCP. Vectra[®] and Zenite[®], our LCP brands, are primarily used in electrical and electronics applications for precision parts with thin walls and complex shapes and applications requiring heat dissipation. They are also used in high heat cookware applications.

TPE. Forprene[®], Sofprene[®] T, Pibiflex[®] and Laprene[®], our TPE brands, are primarily used in automotive, construction, appliances and consumer applications due to their ability to combine the advantages of both flexible and plastic materials. These materials are selected for their ability to stretch and return to their near original shape creating a longer life and better physical range than other materials.

TPV. Santoprene[™], Dytron[™] and Geolast[™], our TPV trademarks, are chemically cross-linked, high-performance materials which leverage a unique combination of engineering thermoplastic and elastomer properties. These products are used in future mobility, infrastructure, medical and sustainability applications.

Polypropylene. Our polypropylene products include Polifor[®] and Tecnoprene[®] and are primarily used in automotive, appliances, electrical and consumer applications due to their high impact and fatigue resistance, exceptional rigidity at high temperatures and an ability to withstand chemical agents.

VitalDose[®]. Our ethylene vinyl acetate ("EVA") copolymers, sold under the VitalDose[®] trademark, are an enabling technology used for controlled-release drugs, medical implants and combination devices, including drug-eluting implants, reliable controlled-release performance in subcutaneous and surgical implants, intravitreal and extraocular devices.

Sunett[®] sweetener. Ace-K, a non-nutritive high intensity sweetener sold under the Sunett[®] trademark, for which the primary raw material is diketene and is used in a variety of beverages, confections and dairy products throughout the world.

Preservatives. Our preservatives, potassium sorbate and sorbic acid, are mainly used in foods, beverages and personal care products.

- **Customers**

Engineered Materials' principal customers are original equipment manufacturers and their suppliers serving the automotive, medical, industrial and consumer industries. We utilize our customer options mapping process to collaborate with our customers to identify customized solutions that leverage our broad range of polymers and technical expertise. Our engineered materials business has long-standing relationships through multi-year and annual arrangements with many of its major customers and utilizes distribution partners to expand its customer base. We primarily sell Sunett[®] sweetener to a limited number of large multinational and regional customers in the food and beverage industry under multi-year and annual contracts. Preservatives are primarily sold through regional distributors to small- and medium-sized customers and directly to large multinational customers in the food industry.

Because Engineered Materials is a project-based business focused on solutions, the pricing of products in this segment is primarily based on the value-in-use and is generally independent of changes in the cost of raw materials. Therefore, in general, margins may expand or contract in response to changes in raw material costs.

See [Note 23 - Revenue Recognition](#) in the accompanying consolidated financial statements for further information.

Acetate Tow

Products	Major End-Use Applications	Principal Competitors	Key Raw Materials
<ul style="list-style-type: none">• Acetate tow• Acetate flake	<ul style="list-style-type: none">• Filtration• Films• Flexible packaging	<ul style="list-style-type: none">• Cerdia• Daicel• Eastman Chemical Company	<ul style="list-style-type: none">• Wood pulp• Acetic acid• Acetic anhydride

• **Overview**

Our Acetate Tow business is a leading global producer and supplier of acetate tow and acetate flake, primarily used in filter products applications. We hold an approximately 30% ownership interest in three separate ventures in China that produce acetate flake and acetate tow. China National Tobacco Corporation, a Chinese state-owned tobacco entity, has been our venture partner for over three decades. Our Acetate Tow business has production sites in Belgium and the U.S., along with sites at our three Acetate Tow strategic affiliates in China.

• **Key Products**

Acetate tow and acetate flake. Acetate tow is a fiber used primarily in cigarette filters. In order to produce acetate tow, we first produce acetate flake by processing wood pulp with acetic acid and acetic anhydride. Wood pulp generally comes from reforested trees and is purchased externally from a variety of sources, and acetic anhydride is an intermediate chemical that we produce from acetic acid in our intermediate chemistry business. Acetate flake is then further processed into acetate tow.

• **Customers**

Acetate tow is sold principally to the major tobacco companies that account for a majority of worldwide cigarette production.

The pricing of products within the Acetate Tow segment is sensitive to demand and is primarily based on the value-in-use. Many sales are conducted under contracts with pricing for one or more years. As a result, margins may expand or contract in response to changes in market conditions over these similar periods, and we may be unable to adjust pricing due to other factors, such as the intense level of competition in the industry.

See [Note 23 - Revenue Recognition](#) in the accompanying consolidated financial statements for further information.

Acetyl Chain

Products	Major End-Use Applications	Principal Competitors	Key Raw Materials
<ul style="list-style-type: none"> • Acetic acid • Vinyl acetate monomer ("VAM") • Vinyl acetate ethylene ("VAE") emulsions • Conventional emulsions • Ethylene vinyl acetate ("EVA") resins and compounds • Low-density polyethylene resins ("LDPE") • Redispersible Powders ("RDP") • Acetic anhydride • Acetaldehyde • Ethyl acetate • Formaldehyde • Butyl acetate 	<ul style="list-style-type: none"> • Paints • Coatings • Adhesives • Textiles • Paper finishing • Flexible packaging • Lamination products • Pharmaceuticals • Films • Inks • Plasticizers • Solvents • Automotive parts • External thermal insulation composite systems • Tiling • Plasters and renders • Lubricants 	<ul style="list-style-type: none"> • Arkema • BASF SE • Chang Chun Petrochemical Co., Ltd. • Daicel • Dairen Chemical Corporation • Dow Inc. • Eastman Chemical Company • E. I. du Pont de Nemours and Company • ExxonMobil Chemical • Huayi Chemical Co., Ltd. • INEOS • Jiangsu Sopo (Group) Co., Ltd. • Kuraray Co., Ltd. • LyondellBasell Industries N.V. • Nippon Gohsei • Showa Denko K.K. • Sipchem • Wacker Chemie AG 	<ul style="list-style-type: none"> • Methanol • Carbon monoxide • Ethylene • Acetic acid • VAM • VAE emulsions • Conventional emulsions • Acrylate esters • Styrene • Polyvinyl alcohol

• **Overview**

The Acetyl Chain segment, which includes the integrated chain of intermediate chemistry, emulsion polymers, EVA polymers and redispersible powders businesses, is active in every major global industrial sector and serves diverse consumer end-use applications. These include traditional vinyl-based end uses, such as paints and coatings and adhesives, as well as other unique, high-value end uses including flexible packaging, thermal laminations, wire and cable, and compounds.

Our intermediate chemistry business produces and supplies acetyl products, including acetic acid, VAM, acetic anhydride and acetate esters. These products are generally used as starting materials for colorants, paints, adhesives, coatings and pharmaceuticals. Our intermediate chemistry business also produces organic solvents and intermediates for pharmaceutical, agricultural and chemical products.

We have focused in recent years on enhancing our ability to drive incremental value through our global production network and productivity initiatives as well as proactively managing the intermediate chemistry business in response to trade flows and prevailing industry trends. Our intermediate chemistry business has production sites in China, Germany, Mexico, Singapore and the U.S. We are a global industry leader, with a broad acetyls product portfolio, leading technology, low cost production footprint and a global supply chain. With decades of experience, advanced proprietary process technology and favorable capital and production costs, we are a leading global producer of acetic acid and VAM. AOPlus[®]3 technology extends our historical technology advantage and enables us to construct a greenfield acetic acid facility with a capacity of 1.8 million metric tons at a lower capital cost than our competitors. Our VAntage[®]2 technology could increase VAM capacity to meet growing customer demand globally with minimal investment. We believe our production technology is among the lowest cost in the industry and provides us with global growth opportunities through low cost expansions and a cost advantage over our competitors.

Our emulsion polymers business is a leading global producer of vinyl acetate-based emulsions and develops products and application technologies to improve performance, create value and drive innovation in applications such as paints and coatings, adhesives, construction, glass fiber, textiles and paper. Our emulsion polymers products are sold under globally and regionally recognized brands including EcoVAE[®], Mowilith[®], Vinamul[®], Celvolit[®], Dur-O-Set[®], TufCOR[®] and Avicor[®]. The emulsion polymers business has production facilities in Canada, China, Germany, the Netherlands, Singapore, Sweden and the U.S. and is supported by expert technical service regionally.

Our EVA polymers business is a leading North American manufacturer of a full range of specialty EVA resins and compounds, as well as select grades of LDPE. Sold under the Ateva® brand, these products are used in many applications, including flexible packaging films, lamination film products, hot melt adhesives, automotive parts and carpeting. Our EVA polymers business has a production facility in Canada.

Our intermediate chemistry business produces VAM, a primary raw material for our emulsion polymers and EVA polymers businesses. Ethylene, another key raw material, is purchased externally from a variety of sources through annual or multi-year contracts.

Our RDP business is a leading manufacturer of redispersible polymer powders, sold under the Elotex® brand. The business produces polymer emulsions which are converted into powdered thermoplastic resin materials. RDP products are used in a variety of applications in the mortar industry, including decorative mortar, exterior insulation and finish systems, gypsum-based materials, plaster and render, self-leveling floor systems, skim coat and tile adhesives.

- **Key Products**

Acetyl Products. Acetyl products include acetic acid, VAM, acetic anhydride and acetaldehyde. Acetic acid is primarily used to manufacture VAM, purified terephthalic acid and other acetyl derivatives. VAM is used in a variety of adhesives, paints, films, coatings and textiles. Acetic anhydride is a raw material used in the production of cellulose acetate, detergents and pharmaceuticals. Acetaldehyde is a major feedstock for the production of a variety of derivatives, such as pyridines, which are used in agricultural products. We manufacture acetic acid, VAM and acetic anhydride for our own use in producing downstream, value-added products, as well as for sale to third parties.

Acetic acid and VAM, our basic acetyl intermediates products, leverage global supply and demand fundamentals. The principal raw materials in these products are carbon monoxide, methanol and ethylene. We generally purchase carbon monoxide under long-term contracts, and we also produce carbon monoxide in our Clear Lake facility. We generally purchase methanol and ethylene under both annual and multi-year contracts. Methanol and ethylene are commodity products and generally available from a wide variety of sources, while carbon monoxide is typically purpose-made in close proximity.

We have a joint venture, Fairway Methanol LLC ("Fairway"), with Mitsui & Co., Ltd., of Tokyo, Japan ("Mitsui"), in which we own a 50% interest, for the production of methanol at our integrated chemical plant in Clear Lake, Texas. The methanol unit utilizes natural gas in the U.S. Gulf Coast region as a feedstock. Almost all of our North American methanol needs are met from our share of the production, as well as the long-term contract we have with our joint venture partner, Mitsui.

Sales from acetyl products amounted to 36%, 27% and 27% of our consolidated net sales for the years ended December 31, 2021, 2020 and 2019, respectively.

Solvents and Derivatives. We manufacture a variety of solvents, formaldehyde and other chemicals, which in turn are used in the manufacture of paints, coatings, adhesives and other products. Many solvents and derivatives products are derived from our production of acetic acid. Primary products are:

- Ethyl acetate, an acetate ester that is a solvent used in coatings, inks and adhesives;
- Butyl acetate, an acetate ester that is a solvent used in inks, pharmaceuticals and perfume; and
- Formaldehyde and paraformaldehyde, which are primarily used to produce adhesive resins for plywood, particle board, coatings, POM engineering resins and a compound used in making polyurethane.

Emulsion Polymers. Our emulsion polymers business produces conventional vinyl- and acrylate-based emulsions and VAE emulsions. VAE emulsions are a key component of water-based architectural coatings, adhesives, non-wovens, textiles, glass fiber and other applications. VAE emulsions are in high demand in Europe and Asia as they enable low volatile organic compound paints, specifically in interior paints.

EVA Polymers. Our EVA polymers business produces low-density polyethylene, EVA resins and compounds. Low-density polyethylene is produced in high-pressure reactors from ethylene, while EVA resins and compounds are produced in high-pressure reactors from ethylene and VAM.

Redispersible Powders. Our RDP business produces a number of emulsions for use in manufacturing redispersible powders to meet requirements for various applications and formulated to fit our customers' needs for optimal production.

- **Customers**

Our intermediate chemistry business sells its products both directly to customers and through distributors. Acetic acid, VAM and acetic anhydride are global businesses, and we generally supply our customers under a mix of short- and long-term agreements. Acetic acid, VAM and acetic anhydride customers produce polymers used in water-based paints, adhesives, paper coatings, polyesters, film modifiers, pharmaceuticals, cellulose acetate and textiles. We have long-standing relationships with most of these customers. Solvents and derivatives are sold to a diverse group of regional and multinational customers under multi-year contracts and on the basis of long-standing relationships. Solvents and derivatives customers are primarily engaged in the production of paints, coatings and adhesives. We manufacture formaldehyde for our own use as well as for sale to a few regional customers.

Emulsion, RDP and EVA polymers products are sold to a diverse group of regional, family owned and multinational customers. Customers of our emulsion polymers and RDP business are manufacturers of water-based paints and coatings, adhesives, paper, building and construction products, glass fiber, non-wovens, textiles and premixed dry mortars. Customers of our EVA polymers business are engaged in the manufacture of a variety of products, including hot melt adhesives, automotive components, thermal laminations, and flexible and food packaging materials.

Pricing of our products within the Acetyl Chain segment is influenced by industry utilization and changes in the cost of raw materials. Therefore, in general, there is a direct correlation between these factors and our net sales for most Acetyl Chain products. This impact to pricing typically lags changes in raw material costs over months or quarters and impacts profit margins over those periods.

See [Note 23 - Revenue Recognition](#) in the accompanying consolidated financial statements for further information.

Other Activities

Other Activities primarily consists of corporate center costs, including administrative activities such as finance, information technology and human resource functions, interest income and expense associated with our financing activities and results of our captive insurance companies. Our two wholly-owned captive insurance companies are a key component of our global risk management program, as well as a form of self-insurance for our liability and workers compensation risks. The captive insurance companies retain risk at levels approved by management and obtain reinsurance coverage from third parties to limit the net risk retained. Other Activities also includes the interest cost, expected return on assets and net actuarial gains and losses components of our net periodic benefit cost for our defined benefit pension plans and other postretirement plans, which are not allocated to our business segments. Ongoing merger, acquisition and integration related costs are also included in Other Activities.

Strategic Affiliates

Our strategic affiliates represent an important component of our strategy. We have a substantial portfolio of affiliates in various regions, including Asia-Pacific, North America and the Middle East. These affiliates have sizeable operations and are significant within their industries.

With shared characteristics such as products, applications and manufacturing technology, these strategic affiliates complement and extend our technology and specialty materials portfolio. We have historically entered into these investments to gain access to local demand, minimize costs and accelerate growth in areas we believe have significant future business potential.

Our strategic affiliates contribute substantial earnings and cash flows to us. During the year ended December 31, 2021, our equity method strategic affiliates generated combined sales of \$1.3 billion, resulting in our recording \$109 million of equity in net earnings of affiliates and \$80 million of dividends.

In October 2020, we completed the sale of our 45% joint venture equity interest in Polyplastics Co., Ltd. ("Polyplastics"), to our joint venture partner Daicel, for a purchase price of approximately \$1.6 billion in cash. The sale of Polyplastics was meant to drive future growth, advance application development with customers, and pursue high-return expansion opportunities for the benefit of Celanese and its customers. See [Note 7 - Investments in Affiliates](#) in the accompanying consolidated financial statements for further information.

Our strategic affiliates as of December 31, 2021 are as follows:

	Location of Headquarters	Ownership	Partner(s)	Year Entered
Equity Investments				
Engineered Materials				
National Methanol Company	Saudi Arabia	25 %	Saudi Basic Industries Corporation (50%); Duke Energy Arabian Ltd. (25%)	1981
KEPCO.....	South Korea	50 %	Mitsubishi Gas Chemical Company, Inc. (40%); Mitsubishi Corporation (10%)	1999
Fortron Industries LLC	U.S.	50 %	Kureha America Inc. (50%)	1992
Equity Investments Without Readily Determinable Fair Value				
Acetate Tow				
Kunming Cellulose Fibers Co. Ltd. .	China	30 %	China National Tobacco Corporation (70%)	1993
Nantong Cellulose Fibers Co. Ltd....	China	31 %	China National Tobacco Corporation (69%)	1986
Zhuhai Cellulose Fibers Co. Ltd.	China	30 %	China National Tobacco Corporation (70%)	1993

National Methanol Company. National Methanol Company represents approximately 1% of the world's methanol production capacity and is one of the world's largest producers of methyl tertiary-butyl ether, a gasoline additive. Its production facilities are located in Saudi Arabia. Saudi Basic Industries Corporation ("SABIC") is responsible for all product marketing. Methanol is a key feedstock for POM production and is produced by our Ibn Sina affiliate which provides an economic hedge against raw material costs in our engineered materials business.

KEPCO. KEPCO is a leading producer of POM in South Korea. KEPCO has polyacetal production facilities in Ulsan, South Korea, compounding facilities for PBT and nylon in Pyongtaek, South Korea, and participates with Mitsubishi Gas Chemical Company, Inc. in a world-scale POM facility in Nantong, China. In December 2020, we signed a memorandum of understanding with our joint venture partners to restructure KEPCO, in which we and our joint venture partners will receive exclusive offtake rights to POM in Asia and global marketing rights without restrictions. The joint venture restructuring is expected to be completed in the first half of 2022.

Fortron Industries LLC. Fortron Industries LLC ("Fortron") is a leading global producer of PPS, sold under the Fortron[®] brand, which is used in a wide variety of automotive and other applications, especially those requiring heat and/or chemical resistance. Fortron's facility is located in Wilmington, North Carolina. This venture combines our sales, marketing, distribution, compounding and manufacturing expertise with the PPS polymer technology expertise of Kureha America Inc.

Acetate Tow strategic ventures. Our Acetate Tow ventures generally fund their operations using operating cash flow and pay dividends based on each ventures' performance in the preceding year. In 2021, 2020 and 2019, we received cash dividends of \$146 million, \$126 million and \$112 million, respectively.

Although our ownership interest in each of our Acetate Tow ventures exceeds 20%, we account for these investments at cost after considering observable price changes for similar instruments, minus impairment, if any, because we determined that we cannot exercise significant influence over these entities due to local government investment in and influence over these entities, limitations on our involvement in the day-to-day operations and the present inability of the entities to provide timely financial information prepared in accordance with generally accepted accounting principles in the United States of America. Further, these investments were determined not to have a readily determinable fair value.

Other Equity Method Investments

InfraServs. We hold indirect ownership interests in several German InfraServ Groups that own and develop industrial parks and provide various technical and administrative services to tenants. Our ownership interest in the equity investments in InfraServ affiliates are as follows:

	As of December 31, 2021
	(In percentages)
InfraServ GmbH & Co. Gendorf KG	30
InfraServ GmbH & Co. Hoechst KG	31
YNCORIS GmbH & Co. KG ⁽¹⁾	22

⁽¹⁾ Formerly known as InfraServ GmbH & Co. Knapsack KG.

Intellectual Property

We attach importance to protecting our intellectual property, including safeguarding our confidential information and through our patents, trademarks and copyrights, in order to preserve our investment in research and development, manufacturing and marketing. Patents may cover processes, equipment, products, intermediate products and product uses. We also seek to register trademarks as a means of protecting the brand names of our Company and products.

Patents. In most industrial countries, patent protection exists for new substances and formulations, as well as for certain unique applications and production processes. However, we do business in regions of the world where intellectual property protection may be limited and difficult to enforce.

Confidential Information. We maintain stringent information security policies and procedures wherever we do business. Such information security policies and procedures include data encryption, controls over the disclosure and safekeeping of confidential information and trade secrets, as well as employee awareness training.

Trademarks. Amcel[®], AOPlus[®], Ateva[®], Avicor[®], Celanese[®], Celanex[®], Celanyl[®], Celcon[®], Celstran[®], Celvolit[®], Clarifoil[®], Dur-O-Set[®], Dytron[®], ECOMID[®], EcoVAE[®], Elotex[®], Factor[®], Forprene[®], FRIANYL[®], Fortron[®], Geolast[®], GHR[®], GUR[®], Hostaform[®], Laprene[®], MetaLX[®], Mowilith[®], MT[®], NILAMID[®], Nutrinova[®], Nylfor[®], OmniLon[®], Pibiflex[®], Pibifor[®], Pibiter[®], Polifor[®], Resyn[®], Riteflex[®], Santoprene[®], SlideX[®], Sofprene[®], Sofpur[®], Sunett[®], Talcoprene[®], Tarnoform[®], Tecnoprene[®], TufCOR[®], VAntage[®], Vectra[®], Vinac[®], Vinamul[®], VitalDose[®], Zenite[®] and certain other branded products and services named in this document are registered or reserved trademarks or service marks owned or licensed by Celanese. The foregoing is not intended to be an exhaustive or comprehensive list of all registered or reserved trademarks and service marks owned or licensed by Celanese. Fortron[®] is a registered trademark of Fortron Industries LLC. Hostaform[®] is a registered trademark of Hoechst GmbH. Mowilith[®] and NILAMID[®] are registered trademarks of Celanese in most European countries.

We monitor competitive developments and defend against infringements on our intellectual property rights. Neither Celanese nor any particular business segment is materially dependent upon any one patent, trademark, copyright or trade secret.

Environmental and Other Regulation

Matters pertaining to environmental and other regulations are discussed in [Item 1A. Risk Factors](#), as well as [Note 2 - Summary of Accounting Policies](#), [Note 13 - Environmental](#) and [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements.

We expect to incur approximately \$40 million to \$70 million in capital expenditures for environmental control measures in each of 2022 and 2023.

Climate Change

Climate change is one of the most challenging and significant issues facing the world today, and we are committed to doing our part to make sustainable progress toward addressing this challenge.

The nature of our operations is energy and fossil fuel intensive. We have therefore invested in projects to increase energy efficiency, improve reliability, recover and reuse waste heat, and increase our purchase of renewable energy as well as more sustainable raw materials. These include a combined heat and power unit at our Lanaken, Belgium facility, a waste-to-energy

system in Nanjing, China, using solar energy at our Clear Lake, Texas facility designed for use by us and our onsite industrial partners, and a carbon dioxide capture and conversion to methanol project at our Clear Lake, Texas facility.

We are also focused on developing products to help our customers meet their sustainability goals. Examples include products for improving the efficiency of construction materials, vehicle lightweighting, solar panels and powering electric vehicles. We are also focused on making our own products from more sustainable sources, including using biocertified content in certain product lines as well as products made from recyclable feedstocks. We believe these capabilities, together with trends such as the automobile industry's commitment towards improved energy efficiency and clean energy, present market opportunities for us.

With the third quarter 2021 publication of our Sustainability Report, we have reported gross Scope 1 and Scope 2 greenhouse gas emissions for 2020 using *The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard*, as a guide. Updated 2021 emissions figures were not available at the time of this filing.

For information on the risks we face related to climate change, including potential regulatory developments that may increase our operating costs, potentially significantly, please see the risk factors in [Item 1A. Risk Factors](#) titled "We are subject to financial, regulatory and physical risks associated with climate change as well as potential legislation, regulation and international accords to address it" and "Changes in environmental, health and safety regulations in the jurisdictions where we manufacture or sell our products could lead to a decrease in demand for our products." Climate-related regulatory risks are assessed within our Enterprise Risk Management process. However, due to the level of uncertainty regarding what legislative or regulatory requirements may be enacted, it is not possible for us to estimate the impact of climate-related developments on our results of operations or financial conditions.

Human Capital Resources

Workforce Composition and Diversity, Equity and Inclusion

Our business is operated by a diverse and global workforce, with employees in the following key geographies:

	Employees as of December 31, 2021
North America	
U.S.	3,075
Canada	203
Mexico	419
Total	3,697
Europe	
Germany	1,530
Other Europe	1,728
Total	3,258
Asia	1,444
Rest of World	130
Total	8,529

We believe that providing a workplace that promotes mutual respect and inclusion for all employees is critical to our success and to driving innovation and growth. To that end, we continue to make progress in our efforts to promote diversity, equity and inclusion in our Company. In order attract a diverse pipeline of talent, we engage with historically black colleges and universities ("HBCUs"), trade associations and other professional groups to broaden our candidate pool. Our Diversity, Equity and Inclusion Council elevates employee voice to inform activities that foster an inclusive environment for all. We promote engagement globally through 52 chapters of nine different Employee Resource Groups designed to inspire, develop and increase the visibility, representation and promotion of underrepresented groups.

As of December 31, 2021:

- globally, women represent approximately 38% of our senior leadership team, 29% of our management roles and 24% of our overall workforce; and
- in the U.S., people of color represent approximately 13% of our senior leadership team, 34% of our management roles and 31% of our overall workforce.

The following shows our attrition rate for the year ended December 31, 2021:

Employee Category	Attrition Rate
Global employees	10.0 %
Women (globally)	10.5 %
People of Color (U.S.)	13.1 %

In 2020, we experienced historically low attrition rates. In 2021, we experienced a higher rate of retirement combined with a very competitive talent market which resulted in slightly higher attrition rates compared to 2019. We have continued to attract a strong, diverse pipeline of talent, hiring at record levels to support both inorganic and organic growth, enabling future success.

Stewardship: Health, Safety and Environmental

We focus on more than the occupational health and safety of our employees, contractors and any visitors to our sites. We have an expanded view and measurement of "Stewardship" that includes process safety and releases to the environment since these incidents may have an impact on the communities where we live and work. Our Stewardship values are critical to our success in attracting and retaining the best industry talent across the globe.

We strive to do no harm to people, the environment or the communities that host our facilities. We believe in continuous improvement in our Stewardship culture by building competency in our people and having a comprehensive management system built from recognized global practices. Our values include a commitment to the health and safety of our employees, contractors, communities and the environment.

We utilize a mixture of leading and lagging indicators to assess the Stewardship performance of our operations. Lagging indicators for occupational health and safety include the Occupational Safety and Health Administration ("OSHA") Total Recordable Incident Rate ("TRIR") and the OSHA Lost Time Incident Rate ("LTIR") based upon the number of incidents per 200,000 work hours of both employees and contractors. Process Safety lagging indicators follow the industry standard from API RP 754 for Tier 1 and Tier 2 events for incident count, rate, and severity. The criteria for tracking release to the environment lagging indicators are 10% or greater of the Celanese reportable quantity (based on U.S. Environmental Protection Agency ("EPA") methodology or internal values). Examples of Stewardship Tier 3 leading indicators include reporting and resolution of near miss events and hazard recognitions, behavioral based safety observations, all releases to the environment that fall below the previously mentioned threshold criteria and challenges to process safety systems.

For the year ended December 31, 2021, we had a TRIR of 0.19 and a LTIR of 0.06. Through deliberate actions, we have reduced our TRIR and LTIR rates by 39% and 54%, respectively, since 2017.

Rounding out our Stewardship performance in 2021, we had 15 Tier 1 and Tier 2 process safety incidents and 16 releases to the environment above the 10% significant threshold. Any other loss of primary containment incidents, challenges to pressure relief systems, safety instrumented systems and safe operating limits are tracked as Tier 3 leading indicators. Our expanded tracking of leading indicator events helps identify potential emerging deficiencies that enables us to take continuous improvement actions. For example, this past year we concentrated heavily on hand safety awareness (the most commonly impacted body part) and establishing clear requirements regarding our fundamental life critical procedures and their field execution while focusing to prevent injuries with the most significant consequences.

Employee Health and Wellness

Our efforts to support our employees' physical well-being starts with comprehensive health benefits offered to all U.S. employees who work more than 20 hours per week, plus their eligible family members. Around the world, we offer other benefits that are competitive in each of the countries where we operate.

The cornerstone programs in the U.S. are:

- Medical coverage with above-industry-average employer contributions to a Health Savings Account, including benefits for transgender employees and dependents and access to a low-cost and convenient telemedicine service;
- Dental and vision coverage that offers employees choices and free or low-cost preventive care; and
- Wellness programs that promote annual physicals for all employees and niche programs such as smoking cessation.

To further create a positive impact in the lives of employees and their families, the following services are available at no cost to our eligible participants:

- Access to an expert medical second opinion with a board-certified doctor when dealing with an illness, injury or chronic pain;
- Access to up to eight FDA approved over-the-counter COVID-19 tests per eligible participant per month;
- Participation in a virtual physical therapy program to help with chronic musculoskeletal pain;
- A program created to empower all people with diabetes to live better, healthier lives; and
- A program created to provide employees access to blood pressure, activity and weight tracking technologies to help our employees maintain a healthy heart and reduce blood pressure, if needed.

Talent Development

We are committed to fostering an engaging and inclusive workplace with opportunities for collaboration, development and leadership. Our Talent Management strategies provide a consistent and efficient approach to how we acquire talent, manage performance, develop bench strength, support development and help employees reach their fullest potential.

We have a structured approach to reviewing talent with management, as well as with the Board of Directors. This includes discussions of employee development, executive succession, diversity, talent pipelines and workforce planning requirements. We regularly report to the Board of Directors on talent management strategies across functional areas, and annually review executive succession with the Board of Directors.

We believe in giving employees clear opportunities to pursue their unique career goals and helping our leaders be a resource, champion and coach. Our Global Career Framework provides clarity around opportunities that can exist at Celanese and it also removes artificial barriers to help employees own their careers. It allows employees to regularly increase their scope and responsibility, both within an employee's current role and moving to new roles. We also provide a specific technical career ladder for employees in technical roles to enable employees in manufacturing and other technical functions to grow their careers. We utilize our Leadership Framework to define the attributes, competencies and behaviors of leaders at Celanese.

COVID-19

For further information regarding the impact of COVID-19 and actions we've taken in response to the COVID-19 pandemic, including with respect to our employees, see [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#).

Available Information — Securities and Exchange Commission ("SEC") Filings and Corporate Governance Materials

We make available free of charge, through the investor portion of our internet website (<http://investors.celanese.com>), our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as well as ownership reports on Form 3 and Form 4, as soon as reasonably practicable after electronically filing such material with, or furnishing it to, the SEC. References to our website in this report are provided as a convenience, and the information on our website is not, and shall not be deemed to be a part of this report or incorporated into any other filings we make with the SEC. The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, including Celanese Corporation, that electronically file with the SEC at <http://www.sec.gov>.

We also make available free of charge, through our website, our Corporate Governance Guidelines of our Board of Directors and the charters of each of the standing committees of our Board of Directors.

Item 1A. Risk Factors

The following risks could materially and adversely affect our business, financial condition, cash flows and results of operations, and the trading price of our common stock could decline. These risk factors do not identify all risks that we face; our operations could also be affected by factors that are not presently known to us or that we currently consider to be immaterial to our operations. Due to risks and uncertainties, known and unknown, our past financial results may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. Refer also to the other information set forth in this Form 10-K, including in [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#) and the accompanying consolidated financial statements and notes thereto.

Risks Related to Economic and Industry Conditions

We are exposed to general economic, political and regulatory conditions and risks in the countries in which we have operations and customers.

We operate globally and have customers in many countries. Our major facilities are primarily located in North America, Europe and Asia, and we hold interests in affiliates that operate in the United States ("U.S."), Germany, China, Japan, South Korea and Saudi Arabia. Our principal customers are similarly global in scope and the prices of our most significant products are typically regional or world market prices. Consequently, our business and financial results are affected, directly and indirectly, by world economic conditions, including instability in credit markets, declining consumer and business confidence, fluctuating commodity prices and interest rates, volatile exchange rates and other challenges such as the changing regulatory environment.

Our operations are also subject to global political conditions. For example, any future withdrawal or renegotiation of trade agreements, or the failure to reach agreement over trade agreements, or the imposition of new or increased tariffs on our products or raw materials, or the more aggressive prosecution of trade disputes with countries like China, may increase costs or reduce profitability, or adversely affect our ability to operate our business and execute our growth strategy. In addition, it may be more difficult for us to enforce agreements, collect receivables, receive dividends and repatriate earnings through foreign legal systems. In certain foreign jurisdictions our operations are subject to nationalization and expropriation risk and some of our contractual relationships within these jurisdictions are subject to cancellation without full compensation for loss. Furthermore, in certain cases where we benefit from local government subsidies or other undertakings, such benefits are subject to the solvency of local government entities and are subject to termination without meaningful recourse or remedies.

We have invested significant resources in China and other Asian countries. This region's growth may slow, or trade flows could be negatively impacted, and we may fail to realize the anticipated benefits associated with our investment there and, consequently, our financial results may be adversely impacted.

In addition, we have significant operations and financial relationships based in Europe. Historically, sales originating in Europe have accounted for over one-third of our net sales annually, and accounted for approximately 36% of our net sales in 2021. Adverse conditions in the European economy related to the United Kingdom's exit from the European Union ("EU") membership or otherwise may negatively impact our overall financial results due to reduced economic growth, trade disruptions, decreased end-use customer demand or other factors.

We are subject to risks associated with the increased volatility in the prices and availability of key raw materials and energy, which could have a significant adverse effect on the margins of our products and our financial results.

We purchase significant amounts of ethylene, methanol, carbon monoxide and natural gas from third parties primarily for use in our production of basic chemicals in our intermediate chemistry business, principally acetic acid, VAM and formaldehyde. We use a portion of our output of these chemicals, in turn, as inputs in the production of downstream products in all of our business segments. We also purchase some of these raw materials for use in our emulsion polymers and EVA polymer businesses, primarily for vinyl acetate ethylene emulsions and ethylene vinyl acetate production, as well as significant amounts of wood pulp for use in our production of acetate tow. We also procure polymers, rubber and polypropylene for use in production of engineered materials, and other raw materials as additives to our products including fiberglass, flame retardant materials and other compounding components.

The prices and availability of many of these items is dependent on the available supply and may increase significantly as a result of uncertainties associated with inflationary pressures, transportation or logistics disruptions, weather, natural disasters, epidemics, pandemics, the effects of climate change or political instability, plant or production disruptions, strikes or other labor unrest, breakdown or degradation of transportation infrastructure used in the delivery of raw materials and energy commodities, war, terrorist activities, civil unrest, or changes in laws or regulations in any of the countries in which we have significant

suppliers. In particular, to the extent of our vertical integration in the production of chemicals, shortages in the availability of raw material chemicals, such as natural gas, ethylene and methanol, or the loss of our dedicated supplies of carbon monoxide, may have an increased adverse impact on us as it can cause a shortage in intermediate and finished products. Such shortages would adversely impact our ability to produce certain products and increase our costs resulting in reduced margins and adverse impacts to our financial results. Like many companies in 2021, we experienced supply disruptions and increased costs of inputs, which we believe led to increased costs and some lost sales as a result of reduced ability to produce products to meet aggregate demand. We attempt to pass through costs to customers, but even where we are successful increased prices could lead to reduced customer demand for our products or could result in competitive disadvantages. We currently expect these issues to continue into 2022.

We are exposed to volatility in the prices of our raw materials and energy. Although we have long-term supply agreements, multi-year purchasing and sales agreements and forward purchase contracts providing for the supply of ethylene, methanol, carbon monoxide, wood pulp, natural gas and electricity, the contractual prices for these raw materials and energy can vary with economic conditions and may be highly volatile. In addition to the factors noted above that may impact supply or price, factors that have caused volatility in our raw material prices in the past and which may do so in the future include:

- Shortages of raw materials due to increasing demand, e.g., from growing uses or new uses;
- Capacity constraints, e.g., due to construction delays, labor disruption, government-imposed work or travel restrictions, involuntary shutdowns or turnarounds;
- A supplier's inability to meet our delivery orders, a supplier's decision not to fulfill orders or to terminate a supply contract or our inability to obtain or renew supply contracts on favorable terms;
- The general level of business, economic and industry activity; and
- The direct or indirect effect of governmental regulation (including the impact of government regulation relating to climate change or regulation of production and transport of certain chemicals).

If we are not able to fully offset the effects of higher energy and raw material costs through price increases, productivity improvements or cost reduction programs, or if such commodities become unavailable, it could have a significant adverse effect on our ability to timely and profitably manufacture and deliver our products resulting in reduced margins and adverse impacts to our financial results.

We have a practice of maintaining, when available, multiple sources of supply for raw materials and services. However, some of our individual plants may have single sources of supply for some of their raw materials, such as carbon monoxide, steam and ethylene, or site services. Although we have been able to obtain sufficient supplies of raw materials and services, there can be no assurance that unforeseen developments will not affect our ability to source raw materials or services in the future. Even if we have multiple sources of supply for a raw material or a service, there can be no assurance that these sources can make up for the loss of a major supplier. Furthermore, if any sole source or major supplier were unable or unwilling to deliver a raw material or a service for an extended period of time, we may not be able to find an acceptable alternative or any such alternative could result in increased costs. It is also possible that profitability would be adversely affected if we were required to qualify additional sources of supply for a raw material or a service to our specifications in the event of the loss of a sole source or major supplier.

Almost all of our supply of methanol in North America is currently obtained from our joint venture, Fairway, with Mitsui, in which we own a 50% interest, for the production of methanol at our integrated chemical plant in Clear Lake, Texas.

Our business, financial condition and result of operations have been, are being, and may in the future be, significantly and adversely affected by the COVID-19 pandemic, and we cannot predict the extent to which these effects may continue or re-occur with greater severity.

Substantially all locations where we and our customers and suppliers have offices and production facilities were impacted by the COVID-19 pandemic and the resulting government-imposed quarantines, stay-at-home restrictions, travel restrictions and other public health and safety measures.

COVID-19 significantly impacted our operations and financial results during 2020 by slowing down the economy and depressing demand in many of our markets as well as the end customers of products for which our products serve as materials and inputs. Like most companies, we continue to be impacted by the continuing effects of the pandemic.

The extent to which COVID-19 may continue to impact our operations or those of our customers or suppliers will depend on future developments and numerous factors, which are highly uncertain and cannot be predicted with confidence. These include:

- the extent of any resurgence in infections and the spread of the disease or variants thereof, and the effectiveness of vaccines or other medical treatments;
- additional governmental, business and individual actions to contain the spread of COVID-19, including social distancing, work-at-home, stay-at-home and shelter-in-place orders and shutdowns, travel restrictions and quarantines;
- the extent to which these conditions depress economic activity generally and demand for our products specifically and affect the financial markets;
- the effect of the outbreak on our employees, customers, suppliers, supply chain and other business partners;
- our ability during the outbreak to provide our products and services;
- disruptions to our business, supply chain or the availability of raw materials caused by plant closures or transportation and shipping disruptions;
- the risk that we could be exposed to liability, negative publicity or reputational harm related to any incidents of actual or perceived transmission of COVID-19 among employees at our facilities;
- the ability of our customers to pay for our products and services during and following the outbreak;
- our ability to access usual sources of liquidity on reasonable terms; and
- our ability to comply with the financial covenant in our Credit Agreement if a material and prolonged economic downturn were to result in increased indebtedness or substantially lower EBITDA.

The COVID-19 pandemic continues to evolve, and it is unknown if disruptions to our customers' demand will recur. We have monitored and will continue to monitor the situation closely.

Risks Related to Our Global Operations and Our Strategy

Production at our manufacturing facilities, or at our suppliers', could be disrupted for a variety of reasons, which could prevent us from producing enough of our products to maintain our sales and satisfy our customers' demands.

A disruption in production at one or more of our manufacturing facilities, or our suppliers, could have a material adverse effect on our business. Disruptions could occur for many reasons, including fire, natural disasters, weather, unplanned maintenance or other manufacturing problems, public health crises (including, but not limited to, the COVID-19 pandemic), disease, strikes or other labor unrest, transportation interruption, government regulation, political unrest or terrorism. Alternative facilities with sufficient capacity or capabilities may not be available, may cost substantially more or may take a significant time to start production, each of which could negatively affect our business and financial performance. If one of our key manufacturing facilities is unable to produce our products for an extended period of time, our sales may be reduced by the shortfall caused by the disruption and we may not be able to meet our customers' needs, which could cause them to seek other suppliers. In particular, production disruptions at our manufacturing facilities that produce chemicals used as inputs in the production of chemicals in other business segments, such as acetic acid, VAM and formaldehyde, could have a more significant adverse effect on our business and financial performance and results of operations to the extent of such vertical integration. Furthermore, to the extent a production disruption occurs at a manufacturing facility that has been operating at or near full capacity, the resulting shortage of our product could be particularly harmful because production at such manufacturing facility may not be able to reach levels achieved prior to the disruption.

We have experienced recent disruptions of the type described above. In February 2021, Winter Storm Uri led to worldwide supply disruptions, loss of energy and critical raw materials at our Texas sites and impacted nearly all of our employees in Texas, where we are headquartered and where several of our manufacturing sites are located. This storm led us to proactively and temporarily shut down our Texas production facilities in a controlled manner to protect our employees, communities, and assets, and the necessity of this decision led to lost production and negatively impacted our financial results for that quarter. In August 2020, to protect our employees and safeguard the assets at our Clear Lake facility, we temporarily, voluntarily ceased production at our Clear Lake, Texas facility during the landfall of Hurricane Laura. During 2019, production of acetic acid and VAM was disrupted due to a localized fire at our Clear Lake, Texas facility, which caused reduced sales and profits.

Disruptions or interruptions of production or operations could also occur due to accidents, interruptions in sources of raw materials, cybersecurity incidents, terrorism or political unrest, or other unforeseen events or delays in construction or operation of facilities, including as a result of geopolitical conditions, the occurrence of acts of war or terrorist incidents or as a result of weather, natural disasters, or other crises including public health crises.

Failure to develop new products and production technologies or to implement productivity and cost reduction initiatives successfully, may harm our competitive position.

Our operating results depend significantly on the development of commercially viable new products, product grades and applications, as well as process technologies. If we are unsuccessful in developing new products, applications and production processes in the future, including failing to leverage our opportunity pipeline in our Engineered Materials segment, our competitive position and operating results may be negatively affected. However, as we invest in new technology, we face the risk of unanticipated operational or commercialization difficulties, including an inability to obtain necessary permits or governmental approvals, the development of competing technologies, failure of facilities or processes to operate in accordance with specifications or expectations, construction delays, cost over-runs, the unavailability of financing, required materials or equipment and various other factors. Likewise, we have undertaken and are continuing to undertake initiatives in all of our business segments to improve productivity and performance and to generate cost savings. These initiatives may not be completed or beneficial or the estimated cost savings from such activities may not be realized.

We could be subject to damages based on claims brought against us by our customers or lose customers as a result of the failure of our products to meet certain quality specifications.

Our products provide important performance attributes to our customers' products. If one of our products fails to perform in a manner consistent with applicable quality specifications, a customer could seek replacement of the product or damages for costs incurred as a result of the product failing to perform as guaranteed. A successful claim or series of claims against us could have a material adverse effect on our financial condition and results of operations and could result in a loss of one or more key customers.

Our production facilities, including facilities we own and/or operate and operations at our facilities owned and/or operated by third parties, handle the processing of some volatile and hazardous materials that subject us to operating and other risks that could have a negative effect on our operating results.

Although we take precautions to enhance the safety of, and minimize the disruption to, our operations and operations at our facilities owned and/or operated by third parties, we are subject to operating and other risks associated with chemical manufacturing, including the storage and transportation of raw materials, finished products and waste. These risks include, among other things, pipeline and storage tank leaks and ruptures, explosions and fires and discharges or releases of toxic or hazardous substances. In addition, we may have limited control over operations at our facilities owned and/or operated by third parties or such operations may not be fully integrated into our safety programs.

These operating and other risks can cause personal injury, property damage, third-party damages and environmental contamination, and may result in the shutdown of affected facilities and the imposition of civil or criminal penalties. The occurrence of any of these events may disrupt production and have a negative effect on the productivity and profitability of a particular manufacturing facility, our operating results and cash flows.

Our future success depends in part on our ability to protect our intellectual property rights and our rights to use our intellectual property. Our inability to protect and enforce these rights could reduce our ability to maintain our industry position and our profit margins.

We rely on our patents, trademarks, copyrights, know-how and trade secrets, and patents and other technology licensed from third parties, to protect our investment in research and development and our competitive commercial positions in manufacturing and marketing our products. We have adopted internal policies for protecting our know-how and trade secrets. In addition, our practice is to seek patent or trade secret protection for significant developments that provide us competitive advantages and freedom to practice for our businesses. Patents may cover catalysts, processes, products, intermediate products and product uses. These patents are usually filed in strategic countries throughout the world and provide varying periods and scopes of protection based on the filing date and the type of patent application. The legal life and scope of protection provided by a patent may vary among those countries in which we seek protection. As patents expire, the catalysts, processes, products, intermediate products and product uses described and claimed in those patents generally may become available for use by the public subject to our continued protection for associated know-how and trade secrets. We also monitor intellectual property of others, especially patents that could impact our rights to commercially implement research and development, our rights to manufacture

and market our products, and our rights to use know-how and trade secrets. We will not intentionally infringe upon the valid intellectual property rights of others, and we will continue to assess and take actions as necessary to protect our positions. We also seek to register trademarks as a means of protecting the brand names of our products, which brand names become more important once the corresponding product or process patents have expired. We operate in regions of the world where intellectual property protection may be limited and difficult to enforce and our continued growth strategy may result in us seeking intellectual property protection in additional regions with similar challenges. We also monitor the trademarks of others and take action when our trademark rights are being infringed upon. If we are not successful in protecting or maintaining our patent, license, trademark or other intellectual property rights, or protecting our rights to commercially make, market and sell our products, our net sales, results of operations and cash flows may be adversely affected.

Our business is exposed to risks associated with the creditworthiness of our suppliers, customers and business partners and the industries in which our suppliers, customers and business partners participate are cyclical in nature, both of which may adversely affect our business and results of operations.

Our business is exposed to risks associated with the creditworthiness of our key suppliers, customers and business partners and reductions in demand for our customers' products. These risks include the interruption of production at the facilities of our customers, the reduction, delay or cancellation of customer orders, delays in or the inability of customers to obtain financing to purchase our products, delays in or interruptions of the supply of raw materials we purchase and bankruptcy of customers, suppliers or other creditors. Furthermore, some of the industries in which our end-use customers participate, such as the automotive, electrical, construction and textile industries, are highly competitive, to a large extent driven by end-use applications, and may experience overcapacity, all of which may affect demand for and the pricing of our products. In addition, many of these industries are cyclical in nature, thus posing risks to us that vary throughout the year. The occurrence of any of these events may adversely affect our cash flow, profitability and financial condition.

We may incur significant charges in the event we close or divest all or part of a manufacturing plant or facility.

We periodically assess our manufacturing operations in order to manufacture and distribute our products in the most efficient manner. Based on our assessments, we may make capital improvements to modernize certain units, move manufacturing or distribution capabilities from one plant or facility to another plant or facility, discontinue manufacturing or distributing certain products or close or divest all or part of a manufacturing plant or facility. We also have shared services agreements at several of our plants and if such agreements are terminated or revised, we would assess and potentially adjust our manufacturing operations. The closure or divestiture of all or part of a manufacturing plant or facility could result in future charges that could be significant. See [Note 4 - Acquisitions, Dispositions and Plant Closures](#) in the accompanying consolidated financial statements for further information.

We may not be able to complete future acquisitions or joint venture transactions or successfully integrate them into our business, which could adversely affect our business or results of operations.

As part of our growth strategy, we intend to pursue acquisitions and joint venture opportunities. Successful accomplishment of this objective may be limited by the availability and suitability of acquisition candidates, the ability to obtain regulatory approvals necessary to complete a planned transaction, and by our financial resources, including available cash and borrowing capacity. Acquisitions and joint venture transactions involve numerous risks, including difficulty determining appropriate valuation, integrating operations, technologies, services and products of the acquired lines or businesses, personnel turnover and the diversion of management's attention from other business matters. In addition, we may be unable to achieve anticipated benefits from these transactions in the time frame that we anticipate, or at all, which could adversely affect our business or results of operations. See *Strategic Affiliates* in [Item 1. Business](#) and [Note 4 - Acquisitions, Dispositions and Plant Closures](#) for further information.

The insurance coverage that we maintain may not fully cover all operational risks.

We maintain property, business interruption, casualty and cyber/information security insurance but such insurance may not cover all of the risks associated with the hazards of our business and is subject to limitations, including deductibles and maximum liabilities covered. We may incur losses beyond the limits, or outside the coverage, of our insurance policies, including liabilities for environmental remediation. In the future, the types of insurance we obtain and the level of coverage we maintain may be inadequate or we may be unable to continue to maintain our existing insurance or obtain comparable insurance at a reasonable cost.

Differences in views with our joint venture participants may cause our joint ventures not to operate according to their business plans, which may adversely affect our results of operations.

We currently participate in a number of joint ventures and may enter into additional joint ventures in the future. The nature of a joint venture requires us to work cooperatively with unaffiliated third parties. Differences in views among joint venture participants may result in delayed decisions or failure to agree on major decisions. If these differences cause the joint ventures to deviate from their business plans or to fail to achieve their desired operating performance, our results of operations could be adversely affected.

Our significant non-U.S. operations expose us to global exchange rate fluctuations that could adversely impact our profitability.

We conduct a significant portion of our operations outside the U.S. Consequently, fluctuations in currencies of other countries, especially the Euro, may materially affect our operating results. Because our consolidated financial statements are presented in U.S. dollars, we must translate revenues, income and expenses, as well as assets and liabilities, into U.S. dollars based on average exchange rates prevailing during the reporting period or the exchange rate at the end of that period. Therefore, increases or decreases in the value of the U.S. dollar against other major currencies will affect our net operating revenues, operating income and the cost of balance sheet items denominated in foreign currencies. Foreign exchange rates can also impact the competitiveness of products produced in certain jurisdictions and exported for sale into other jurisdictions. These changes may impact the value received for the sale of our goods versus those of our competitors.

In addition to currency translation risks, we incur a currency transaction risk whenever one of our operating subsidiaries enters into a purchase or sales transaction using a currency different from the operating subsidiary's functional currency. Given the volatility of exchange rates, particularly the strengthening of the U.S. dollar against major currencies or the currencies of large developing countries, we may not be able to manage our currency transaction and translation risks effectively.

We use financial instruments to hedge certain exposure to foreign currency fluctuations, but those hedges in most cases cover existing balance sheet exposures and not future transactional exposures. We cannot guarantee that our hedging strategies will be effective. In addition, the use of financial instruments creates counterparty settlement risk. Failure to effectively manage these risks could have an adverse impact on our financial position, results of operations and cash flows.

We are subject to information or operational technology cybersecurity threats that could materially affect our business.

We have been and will continue to be subject to advanced and persistent threats in the areas of information and operational technology security and fraud. We seek to prevent unauthorized access to our information and operational technology systems and to detect and investigate any cybersecurity incidents that may occur, however in some cases we might be unaware of a particular incident or its magnitude and effects. At the current time, we may face increased information technology security and fraud risks due to our increased reliance on working remotely during the COVID-19 pandemic, which may create additional information security vulnerabilities and/or magnify the impact of any disruption in information technology systems. Additionally, we may be exposed to unauthorized access to our information or operational technology systems through undetected vulnerabilities in our service providers' information systems or software.

The theft, misuse or publication of our intellectual property and/or confidential business information or the compromising of our systems or networks (including through ransomware or denial-of-service attacks) could harm our competitive position, cause operational disruption (including the potential to disrupt or compromise our control of physical plant operations at our manufacturing sites), reduce the value of our investment in research and development of new products and other strategic initiatives or otherwise adversely affect our business or results of operations. To the extent that any security breach results in inappropriate disclosure of our employees', customers' or vendors' confidential or personally identifiable information, we may incur liability or suffer reputational damage in the marketplace as a result. To the extent that any security breach impacts operations at our manufacturing sites, we may experience production or shipping disruptions. We maintain cyber/information security insurance, but any losses may be beyond the limits, or outside the coverage, of our policy.

Information and operational security threats and methods of perpetrating fraud or misappropriating information are constantly evolving and becoming more complex, which increases the difficulty and expense of defending against these threats. Although we attempt to mitigate these risks by employing a number of measures, including insurance, monitoring of our systems and networks, employee training, crisis simulations and maintenance of backup and protective systems, our systems, networks, products and services remain potentially vulnerable to increasingly sophisticated advanced persistent threats that may have a material effect on our business. In addition, the devotion of additional resources to the security of our information or operational technology systems in the future could significantly increase the cost of doing business or otherwise adversely impact our financial results.

Regulatory, Legal, Environmental and Tax Risks

Failure to comply with applicable laws or regulations and/or changes in applicable laws or regulations may adversely affect our business and financial results as a whole.

We are subject to extensive international, national, state, local and other laws and regulations. Failure to comply with these laws, including antitrust and anticorruption laws, rules, regulations or court decisions, could expose us to fines, penalties and other costs. For example, in December 2019 we announced the recording of a reserve in connection with a competition law investigation by the European Commission based on certain past ethylene purchases by certain subsidiaries of the Company, and in July 2020, we announced that we had reached a final settlement of \$92 million with respect to this investigation. The Company paid this settlement in full on January 12, 2021. Although we have implemented policies, procedures and employee training designed to ensure compliance with these laws, rules, regulations and court decisions, there can be no assurance that our employees and business partners and other third parties acting on our behalf will comply with these laws, rules, regulations and court decisions, which could result in fines, penalties and costs and damage to our business reputation.

Moreover, changes in laws or regulations, including the more aggressive enforcement of such laws and regulations, such as unexpected changes in regulatory requirements (including import or export licensing requirements), or changes in reporting requirements of the U.S., Canadian, Mexican, German, EU or Asian governmental agencies, could increase the cost of doing business in these regions. In addition, enforcement of environmental or other governmental policy may result in plant shut downs or significantly decreased production, such as in China on high pollution days. For example, in 2021 we experienced energy curtailment mandates from the government in the Chinese province where our Nanjing production facility is located, which forced us to reduce and curtail production at that site. Any of these types of conditions, including the failure to obtain or maintain operating permits for our business, may have an effect on our business and financial results as a whole and may result in volatile current and future prices for our products and raw materials. See [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements for further information.

Our business exposes us to potential product liability, warranty, and tort claims, and recalls, which could adversely affect our financial condition and performance.

The development, manufacture and sale of specialty chemical products by us, including products produced for the food and beverage, cigarette, medical device, pharmaceutical, automobile, construction and aerospace, industries, involves a risk of exposure to product liability, warranty, and tort claims, product recalls, product seizures and related adverse publicity. A product liability, warranty, or tort claim or judgment against us that is larger than those typically experienced in the regular course of business could also result in substantial and unexpected expenditures, affect consumer or customer confidence in our products, and divert management's attention from other responsibilities. Although we maintain product liability insurance, there can be no assurance that this type or the level of coverage is adequate or that we will be able to continue to maintain our existing insurance or obtain comparable insurance at a reasonable cost, if at all. A product recall or a significant partially or completely uninsured judgment against us could have a material adverse effect on our results of operations or financial condition. Although we have standard contracting policies and controls, we may not always be able to contractually limit our exposure to third party claims should our failure to perform result in downstream supply disruptions or product recalls.

Environmental regulations and other obligations relating to environmental matters could subject us to liability for fines, clean-ups and other damages, require us to incur significant costs to modify our operations and increase our manufacturing and delivery costs.

Costs related to our compliance with environmental, health and safety laws and regulations, and potential obligations with respect to sites currently or formerly owned or operated by us, may have a negative impact on our operating results. We also have obligations related to the indemnity agreement contained in the demerger and transfer agreement between Celanese GmbH and Hoechst AG for environmental matters arising out of certain divestitures that took place prior to the demerger. See [Note 13 - Environmental](#) in the accompanying consolidated financial statements for further information.

Our operations are subject to extensive international, national, state, local and other laws and regulations that govern environmental, health and safety matters and that regulate the handling, manufacture, use, emission and disposal of products, materials and hazardous and non-hazardous waste. If we violate any one of those laws or regulations, we can be held liable for substantial fines and other sanctions, including limitations on our operations as a result of changes to or revocations of environmental permits involved. We could also face claims for damages from individuals or groups for alleged violations of these laws or regulations.

We also incur substantial capital and other costs to comply with environmental, health and safety requirements. Stricter environmental, safety and health laws and regulations could result in substantial additional costs and liabilities to us or limitations on our operations. Consequently, compliance with these laws and regulations may negatively affect our earnings and cash flows in a particular reporting period. See [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources](#) for further information.

For more information on risks we face specifically related to climate change and related potential regulation, see the risk factor titled "We are subject to financial, regulatory and physical risks associated with climate change as well as potential legislation, regulation and international accords to address it" below.

Changes in environmental, health and safety regulations in the jurisdictions where we manufacture or sell our products could lead to a decrease in demand for our products.

New or revised governmental regulations, independent studies or consumer or societal perceptions relating to the effect of our products on health, safety or the environment may affect demand for our products and the cost of producing our products. In addition, products we produce, including VAM, formaldehyde and polymers derived from formaldehyde, may be classified and labeled in a manner that would adversely affect demand for such products. For example, in 2019 the EPA designated formaldehyde as a high-priority substance under the Toxic Substances Control Act and the substance is currently undergoing risk evaluation. In addition, in 2012 the International Agency for Research on Cancer ("IARC"), a research agency within the World Health Organization, classified formaldehyde as carcinogenic to humans (Group 1) based on epidemiological studies linking formaldehyde exposure to nasopharyngeal cancer, a rare cancer in humans, and leukemia. In 2011, a similar conclusion was reached by the National Toxicology Program ("NTP"), a U.S. inter-agency research program. We anticipate that the results of the IARC's and the NTP's reviews will continue to be examined and considered by government regulatory agencies with responsibility for setting worker and environmental exposure standards and labeling requirements.

Other initiatives, including the Chemical Strategy for Sustainability initiative currently to be undertaken by the EU as part of the Green Deal will potentially require toxicological testing and risk assessments of a wide variety of chemicals, including chemicals used or produced by us. These assessments may result in heightened concerns about the chemicals involved and additional regulatory requirements being placed on the production, handling, labeling and/or use of the subject chemicals.

Additionally, increased social and regulatory focus on climate change could lead to changes in the demand behavior of our customers or their end-customers, and could result in reduced customer demand for products made from materials that are perceived to be significant contributors to greenhouse gas emissions and global climate change, and we may not be able to fully address these concerns through changes in manufacturing methods or use of more sustainable materials and processes.

Such concerns and additional requirements could also increase the cost incurred by our customers to use our chemical products and otherwise limit the use of these products, which could lead to a decrease in demand for these products. Such a decrease in demand would likely have an adverse impact on our business and results of operations.

We are subject to financial, regulatory and physical risks associated with climate change as well as potential legislation, regulation and international accords to address it.

Greenhouse gas ("GHG") emissions have become the subject of significant international, national, regional, state and local attention. For example, the EPA has promulgated rules concerning reporting GHG emissions. The European Commission has also embarked on the European Green Deal initiative with the goal of making the EU carbon neutral by 2050, which is expected to lead to additional statutory and regulatory requirements. In addition, regulation of greenhouse gas also could occur pursuant to future treaty obligations, statutory or regulatory changes or new climate change legislation intended to reduce or mitigate the effects of GHG emissions.

A number of our operations are within jurisdictions that have or are developing regulatory regimes governing GHG emissions, which may lead to direct and indirect costs on our operations. Some jurisdictions have emissions reduction measures directed at the power or oil and gas sectors, which could result in higher power input costs for us. Other regulations that are being implemented or contemplated include the potential for restrictions on GHG emissions, cap and trade emissions trading systems, taxes on GHG emissions, fuel, and energy, or carbon import charges on certain products among other provisions. These measures, if and where enacted, may significantly increase our costs of operations or require us to incur significant additional capital costs for the installation of equipment to mitigate GHG emissions for our sites' manufacturing operations.

Physical impacts of climate change, such as increased frequency and severity of hurricanes and floods and impact on sea levels, may also impact our facilities and operations and those of our key suppliers. A number of our sites are located in areas that are exposed to weather events and changing sea levels (such as the Texas Gulf Coast) and that have been impacted by hurricanes and other weather events in the past as described elsewhere in these risk factors. To the extent climate change exacerbates these threats, our operations and supply chains could experience increased levels of disruptions.

We closely monitor developments in this area, but there is significant uncertainty regarding what legislative or regulatory requirements may be put in place, which makes it impossible for us to predict the longer-term impact these measures have on our operations. However, we believe that future legislative and regulatory developments related to climate change are likely, which could materially increase operating costs in the chemical industry and thereby increase our manufacturing and delivery costs.

Our aspirations, goals, and initiatives related to sustainability, and our public statements and disclosures regarding them, expose us to risks.

We have developed and publicized, and expect to continue to establish, goals, targets, and other objectives related to sustainability matters. Such statements reflect our current plans at the time they are made, and do not constitute a guarantee that they will be achieved. Our efforts to research, establish, accomplish, and accurately report on these goals, targets, and objectives could expose us to operational, reputational, financial, legal, and other risks. Our ability to achieve any stated goal, target, or objective is and will be subject to numerous factors and conditions, many of which are outside of our control, such as evolving regulatory or quasi-regulatory sustainability standards, differing requirements and the pace of changes in technology.

We may face increased scrutiny from the investment community, other stakeholders, regulators, and the media related to our sustainability activities, including the goals, targets, and objectives that we announce, and our methodologies and timelines for pursuing them. If our sustainability practices do not meet investor or other stakeholder expectations and standards, which continue to evolve, our reputation, ability to attract or retain employees, and attractiveness as an investment, business partner, or as an acquiror could be negatively impacted. Similarly, our failure or perceived failure to pursue or fulfill our goals, targets, and objectives, to comply with ethical, environmental, or other standards, regulations, or expectations, or to satisfy various reporting standards with respect to these matters, within the timelines that we announce, or at all, could have the same negative impacts, as well as expose us to government enforcement actions and private litigation. Even if we achieve the goals, targets, and objectives we set, we may not realize all of the benefits that it expected at the time they were established.

Our business and financial results may be adversely affected by various legal and regulatory proceedings.

We are involved in legal and regulatory proceedings, lawsuits, claims and investigations in the normal course of business and could become subject to additional claims in the future, some of which could be material. The outcome of existing proceedings, lawsuits, claims and investigations may differ from our expectations because the outcomes of such proceedings, including regulatory matters, are often difficult to reliably predict. Various factors or developments can lead us to change current estimates of liabilities and related insurance receivables where applicable, or permit us to make such estimates for matters previously not susceptible to reasonable estimates, such as a significant judicial ruling or judgment, a significant settlement, significant regulatory developments, or changes in applicable law. A future adverse ruling, settlement, or unfavorable development could result in charges that could have a material adverse effect on our business, results of operations or financial condition in any particular period. See [Note 13 - Environmental](#) and [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements for further information.

Changes in, or the interpretation of, tax legislation or rates throughout the world, or the resolution of tax examinations or audits, could materially impact our results.

Our future effective tax rate and related tax balance sheet attributes could be impacted by changes in tax legislation throughout the world. The overall tax environment has made it increasingly challenging for multinational corporations to operate with certainty about taxation in many jurisdictions. For example, the European Commission has been conducting investigations focusing on whether local country tax rulings or tax legislation provide preferential tax treatment that violates EU state aid rules. In addition, the Organization of Economic Cooperation and Development, which represents a coalition of member countries, is supporting changes to numerous long-standing tax principles through its base erosion and profit shifting initiatives, which focus on a number of issues, including the shifting of profits among affiliated entities located in different tax jurisdictions. Furthermore, a number of countries where we do business, including the U.S. and many countries in the EU, have changed or are considering changes in relevant tax, accounting and other laws, regulations and interpretations, including changes to tax laws applicable to multinational corporations. Our future effective tax rates could be affected by changes in the mix of earnings in countries with differing statutory tax rates, expirations of tax holidays or rulings, changes in the assessment regarding the realization of deferred tax assets, or changes in tax laws and regulations or their interpretation. The increasingly complex global tax environment and related legislative developments could have a material adverse effect on our effective tax rate, results of operations, cash flows and financial condition.

In December 2017, the Tax Cuts and Jobs Act (the "TCJA") was enacted and was effective January 1, 2018. The U.S. Treasury has issued various final and proposed regulations supplementing the TCJA provisions since 2018. See [Note 16 - Income Taxes](#) in the accompanying consolidated financial statements for further information.

We are subject to the regular examination of our income tax returns by various tax authorities. Examinations in material jurisdictions or changes in laws, rules, regulations or interpretations by local taxing authorities could result in impacts to tax years open under statute or to foreign operating structures currently in place.

Our tax returns are under audit for the years 2013 through 2015 by the United States, the Netherlands and Germany. These authorities have proposed adjustments to transfer pricing and the reallocation of income between the related jurisdictions to open tax years through 2019. We are currently evaluating these proposals and all potential remedies. If this matter is resolved in a manner inconsistent with our expectations or we are unsuccessful in defending our position, our financial condition and operating results could be adversely impacted.

We cannot predict with certainty the outcome of tax examinations or audits. We regularly assess the likelihood of adverse outcomes resulting from these examinations or changes in laws, rules, regulations or interpretations to determine the adequacy of our provision for taxes. It is possible the outcomes from these examinations will have a material adverse effect on our financial condition and operating results in future periods.

Risks Related to Our Human Capital

Our success depends upon our ability to attract and retain key employees and the identification and development of talent to succeed senior management.

Our success depends on our ability to attract and retain key personnel including our management team. The inability to recruit and retain talented employees or the unexpected loss of such talented employees or key personnel may adversely affect our operations. In 2021, like many companies, we experienced an increasingly competitive hiring environment for skilled employees at our manufacturing and other sites, which in some cases has increased, or may in the future increase, the cost of retaining or hiring talented employees, particularly in technical manufacturing roles critical to our success.

In addition, we rely on our senior management team specifically, therefore our future success depends in part on our ability to retain those members of senior management and to identify and develop talent to succeed senior management. The hiring and retention of key personnel and appropriate senior management succession planning will continue to be important to the successful implementation of our strategies.

Significant changes in pension fund investment performance or assumptions relating to pension costs may have a material effect on the valuation of pension obligations, the funded status of pension plans and our pension cost.

The cost of our pension plans is incurred over long periods of time and involves many uncertainties during those periods of time. Our funding policy for pension plans is to accumulate plan assets that, over the long run, will approximate the present value of projected benefit obligations. Our pension cost is materially affected by the discount rate used to measure pension obligations, the level and value of plan assets available to fund those obligations at the measurement date and the expected

long-term rate of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets will likely result in corresponding increases and decreases in the valuation of plan assets and a change in the discount rate or mortality assumptions, which will likely result in an increase or decrease in the valuation of pension obligations. The combined impact of these changes will affect the reported funded status of our pension plans as well as the net periodic pension cost in the following fiscal years. In recent years, an extended duration strategy in the asset portfolio has been implemented in some plans to reduce the influence of liability volatility due to changes in interest rates. If the funded status of a pension plan declines, we may be required to make unscheduled contributions in addition to those contributions for which we have already planned. See [Note 12 - Benefit Obligations](#) in the accompanying consolidated financial statements for further information.

Some of our employees are unionized, represented by workers councils or are subject to local laws that are less favorable to employers than the laws of the U.S.

As of December 31, 2021, we had 8,529 employees globally. Approximately 15% of our 3,075 U.S.-based employees are unionized. In addition, a large number of our employees are employed in countries in which employment laws provide greater bargaining or other employment rights than the laws of the U.S. Such employment rights require us to work collaboratively with the legal representatives of the employees to effect any changes to labor agreements. Most of our employees in Europe are represented by workers councils and/or unions that must approve any changes in terms and conditions of employment, including potentially salaries and benefits. They may also impede efforts to restructure our workforce. Although we believe we have a good working relationship with our employees and their legal representatives, a strike, work stoppage, or slowdown by our employees could occur, resulting in a disruption of our operations or higher ongoing labor costs.

Risks Related to Our Indebtedness

Our level of indebtedness and other liabilities could diminish our ability to raise additional capital to fund our operations or refinance our existing indebtedness when it matures, limit our ability to react to changes in the economy or the chemicals industry and prevent us from meeting obligations under our indebtedness.

See [Note 11 - Debt](#) in the accompanying consolidated financial statements for further information about our indebtedness. See [Note 12 - Benefit Obligations](#), [Note 13 - Environmental](#) and [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements for further information about our other obligations.

Our level of indebtedness and other liabilities could have important consequences, including:

- Increasing our vulnerability to general economic and industry conditions, including exacerbating the impact of any adverse business effects that are determined to be material adverse events under our existing senior credit agreement (the "Credit Agreement") or our indentures (the "Indentures") governing our \$500 million in aggregate principal amount of 4.625% senior unsecured notes due 2022, €450 million in aggregate principal amount of 1.125% senior unsecured notes due 2023, \$500 million in aggregate principal amount of 3.500% senior unsecured notes due 2024, €300 million in aggregate principal amount of 1.250% senior unsecured notes due 2025, \$400 million in aggregate principal amount of 1.400% senior unsecured notes due 2026, €500 million in aggregate principal amount of 2.125% senior unsecured notes due 2027 and €500 million in aggregate principal amount of 0.625% senior unsecured notes due 2028 (collectively, the "Senior Notes");
- Requiring a substantial portion of cash flow from operations to be dedicated to the payment of principal and interest on indebtedness and amounts payable in connection with the satisfaction of our other liabilities, therefore reducing our ability to use our cash flow to fund operations, capital expenditures and future business opportunities or pay dividends on our common stock, par value \$0.0001 per share ("Common Stock");
- Exposing us to the risk of increased interest rates as certain of our borrowings are at variable rates of interest;
- Exposing us to the risk of changes in currency exchange rates as certain of our borrowings are denominated in foreign currencies; and
- Limiting our ability to obtain additional financing for working capital, capital expenditures, product development, debt service requirements, acquisitions and general corporate or other purposes.

Restrictive covenants in our debt agreements may limit our ability to engage in certain transactions and may diminish our ability to make payments on our indebtedness or pay dividends.

The Credit Agreement, the Indentures and the Receivables Purchase Agreement governing our receivables securitization facility each contain various covenants that limit our ability to engage in specified types of transactions. The Credit Agreement and the Indentures contain covenants including, but not limited to, restrictions on our and certain of our subsidiaries' ability to incur additional debt; incur liens securing debt; merge or consolidate with any other person; and sell, assign, transfer, lease, convey or otherwise dispose of all or substantially all of the Issuer's assets or the assets of certain subsidiaries. Additionally, the Credit Agreement requires the maintenance of certain financial ratios.

Such restrictions in our debt obligations could result in us having to obtain the consent of our lenders and holders of the Senior Notes in order to take certain actions. Disruptions in credit markets may prevent us from obtaining or make it more difficult or more costly for us to obtain such consents. Our ability to expand our business or to address declines in our business may be limited if we are unable to obtain such consents.

A breach of any of these covenants could result in a default, which, if not cured or waived, could have a material adverse effect on our business, financial condition and results of operations. Furthermore, a default under the Credit Agreement could permit lenders to accelerate the maturity of our indebtedness under the Credit Agreement and to terminate any commitments to lend. If the lenders under the Credit Agreement accelerate the repayment of such indebtedness, we may not have sufficient liquidity to repay such amounts or our other indebtedness, including the Senior Notes. In such event, we could be forced into bankruptcy or liquidation.

Celanese and Celanese U.S. are holding companies and depend on subsidiaries to satisfy their obligations under the Senior Notes and the guarantee of Celanese U.S.'s obligations under the Senior Notes and the Credit Agreement by Celanese.

As holding companies, Celanese and Celanese U.S. conduct substantially all of their operations through their subsidiaries, which own substantially all of our consolidated assets. Consequently, the principal source of cash to pay Celanese and Celanese U.S.'s obligations, including obligations under the Senior Notes and the guarantee of Celanese U.S.'s obligations under the Credit Agreement and the Indentures by Celanese, is the cash that our subsidiaries generate from their operations. We cannot assure that our subsidiaries will be able to, or be permitted to, make distributions to enable Celanese U.S. and/or Celanese to make payments in respect of their obligations. Each of our subsidiaries is a distinct legal entity and, under certain circumstances, applicable country or state laws, regulatory limitations and terms of our debt instruments may limit our subsidiaries' ability to distribute cash to Celanese U.S. and Celanese. While the Credit Agreement and the Indentures limit the ability of our subsidiaries to put restrictions on paying dividends or making other intercompany payments to us, these limitations are subject to certain qualifications and exceptions, which may have the effect of significantly restricting the applicability of those limits. In the event Celanese U.S. and/or Celanese do not receive distributions from our subsidiaries, Celanese U.S. and/or Celanese may be unable to make required payments on the indebtedness under the Credit Agreement, the Indentures, the guarantee of Celanese U.S.'s obligations under the Credit Agreement and the Indentures by Celanese, or our other indebtedness.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

Description of Property

We own or lease numerous production and manufacturing facilities throughout the world. We also own or lease other properties, including office buildings, warehouses, pipelines, research and development facilities and sales offices. We continuously review and evaluate our facilities as a part of our strategy to optimize our business portfolio. The following table sets forth a list of our principal offices, production and other facilities throughout the world as of December 31, 2021.

[Table of Contents](#)

Site	Leased/Owned	Products/Functions
Corporate Offices		
Amsterdam, Netherlands	Leased	Administrative offices
Budapest, Hungary	Leased	Administrative offices
Irving, Texas, U.S.	Leased	Corporate headquarters
Nanjing, China	Leased	Administrative offices
Shanghai, China	Leased	Administrative offices
Sulzbach, Germany	Leased	Administrative offices
Engineered Materials		
Auburn Hills, Michigan, U.S.	Leased	Automotive Development Center
Bishop, Texas, U.S.	Owned	POM, UHMW-PE, Compounding
Evansville, Indiana, U.S.	Owned	Compounding
Ferrara, Italy	Leased	Compounding
Florence, Kentucky, U.S.	Owned	Compounding
Forli, Italy	Leased	Compounding
Frankfurt am Main, Germany ⁽¹⁾	Leased	POM, Compounding, Sorbates, Sunett® sweetener
Kaiserslautern, Germany ⁽¹⁾	Owned	LFRT
Nanjing, China ⁽¹⁾	Owned	LFRT, UHMW-PE, Compounding
Newport, Wales, U.K.	Owned	TPV
Oberhausen, Germany ⁽¹⁾	Leased	UHMW-PE
Pensacola, Florida, U.S.	Owned	TPV
Shelby, North Carolina, U.S.	Leased	LCP
Silao, Mexico	Leased	Compounding
Silvassa, Gurjarat, India	Owned	Compounding
Suzano, Brazil ⁽¹⁾	Leased	Compounding
Suzhou, China	Owned	Compounding
Utzenfeld, Germany	Owned	Compounding
Acetate Tow		
Lanaken, Belgium	Owned	Acetate tow
Narrows, Virginia, U.S.	Owned	Acetate tow, Acetate flake
Acetyl Chain		
Bay City, Texas, U.S. ⁽¹⁾	Leased	VAM
Bishop, Texas, U.S.	Owned	Formaldehyde, Paraformaldehyde
Boucherville, Quebec, Canada	Owned	Conventional emulsions
Cangrejera, Mexico	Owned	Acetic anhydride, Ethyl acetate, Acetone derivatives
Clear Lake, Texas, U.S. ⁽²⁾	Owned	Acetic acid, VAM, Methanol
Edmonton, Alberta, Canada	Owned	Low-density polyethylene resins, Ethylene vinyl acetate
Enoree, South Carolina, U.S.	Owned	VAE emulsions
Frankfurt am Main, Germany ⁽¹⁾	Leased	Acetaldehyde, Conventional emulsions, VAE emulsions, VAM, RDP
Geleen, Netherlands	Owned	VAE emulsions, RDP
Jurong Island, Singapore ⁽¹⁾	Leased	Acetic acid, Butyl acetate, Ethyl acetate, VAE emulsions, VAM
Moosleerau, Switzerland	Owned	RDP
Nanjing, China ⁽¹⁾	Leased	Acetic acid, Acetic anhydride, Conventional emulsions, VAE emulsions, VAM
Perstorp, Sweden	Owned	Conventional emulsions, VAE emulsions
Shanghai, China ⁽¹⁾	Leased	RDP

⁽¹⁾ Celanese owns the assets on this site and leases the land through the terms of a long-term land lease.

⁽²⁾ Methanol is produced by our joint venture, Fairway, in which Celanese owns a 50% interest.

Celanese also has entered into strategic ventures with partners in various locations around the world. See [Item 1. Business](#) for a discussion of our investments in affiliates and their respective site locations.

Item 3. Legal Proceedings

The Company is involved in legal and regulatory proceedings, lawsuits, claims and investigations incidental to the normal conduct of its business, relating to such matters as product liability, land disputes, insurance coverage disputes, contracts, employment, antitrust and competition, intellectual property, personal injury and other actions in tort, workers' compensation, chemical exposure, asbestos exposure, taxes, trade compliance, acquisitions and divestitures, claims of legacy stockholders, past waste disposal practices and release of chemicals into the environment. The Company is actively defending those matters where it is named as a defendant. Due to the inherent subjectivity of assessments and unpredictability of outcomes of legal proceedings, the Company's litigation accruals and estimates of possible loss or range of possible loss may not represent the ultimate loss to the Company from legal proceedings. See [Note 13 - Environmental](#) and [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements for a discussion of material environmental matters and material commitments and contingencies related to legal and regulatory proceedings. See [Item 1A. Risk Factors](#) for certain risk factors relating to these legal proceedings.

Item 4. Mine Safety Disclosures

None.

Information about our Executive Officers

The names, ages and biographies of our executive officers as of February 10, 2022 are as follows:

Name	Age	Position
Lori J. Ryerkerk	59	Chairman of the Board of Directors, Chief Executive Officer and President
Scott A. Richardson	45	Executive Vice President and Chief Financial Officer
Thomas F. Kelly	56	Senior Vice President, Engineered Materials
John G. Fotheringham.....	53	Senior Vice President, Acetyls
A. Lynne Puckett	59	Senior Vice President and General Counsel
Vanessa A. Dupuis.....	48	Senior Vice President and Chief Human Resources Officer

Lori J. Ryerkerk was named our Chief Executive Officer and President and a member of our board of directors effective May 2019. In April 2020, she was named Chairman of the Board. Previously, Ms. Ryerkerk was the Executive Vice President of Global Manufacturing, the largest business in Shell Downstream Inc., where she led a team of 30,000 employees and contractors at refineries and chemical sites worldwide. Ms. Ryerkerk joined Shell in May 2010 as the Regional Vice President of Manufacturing in Europe and Africa, and was responsible for the operation of five Shell manufacturing facilities and five joint ventures. In October 2013, she was named Executive Vice President of Global Manufacturing, Shell Downstream Inc. Before joining Shell, she was Senior Vice President, Refining, Supply and Terminals at Hess Corporation, where she was responsible for refineries, terminals and a distribution network, and supply and trading. Prior to that, Ms. Ryerkerk spent 24 years with ExxonMobil where she started her career as a process technologist at a refinery in Baton Rouge, Louisiana. Throughout her tenure at ExxonMobil, she took on a variety of operational and senior leadership roles in Refining and Chemicals Manufacturing, Power Generation, and various other groups including Supply, Economics and Planning, HSSE and Public Affairs/Government Relations. Ms. Ryerkerk received a Chemical Engineering degree from Iowa State University. She serves on the board of Eaton Corporation plc, a diversified power management company, and previously served on the board of directors of Axalta Coating Systems, a leading provider of liquid and powder coatings.

Scott A. Richardson was named Chief Financial Officer for Celanese Corporation in February 2018 after serving as Senior Vice President of the Engineered Materials business since December 2015, where he had global responsibility for strategy, product and business management, planning and portfolio development, and pipeline management. He was promoted to Executive Vice President in March 2020. Previously, Mr. Richardson served as Vice President and General Manager of the Acetyl Chain since 2011. Mr. Richardson has progressed through several Celanese roles including global commercial director, Acetyls; manager of Investor Relations; business analysis manager, Acetyls; and business line controller, Polyols and Solvents. He joined Celanese in 2005. Prior to joining Celanese, Mr. Richardson held various finance, operational and leadership roles at American Airlines. He earned a Bachelor of Arts in Accounting from Westminster College and a Master of Business Administration from Texas Christian University.

Thomas F. Kelly was named Senior Vice President, Engineered Materials in April 2020, leading the Engineered Materials business with global responsibility for product and business management, planning and portfolio development, and pipeline management. He had previously served as Vice President of Engineered Materials with Celanese since January 2019. He re-joined Celanese in January 2019 after serving with Cabot Microelectronics (now CMC Materials), a global supplier of consumable materials to semiconductor manufacturers and pipeline companies, from September 2016 to January 2019. At Cabot Microelectronics he held the roles of Vice President and Chief Commercial Officer and Vice President of Corporate Development. He was previously with Celanese from August 2012 to September 2016 as Director of Raw Materials, where he led a team responsible for sourcing strategic raw materials. Before joining Celanese, he had additional roles in supply chain, sales and manufacturing management with Chemtura, Cabot Microelectronics and Rohm & Haas. Mr. Kelly also serves (since 2021) as a board member of Nucera Solutions, a provider of specialty polymer solutions, and served as a board member of Vertellus Global Holdings LLC, a supplier of specialty chemical products, from August 2019 through December 2020. He holds a Master of Business Administration from Drexel University, and Master's and Bachelor's Degrees in Chemical Engineering from Villanova University.

John G. Fotheringham was named Senior Vice President, Acetyls in May 2020 and has global responsibility for the Celanese Acetyl Chain business. Prior to his current role, Mr. Fotheringham had served as Vice President of Global Acetic Acid & Celanese Europe since January 2017. He joined Celanese from ITW (Illinois Tool Works), a global diversified manufacturer of specialized industrial equipment, where he served as Vice President and General Manager from September 2016 to January 2017 with leadership responsibility in industrial applications including industrial lubrication and hygiene. From February 2014 to August 2016, he was Vice President with Wacker Chemie in Germany, where he was responsible for the global emulsions and resins business. Prior to joining Wacker, he was with Celanese for over 20 years in roles of increasing responsibility in the areas of commercial, supply chain and mergers and acquisitions. He holds a Bachelor of Science in Chemistry and Business Management from Kingston University, London.

A. Lynne Puckett joined Celanese Corporation in February 2019 as Senior Vice President and General Counsel. Prior to that, Ms. Puckett was Senior Vice President, General Counsel and Secretary of Colfax Corporation since 2010. Prior to Colfax, she was a Partner with the law firm of Hogan Lovells. Her experience includes a broad range of corporate and transactional matters, including mergers and acquisitions, venture capital financings, debt and equity offerings, and general corporate and securities law matters. Before entering the practice of law, Ms. Puckett worked for the U.S. Central Intelligence Agency and a major U.S. defense contractor. She currently serves on the board of directors of Markel Corporation, an insurance and investment operations holding company. Ms. Puckett received a Juris Doctor degree from the University of Maryland School of Law and a Bachelor of Science degree from James Madison University.

Vanessa A. Dupuis was named Senior Vice President and Chief Human Resources Officer in February of 2021. Ms. Dupuis joined Celanese in 2017 as the Head of Global Talent Management. In this role, she was responsible for supporting business growth by implementing strategies to attract, develop, engage and retain talent around the globe. In 2019, Ms. Dupuis assumed additional responsibilities as the Head of Human Resources for Celanese Corporate Functions, Procurement and Customer Experience. In this expanded role, Ms. Dupuis served as a strategic human resources partner to the CFO, General Counsel, Head of Procurement and Head of Customer Experience in defining and implementing workforce strategies that ensure long-term success for the Company. In 2020, Ms. Dupuis was named vice president of Global Total Rewards and HR Operations. Over her 20-year career, Ms. Dupuis has served in a variety of human resources leadership roles across several industries such as energy, financial services, technology and healthcare. Prior to joining Celanese, Ms. Dupuis served as Head of Executive Development & Leadership Assessments for Duke Energy; as Human Resources Executive for Bank of America; and as a Learning & Development Partner for Dell Inc. Ms. Dupuis earned a Bachelor of Arts degree in Communications from Marist College, and a Master of Arts degree in Social & Organizational Psychology from Columbia University.

PART II

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

Market Information

Our common stock, par value \$0.0001 per share ("Common Stock"), has traded on the New York Stock Exchange under the symbol "CE" since January 21, 2005.

Holders

As of January 28, 2022, there were 83 holders of record of our Common Stock. By including persons holding shares in broker accounts under street names, however, we estimate we have approximately 160,000 beneficial holders.

Dividend Policy

The amount available to us to pay cash dividends is not currently restricted by our existing senior credit facility and our indentures governing our senior unsecured notes. Certain indentures for notes issued prior to 2016 have provisions that restrict the amount available to us to pay cash dividends in the event of a ratings downgrade below investment grade by two or more credit rating agencies. Also, the general corporation law of the State of Delaware imposes additional restrictions on the payment of dividends by all Delaware corporations that do not currently limit our ability to pay our current and anticipated regular cash dividends. See [Note 14 - Stockholders' Equity](#) in the accompanying consolidated financial statements for further information.

Celanese Purchases of its Equity Securities

Information regarding repurchases of our Common Stock during the three months ended December 31, 2021 is as follows:

Period	Total Number of Shares Purchased ⁽¹⁾	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares Remaining that May Be Purchased Under the Program ⁽²⁾
October 1 - 31, 2021	556,367	\$ 162.24	556,367	\$ 1,173,000,000
November 1 - 30, 2021	310,903	\$ 166.53	310,903	\$ 1,121,000,000
December 1 - 31, 2021	356,381	\$ 162.72	356,381	\$ 1,063,000,000
Total	<u>1,223,651</u>		<u>1,223,651</u>	

⁽¹⁾ May include shares withheld from employees to cover their withholding requirements for personal income taxes related to the vesting of restricted stock.

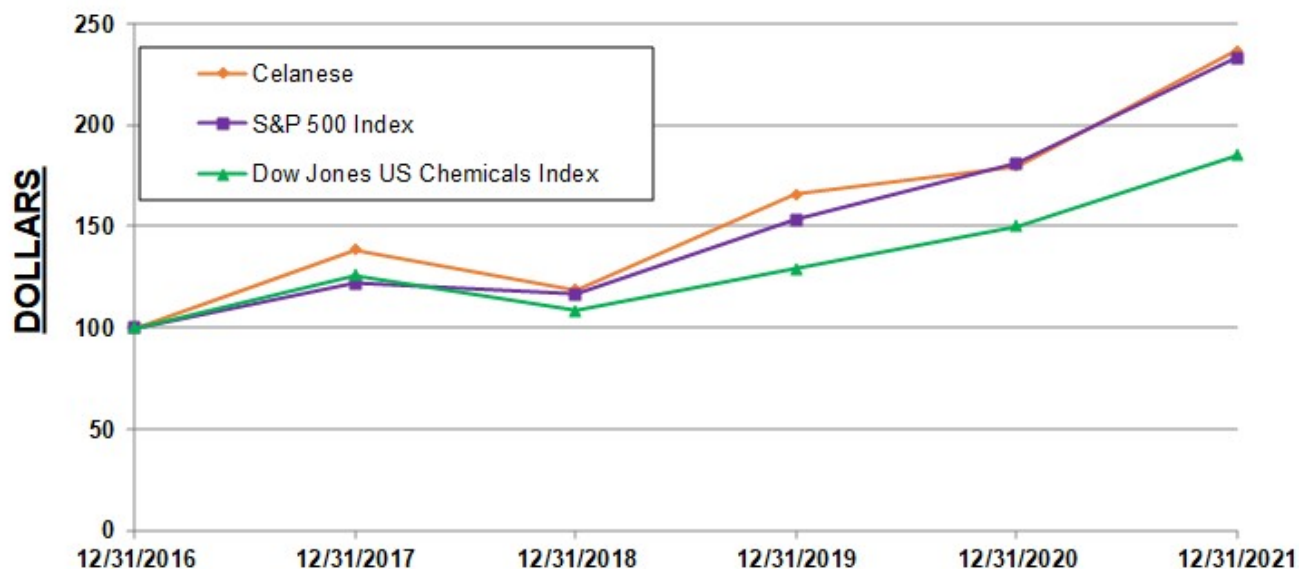
⁽²⁾ Our Board of Directors has authorized the aggregate repurchase of \$6.9 billion of our Common Stock since February 2008.

See [Note 14 - Stockholders' Equity](#) in the accompanying consolidated financial statements for further information.

Performance Graph

The following performance graph compares the cumulative total return on Celanese Corporation Common Stock from December 31, 2016 through December 31, 2021 to that of the Standard & Poor's ("S&P") 500 Stock Index and the Dow Jones U.S. Chemicals Index. Cumulative total return represents the change in stock price and the amount of dividends received during the indicated period, assuming reinvestment of all dividends. The performance graph assumes an investment of \$100 on December 31, 2016. The stock performance shown in the graph is included in response to SEC requirements and is not intended to forecast or to be indicative of future performance.

Comparison of Cumulative Total Return



Company Name / Index	12/31/2016	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021
Celanese	100	138.53	118.70	165.99	179.71	236.69
S&P 500 Index	100	121.82	116.47	153.13	181.29	233.28
Dow Jones US Chemicals Index	100	125.80	108.21	128.87	149.91	185.19

The above performance graph and related information shall not be deemed "soliciting material" or to be "filed" with the Securities and Exchange Commission, nor shall such information be incorporated by reference into any future filing under the Securities Act of 1933 or Securities Exchange Act of 1934, each as amended, except to the extent that we specifically incorporate it by reference into such filing.

Recent Sales of Unregistered Securities

Our deferred compensation plan offers certain of our senior employees and directors the opportunity to defer a portion of their compensation in exchange for a future payment amount equal to their deferrals plus or minus certain amounts based upon the market-performance of specified measurement funds selected by the participant. These deferred compensation obligations may be considered securities of Celanese. Participants were required to make deferral elections under the plan prior to January 1 of the year such deferrals will be withheld from their compensation. We relied on the exemption from registration provided by Section 4(a)(2) of the Securities Act in making this offer to a select group of employees, fewer than 35 of which were non-accredited investors under the rules promulgated by the Securities and Exchange Commission.

Item 6. Reserved

This item is no longer required, as the Company has adopted the amendment to Item 301 of Regulation S-K contained in SEC Release No. 33-10890, which became effective on February 10, 2021.

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

In this Annual Report on Form 10-K ("Annual Report"), the term "Celanese" refers to Celanese Corporation, a Delaware corporation, and not its subsidiaries. The terms the "Company," "we," "our" and "us," refer to Celanese and its subsidiaries on a consolidated basis. The term "Celanese U.S." refers to the Company's subsidiary, Celanese US Holdings LLC, a Delaware limited liability company, and not its subsidiaries.

The following discussion should be read in conjunction with the accompanying consolidated financial statements and notes to the consolidated financial statements, which are prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP").

Investors are cautioned that the forward-looking statements contained in this section and other parts of this Annual Report involve both risk and uncertainty. Several important factors could cause actual results to differ materially from those anticipated by these statements. Many of these statements are macroeconomic in nature and are, therefore, beyond the control of management. See "Forward-Looking Statements" below.

Forward-Looking Statements

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") and other parts of this Annual Report contain certain forward-looking statements and information relating to us that are based on the beliefs of our management as well as assumptions made by, and information currently available to, us. Generally, words such as "believe," "expect," "intend," "estimate," "anticipate," "project," "plan," "may," "can," "could," "might," and "will," and similar expressions, as they relate to us are intended to identify forward-looking statements. These statements reflect our current views and beliefs with respect to future events at the time that the statements are made, are not historical facts or guarantees of future performance and involve risks and uncertainties that are difficult to predict and many of which are outside of our control. Further, certain forward-looking statements are based upon assumptions as to future events that may not prove to be accurate. See "[Special Note Regarding Forward-Looking Statements](#)" at the beginning of this Annual Report for further discussion.

COVID-19 Update

The COVID-19 pandemic and the various responses thereto, including government-imposed quarantines, stay-at-home restrictions, travel restrictions and other public health and safety measures, continue to evolve. Our employees' health and well-being continue to be of vital importance and we continue to monitor the pandemic in the areas where we have employees and operations. We implemented government recommended protocols and best practices related to social distancing and hygiene. We implemented careful return-to-office efforts in accordance with government regulations and recommended protocols.

After declining during 2020, consumer demand for most applications has increased and rebounded to pre-COVID-19 levels in many regions of the world, which has positively impacted our results of operations. Where we temporarily reduced run rates in prior quarters, our plants are now operating at more normalized levels, although, like many companies, we have experienced a tightening labor market, with increased competitiveness and higher costs for the pool of talent critical for specialty manufacturing and other operations.

Due to potential impacts of COVID-19 resurgences and variants, some uncertainty remains in the pandemic's future duration and scope. The extent to which resurgences or other variants of COVID-19 may adversely impact demand for our products, availability and price of raw materials and the labor supply, and therefore our business, financial condition and results of operations, will depend on numerous factors, including the effectiveness of vaccines, the extent and locations of any resurgences of the virus, health and safety measures and the continuing impact of the pandemic on supply chains (including the availability and cost of transportation and materials). On September 9, 2021, the President directed the Occupational Safety and Health Administration to promulgate rules requiring large employers to mandate employee vaccinations. These rules, referred to as the emergency temporary standard ("ETS") were subject to a number of legal challenges, including applications for emergency injunctions. These actions were consolidated before the United States Supreme Court, which issued a decision in January 2022 that stayed implementation of the ETS. In the United States, the ETS or similar regulations could be re-approved or re-issued in a similar or different form, and around the world we anticipate that national, state and local governments will continue to pursue regulatory or legislative action designed to curb the spread of COVID-19. Such efforts could impose additional costs on our operations. These factors are uncertain, rapidly changing and cannot be predicted.

The extent to which COVID-19 will adversely impact our business, financial condition and results of operations will depend on numerous evolving factors, which are highly uncertain, rapidly changing and cannot be predicted. For further information regarding the impact COVID-19 could have on our business, financial condition and results of operations, see [Item 1A. Risk Factors](#). For further discussion of our liquidity condition, see [Liquidity and Capital Resources](#) in this [Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#).

Risk Factors

[Item 1A. Risk Factors](#) of this Annual Report also contains a description of certain risk factors that you should consider which could significantly affect our financial results. In addition, the following factors, among others, could cause our actual results to differ materially from those results, performance or achievements that may be expressed or implied by such forward-looking statements:

- changes in general economic, business, political and regulatory conditions in the countries or regions in which we operate;
- volatility or changes in the price and availability of raw materials and energy, particularly changes in the demand for, supply of, and market prices of ethylene, methanol, natural gas, wood pulp and fuel oil and the prices for electricity and other energy sources;
- the extent to which the COVID-19 pandemic continues to adversely impact the economic environment, market demand and our operations, as well as the pace of any economic recovery;
- the length and depth of product and industry business cycles particularly in the automotive, electrical, textiles, electronics and construction industries;
- the ability to pass increases in raw material prices on to customers or otherwise improve margins through price increases;
- the ability to maintain plant utilization rates and to implement planned capacity additions, expansions and maintenance;
- the ability to reduce or maintain current levels of production costs and to improve productivity by implementing technological improvements to existing plants;
- increased price competition and the introduction of competing products by other companies;
- the ability to identify desirable potential acquisition targets and to complete acquisition or investment transactions, including obtaining regulatory approvals, consistent with our strategy;
- market acceptance of our technology;
- compliance and other costs and potential disruption or interruption of production or operations due to accidents, interruptions in sources of raw materials, transportation or logistics disruptions, cybersecurity incidents, terrorism or political unrest, public health crises (including, but not limited to, the COVID-19 outbreak), or other unforeseen events or delays in construction or operation of facilities, including as a result of geopolitical conditions, the occurrence of acts of war or terrorist incidents or as a result of weather, natural disasters, or other crises;
- the ability to obtain governmental approvals and to construct facilities on terms and schedules acceptable to us;
- changes in applicable tariffs, duties and trade agreements, tax rates or legislation throughout the world including, but not limited to, adjustments, changes in estimates or interpretations or the resolution of tax examinations or audits that may impact recorded or future tax impacts and potential regulatory and legislative tax developments in other jurisdictions;
- changes in the degree of intellectual property and other legal protection afforded to our products or technologies, or the theft of such intellectual property;
- potential liability for remedial actions and increased costs under existing or future environmental, health and safety regulations, including those relating to climate change;
- potential liability resulting from pending or future claims or litigation, including investigations or enforcement actions, or from changes in the laws, regulations or policies of governments or other governmental activities, in the countries in which we operate;

- changes in currency exchange rates and interest rates; and
- various other factors, both referenced and not referenced in this Annual Report.

Many of these factors are macroeconomic in nature and are, therefore, beyond our control. COVID-19 and responses to the pandemic by governments and businesses, have significantly increased financial and economic volatility and uncertainty, exacerbating the risks and potential impact of these factors. Should one or more of these risks or uncertainties materialize, affect us in ways or to an extent that we currently do not expect or consider to be significant, or should underlying assumptions prove incorrect, our actual results, performance or achievements may vary materially from those described in this Annual Report as anticipated, believed, estimated, expected, intended, planned or projected. We neither intend nor assume any obligation to update these forward-looking statements, which speak only as of their dates.

Results of Operations

Financial Highlights

	Year Ended December 31,		Change
	2021	2020	
(In \$ millions, except percentages)			
Statement of Operations Data			
Net sales	8,537	5,655	2,882
Gross profit	2,682	1,293	1,389
Selling, general and administrative ("SG&A") expenses	(633)	(482)	(151)
Operating profit (loss)	1,946	664	1,282
Equity in net earnings (loss) of affiliates	146	134	12
Non-operating pension and other postretirement employee benefit (expense) income	106	17	89
Interest expense	(91)	(109)	18
Dividend income - equity investments	147	126	21
Gain (loss) on sale of investments in affiliates	—	1,408	(1,408)
Earnings (loss) from continuing operations before tax	2,248	2,251	(3)
Earnings (loss) from continuing operations	1,918	2,004	(86)
Earnings (loss) from discontinued operations	(22)	(12)	(10)
Net earnings (loss)	1,896	1,992	(96)
Net earnings (loss) attributable to Celanese Corporation	1,890	1,985	(95)
Other Data			
Depreciation and amortization	371	350	21
SG&A expenses as a percentage of Net sales	7.4 %	8.5 %	
Operating margin ⁽¹⁾	22.8 %	11.7 %	

⁽¹⁾ Defined as Operating profit (loss) divided by Net sales.

	As of December 31,	
	2021	2020
(In \$ millions)		
Balance Sheet Data		
Cash and cash equivalents	536	955
Short-term borrowings and current installments of long-term debt - third party and affiliates	791	496
Long-term debt, net of unamortized deferred financing costs	3,176	3,227
Total debt	3,967	3,723

Factors Affecting Business Segment Net Sales

The percentage increase (decrease) in Net sales attributable to each of the factors indicated for each of our business segments is as follows:

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

	<u>Volume</u>	<u>Price</u>	<u>Currency</u>	<u>Other</u>	<u>Total</u>
	(In percentages)				
Engineered Materials	15	12	4	—	31
Acetate Tow	—	(1)	—	—	(1)
Acetyl Chain	9	62	2	—	73
Total Company	10	39	2	—	51

Consolidated Results

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Net sales increased \$2.9 billion, or 51%, for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher pricing in most of our segments, primarily driven by our Acetyl Chain segment, due to increased customer demand and supply constraints across all regions;
- higher volume in our Engineered Materials and Acetyl Chain segments, primarily due to increased demand across most regions due to recovery from the COVID-19 pandemic; and
- a favorable currency impact resulting from a stronger Euro relative to the U.S. dollar.

Selling, general and administrative expenses increased \$151 million, or 31%, for the year ended December 31, 2021 compared to the same period in 2020, primarily due to:

- an increase in functional spending and incentive compensation costs of \$109 million in Other Activities.

Operating profit increased \$1.3 billion, or 193%, for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher Net sales across most of our segments;

partially offset by:

- higher raw material and energy costs across all of our segments; and
- higher spending across most of our segments, primarily as a result of increased plant operating and maintenance expenses.

Non-operating pension and other postretirement employee benefit income increased \$89 million for the year ended December 31, 2021 compared to the same period in 2020 due to a decrease in recognized actuarial loss of \$55 million as a result of lower than expected asset returns, partially offset by an increase in the weighted average discount rate used to determine benefit obligations from 2.05% to 2.47%, and lower interest costs of \$31 million. See [Note 12 - Benefit Obligations](#) in the accompanying consolidated financial statements for further information.

Gain (loss) on sale of investments in affiliates decreased \$1.4 billion for the year ended December 31, 2021 due to the sale of our 45% Polyplastics joint venture equity interest during the year ended December 31, 2020, which did not recur in the current year. See [Note 7 - Investments in Affiliates](#) in the accompanying consolidated financial statements for further information.

Our effective income tax rate for the year ended December 31, 2021 was 15% compared to 11% for the year ended 2020. The higher effective income tax rate for the year ended December 31, 2021 compared to the same period in 2020 was primarily due

to non-recurring tax benefits from certain divestitures and reorganization transactions which did not recur in the current year. See [Note 16 - Income Taxes](#) in the accompanying consolidated financial statements for further information.

Discussion of our financial condition and results of operations for the year ended December 31, 2020 compared to the year ended December 31, 2019 and for the year ended December 31, 2019 compared to the year ended December 31, 2018, can be found in *Part II - Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations* in our Annual Reports for the years ended December 31, 2020 and December 31, 2019, respectively.

Business Segments

Engineered Materials

	Year Ended December 31,		Change	% Change
	2021	2020		
	<i>(In \$ millions, except percentages)</i>			
Net sales	2,718	2,081	637	30.6 %
Net Sales Variance				
<i>Volume</i>	15 %			
<i>Price</i>	12 %			
<i>Currency</i>	4 %			
Other (charges) gains, net	6	(36)	42	116.7 %
Operating profit (loss)	411	235	176	74.9 %
Operating margin	15.1 %	11.3 %		
Equity in net earnings (loss) of affiliates	126	115	11	9.6 %
Gain (loss) on sale of investments in affiliates	—	1,408	(1,408)	(100.0)%
Depreciation and amortization	144	134	10	7.5 %

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Net sales increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher volume for most of our products driven by increased demand across all regions due to recovery from the COVID-19 pandemic;
- higher pricing for most of our products, primarily due to higher raw material costs and product mix; and
- a favorable currency impact resulting from a stronger Euro relative to the U.S. dollar.

Operating profit increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher Net sales;
- a favorable impact of \$42 million to Other (charges) gains, net. During the year ended December 31, 2020, we recorded a \$26 million long-lived asset impairment loss related to certain fixed assets used in compounding operations at our facilities in Kaiserslautern, Germany; Wehr, Germany and Ferrara Marconi, Italy, which did not recur in the current year, see [Note 15 - Other \(Charges\) Gains, Net](#) in the accompanying consolidated financial statements for further information; and
- lower plant turnaround costs of \$41 million, primarily related to our Bishop and Frankfurt plants in 2020;

partially offset by:

- higher raw material costs for most of our products and increased sourcing costs as a result of higher logistical costs and global shipping constraints;
- higher energy costs of \$110 million, primarily for steam; and
- higher spending of \$63 million, primarily as a result of plant operating and administrative expenses.

Gain (loss) on sale of investments in affiliates decreased \$1.4 billion for the year ended December 31, 2021 due to the sale of our 45% Polyplastics joint venture equity interest during the year ended December 31, 2020, which did not recur in the current year. See [Note 7 - Investments in Affiliates](#) in the accompanying consolidated financial statements for further information.

Acetate Tow

	Year Ended December 31,		Change	% Change
	2021	2020		
	(In \$ millions, except percentages)			
Net sales	514	519	(5)	(1.0)%
Net Sales Variance				
<i>Volume</i>	—	%		
<i>Price</i>	(1)	%		
<i>Currency</i>	—	%		
Operating profit (loss)	56	118	(62)	(52.5)%
Operating margin	10.9 %	22.7 %		
Dividend income - equity investments	146	126	20	15.9 %
Depreciation and amortization	39	36	3	8.3 %

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Net sales were consistent for the year ended December 31, 2021 compared to the same period in 2020.

Operating profit decreased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher energy costs of \$29 million, primarily related to higher natural gas pricing; and
- higher raw material costs of \$18 million, primarily for acetic acid.

Dividend income from equity investments increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher earnings from our Nantong, Zhuhai and Kunming Cellulose Fibers joint ventures related to higher volumes and a favorable currency impact.

Acetyl Chain

	Year Ended December 31,		Change	% Change
	2021	2020		
	(In \$ millions, except percentages)			
Net sales	5,430	3,147	2,283	72.5 %
Net Sales Variance				
<i>Volume</i>	9 %			
<i>Price</i>	62 %			
<i>Currency</i>	2 %			
Operating profit (loss)	1,819	563	1,256	223.1 %
Operating margin	33.5 %	17.9 %		
Depreciation and amortization	171	163	8	4.9 %

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Net sales increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher pricing for all of our products, primarily due to increased customer demand and supply constraints across all regions;
- higher volume for most of our products driven by increased demand across most regions due to recovery from the COVID-19 pandemic; and
- a favorable currency impact resulting from a stronger Euro relative to the U.S. dollar.

Operating profit increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher Net sales;

partially offset by:

- higher raw material costs, primarily for ethylene, methanol and carbon monoxide, as well as higher sourcing and distribution costs due to stronger demand and tighter market conditions;
- higher spending of \$77 million, primarily as a result of increased plant operating and maintenance expenses, fixed overhead, freeze-related repairs and restart costs resulting from Winter Storm Uri; and
- higher energy costs of \$67 million, primarily due to supply disruptions caused by Winter Storm Uri, price increases for, and increased consumption of, natural gas due to increased volumes.

Other Activities

	Year Ended December 31,		Change	% Change
	2021	2020		
(In \$ millions, except percentages)				
Operating profit (loss)	(340)	(252)	(88)	(34.9)%
Non-operating pension and other postretirement employee benefit (expense) income	106	16	90	562.5 %

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

Operating loss increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- higher functional spending and incentive compensation costs of \$109 million;

partially offset by:

- a gain on the sale of our Spondon site of \$14 million.

Non-operating pension and other postretirement employee benefit income increased for the year ended December 31, 2021 compared to the same period in 2020 primarily due to:

- a decrease in recognized actuarial loss of \$55 million as a result of lower than expected asset returns, partially offset by an increase in the weighted average discount rate used to determine benefit obligations from 2.05% to 2.47%, and lower interest costs of \$31 million. See [Note 12 - Benefit Obligations](#) in the accompanying consolidated financial statements for further information.

Liquidity and Capital Resources

Our primary sources of liquidity are cash generated from operations, available cash and cash equivalents, dividends from our portfolio of strategic investments and available borrowings under our senior unsecured revolving credit facility. As of December 31, 2021, we have \$1.1 billion available for borrowing under our senior unsecured revolving credit facility, if required, in meeting our working capital needs and other contractual obligations. In addition, we held cash and cash equivalents of \$536 million as of December 31, 2021. We are actively managing our business to maintain cash flow, and we believe that liquidity from the above-referenced sources will be sufficient to meet our operational and capital investment needs and financial obligations for the foreseeable future.

On December 1, 2021, we acquired the Santoprene™ thermoplastic vulcanizates ("TPV") elastomers business of Exxon Mobil Corporation ("Santoprene") for a purchase price of \$1.15 billion in an all-cash transaction. See [Note 4 - Acquisitions, Dispositions and Plant Closures](#) in the accompanying consolidated financial statements for further information.

While our contractual obligations, commitments and debt service requirements over the next several years are significant, we continue to believe we will have available resources to meet our liquidity requirements, including debt service, for the next twelve months. If our cash flow from operations is insufficient to fund our debt service and other obligations, we may be required to use other means available to us such as increasing our borrowings, reducing or delaying capital expenditures, seeking additional capital or seeking to restructure or refinance our indebtedness. There can be no assurance, however, that we will continue to generate cash flows at or above current levels.

Capital expenditures were \$467 million for the year ended December 31, 2021. We continue to prioritize those projects expected to drive productivity in the near-term and expect capital expenditures to be approximately \$600 million in 2022, primarily due to the following investments in growth opportunities and productivity improvements. In Engineered Materials, we announced plans to expand the compounding capacity at our facilities in China, ultra-high molecular weight polyethylene ("UHMW-PE") production capacity in Bishop, Texas and Oberhausen, Germany to support the growing global electric vehicle battery market and an expansion of our Florence, Kentucky Technology and Innovation center through the addition of a pharmaceutical drug delivery lab to support programs and products for long-acting, controlled release drug delivery. In the Acetyl Chain, we announced plans to expand the capacity of our vinyl acetate ethylene ("VAE") and emulsions plants in Nanjing, China and Frankfurt, Germany, expand the capacity of our vinyl acetate monomer ("VAM") plant in Bay City, Texas, expand the sustainable production of methanol at our Fairway joint venture in Clear Lake, Texas using captured carbon dioxide as feedstock. Lastly, our previously announced acetic acid expansion in Clear Lake, Texas is still in construction and on schedule. We continue to see the incremental capacity from investments we made in recent years strengthen our manufacturing network reliability to best serve our customers.

We remain fully committed to our cash dividend. During the year ended December 31, 2021, we completed \$1.0 billion of share repurchases.

On a stand-alone basis, Celanese and its immediate 100% owned subsidiary, Celanese U.S., have no independent external operations of their own. Accordingly, they generally depend on the cash flow of their subsidiaries and their ability to pay dividends and make other distributions to Celanese and Celanese U.S. in order to meet their obligations, including their obligations under senior credit facilities and senior notes, and to pay dividends on our Common Stock.

We are subject to capital controls and exchange restrictions imposed by the local governments in certain jurisdictions where we operate, such as China, India and Indonesia. Capital controls impose limitations on our ability to exchange currencies, repatriate earnings or capital, lend via intercompany loans or create cross-border cash pooling arrangements. Our largest exposure to a country with capital controls is in China. Pursuant to applicable regulations, foreign-invested enterprises in China may pay dividends only out of their accumulated profits, if any, determined in accordance with Chinese accounting standards and regulations. In addition, the Chinese government imposes certain currency exchange controls on cash transfers out of China, puts certain limitations on duration, purpose and amount of intercompany loans, and restricts cross-border cash pooling. While it is possible that future tightening of these restrictions or application of new similar restrictions could impact us, these limitations do not currently restrict our operations.

We remain in compliance with the financial covenants under our senior unsecured revolving credit facility and expect to remain in compliance based on our current expectation of future results of operations. If our actual future results of operations differ materially from these expectations, or if we otherwise experience increased indebtedness or substantially lower EBITDA, we may be required to seek an amendment or waiver of such covenants which may increase our borrowing costs under those debt instruments.

Cash Flows

Cash and cash equivalents decreased \$419 million to \$536 million as of December 31, 2021 compared to December 31, 2020. As of December 31, 2021, \$422 million of the \$536 million of cash and cash equivalents was held by our foreign subsidiaries. Under the TCJA, we have incurred a prior year charge associated with the deemed repatriation of previously unremitted foreign earnings, including foreign held cash. These funds are largely accessible without additional material tax consequences, if needed in the U.S., to fund operations. See [Note 16 - Income Taxes](#) in the accompanying consolidated financial statements for further information.

Year Ended December 31, 2021 Compared to Year Ended December 31, 2020

• **Net Cash Provided by (Used in) Operating Activities**

Net cash provided by operating activities increased \$414 million to \$1.8 billion for the year ended December 31, 2021 compared to \$1.3 billion for the same period in 2020, primarily due to:

- the gain on the sale of our 45% Polyplastics joint venture equity interest during the year ended December 31, 2020, which did not recur in the current year, net of a decrease in Net earnings;

partially offset by:

- unfavorable trade working capital of \$669 million, primarily due to an increase in trade receivables and inventory, partially offset by an increase in trade payables. Trade receivables increased primarily as a result of the increase in Net sales and inventory increased primarily as a result of higher costs for raw materials during the year ended December 31, 2021. Payables increased as a result of higher costs for raw materials and the timing of settlement of trade payables;
- an increase in VAT taxes receivable, primarily due to timing of refunds and COVID-19 relief measures during the year ended December 31, 2020, which did not recur in the current year; and
- a payment for the European Commission settlement of \$100 million, see [Note 20 - Commitments and Contingencies](#) in the accompanying consolidated financial statements for further information.

• **Net Cash Provided by (Used in) Investing Activities**

Net cash used in investing activities increased \$1.7 billion to \$1.1 billion for the year ended December 31, 2021 compared to net cash provided by investing activities of \$592 million for the same period in 2020, primarily due to:

- a net cash inflow of \$1.6 billion related to the sale of our 45% Polyplastics joint venture equity interest during the year ended December 31, 2020, which did not recur in the current year. See [Note 7 - Investments in Affiliates](#) in the accompanying consolidated financial statements for further information;
- a net cash outflow of \$1.0 billion related to the acquisition of the Santoprene™ thermoplastic vulcanizates elastomers business of Exxon Mobil Corporation in December 2021 (see [Note 4 - Acquisitions, Dispositions and Plant Closures](#) in the accompanying consolidated financial statements for further information), partially offset by the acquisition of Nouryon's redispersible polymer powders business offered under the Elotex® brand in April 2020; and
- an increase of \$103 million in capital expenditures related to growth opportunities in our Acetyl Chain and Engineered Materials segments;

partially offset by:

- an increase in net proceeds of \$1.0 billion related to the purchase and sale of marketable securities during the years ended December 31, 2020 and December 31, 2021.

• **Net Cash Provided by (Used in) Financing Activities**

Net cash used in financing activities decreased \$429 million to \$1.0 billion for the year ended December 31, 2021 compared to \$1.5 billion for the same period in 2020, primarily due to:

- a decrease in net repayments of short-term debt of \$642 million, primarily as a result of repayments of borrowings under our revolving credit facility and accounts receivable securitization facility during the year ended December 31, 2020; and
- an increase in net proceeds from long-term debt of \$234 million, primarily due to the issuance of \$400 million in principal amount of 1.400% senior unsecured notes due August 5, 2026 (the "1.400% Notes") and the issuance of €500 million in principal amount of 0.625% senior unsecured notes due September 10, 2028 (the "0.625% Notes"), partially offset by the maturity and repayment in full of the 5.875% senior unsecured notes (the "5.875% Notes") and tender offer for 1.125% senior unsecured notes due September 26, 2023 (the "1.125% Notes") during the year ended December 31, 2021;

partially offset by:

- an increase in share repurchases of our Common Stock of \$350 million during the year ended December 31, 2021; and
- a settlement of a forward-starting interest rate swap on August 2, 2021 resulting in a payment to the counterparty of \$72 million.

In addition, exchange rates had an unfavorable impact of \$15 million on cash and cash equivalents and a favorable impact of \$28 million on cash and cash equivalents for the years ended December 31, 2021 and 2020, respectively.

Debt and Other Obligations

• **Senior Credit Facilities**

In January 2019, Celanese, Celanese U.S. and certain subsidiary borrowers entered into a new senior credit agreement (the "Credit Agreement") consisting of a \$1.25 billion senior unsecured revolving credit facility (with a letter of credit sublimit), maturing in 2024. The Credit Agreement is guaranteed by Celanese, Celanese U.S. and substantially all of its domestic subsidiaries ("the Subsidiary Guarantors"). We borrowed \$850 million and repaid \$650 million under our senior unsecured revolving credit facility during the year ended December 31, 2021.

• **Senior Notes**

We have outstanding senior unsecured notes, issued in public offerings registered under the Securities Act of 1933 ("Securities Act"), as amended, as follows (collectively, the "Senior Notes"):

Senior Notes	Issue Date	Principal	Interest Rate	Interest Pay Dates		Maturity Date
		(In millions)	(In percentages)			
4.625% Notes	November 2012	\$500	4.625	March 15	September 15	November 15, 2022
1.125% Notes	September 2016	€450	1.125	September 26		September 26, 2023
3.500% Notes	May 2019	\$500	3.500	May 8	November 8	May 8, 2024
1.250% Notes	December 2017	€300	1.250	February 11		February 11, 2025
1.400% Notes	August 2021	\$400	1.400	February 5	August 5	August 5, 2026
2.125% Notes	November 2018	€500	2.125	March 1		March 1, 2027
0.625% Notes	September 2021	€500	0.625	September 10		September 10, 2028

The Senior Notes were issued by Celanese U.S. and are guaranteed on a senior unsecured basis by Celanese and the Subsidiary Guarantors. Celanese U.S. may redeem some or all of each of the Senior Notes, prior to their respective maturity dates, at a redemption price of 100% of the principal amount, plus a "make-whole" premium as specified in the applicable indenture, plus accrued and unpaid interest, if any, to the redemption date.

On August 5, 2021, Celanese U.S. completed an offering of \$400 million in principal amount of 1.400% Notes in a public offering registered under the Securities Act. Net proceeds from the sale of the 1.400% Notes were used to repay \$396 million of outstanding borrowings under the senior unsecured revolving credit facility and for general corporate purposes.

On September 10, 2021, Celanese U.S. completed an offering of €500 million in principal amount of 0.625% Notes due September 10, 2028 in a public offering registered under the Securities Act.

On September 13, 2021, Celanese U.S. completed a cash tender offer for €300 million in principal amount of 1.125% Notes at a purchase price of €1,027.35 per €1,000 of principal amount plus accrued interest, for a total principal and premium payment of \$363 million plus accrued interest of \$4 million. A portion of the proceeds from the issuance of the 0.625% Notes were used to fund the tender offer for €300 million of the 1.125% Notes. As a result of the tender offer, the carrying value of the 1.125% Notes was reduced by \$353 million.

- ***Accounts Receivable Securitization Facility***

On June 18, 2021, we entered into an amendment to the amended and restated receivables purchase agreement under our U.S. accounts receivable purchasing facility among certain of our subsidiaries, our wholly-owned, "bankruptcy remote" special purpose subsidiary ("SPE") and certain global financial institutions ("Purchasers"). We de-recognized \$1.1 billion and \$595 million of accounts receivable under this agreement for the years ended December 31, 2021 and 2020, respectively, and collected \$1.1 billion and \$476 million of accounts receivable sold under this agreement during the same periods. Unsold U.S. accounts receivable of \$115 million were pledged by the SPE as collateral to the Purchasers as of December 31, 2021.

- ***Factoring and Discounting Agreements***

We have factoring agreements in Europe and Singapore with financial institutions. We de-recognized \$230 million and \$233 million of accounts receivable under these factoring agreements for the years ended December 31, 2021 and 2020, respectively, and collected \$185 million and \$237 million of accounts receivable sold under these factoring agreements during the same periods.

In March 2021, we entered into a letter of credit discounting agreement in Singapore with a financial institution. We de-recognized \$70 million of accounts receivable under this agreement for the year ended December 31, 2021.

Our material financing arrangements contain customary covenants, including the maintenance of certain financial ratios, events of default and change of control provisions. Failure to comply with these covenants, or the occurrence of any other event of default, could result in acceleration of the borrowings and other financial obligations. We are in compliance with all of the covenants related to our debt agreements as of December 31, 2021.

See [Note 11 - Debt](#) in the accompanying consolidated financial statements for further information.

Guarantor Financial Information

The Senior Notes were issued by Celanese U.S. ("Issuer") and are guaranteed by Celanese Corporation ("Parent Guarantor") and the Subsidiary Guarantors (collectively the "Obligor Group"). See [Note 11 - Debt](#) in the accompanying consolidated financial statements for further information. The Issuer and Subsidiary Guarantors are 100% owned subsidiaries of the Parent Guarantor. The Parent Guarantor and Subsidiary Guarantors represent substantially all of the Company's U.S. assets and business operations. The Subsidiary Guarantors are listed in Exhibit 22.1 to this Annual Report.

The Parent Guarantor and the Subsidiary Guarantors have guaranteed the Senior Notes on a full and unconditional, joint and several, senior unsecured basis. The guarantees are subject to certain customary release provisions, including that a Subsidiary Guarantor will be released from its respective guarantee in specified circumstances, including (i) the sale or transfer of all of its assets or capital stock; (ii) its merger or consolidation with, or transfer of all or substantially all of its assets to, another person; or (iii) its ceasing to be a majority-owned subsidiary of the Issuer in connection with any sale of its capital stock or other transaction. Additionally, a Subsidiary Guarantor will be released from its guarantee of the Senior Notes at such time that it ceases to guarantee the Issuer's obligations under the Credit Agreement (subject to the satisfaction of customary document delivery requirements). The obligations of the Subsidiary Guarantors under their guarantees are limited as necessary to prevent such guarantees from constituting a fraudulent conveyance or fraudulent transfer under applicable law.

The Parent Guarantor and the Issuer are holding companies that conduct substantially all of their operations through their subsidiaries, which own substantially all of our consolidated assets. The Parent Guarantor has no material assets other than the stock of its immediate 100% owned subsidiary, the Issuer. The principal source of cash to pay the Parent Guarantor's and the

Issuer's obligations, including obligations under the Senior Notes and the guarantee of the Issuer's obligations under the Credit Agreement, is the cash that our subsidiaries generate from their operations. Each of the Subsidiary Guarantors and our non-guarantor subsidiaries is a distinct legal entity and, under certain circumstances, applicable country or state laws, regulatory limitations and terms of other debt instruments may limit our subsidiaries' ability to distribute cash to the Issuer and the Parent Guarantor. While the Credit Agreement and the Indentures generally limit the ability of our subsidiaries to restrict payment of dividends or other distributions to us, these limitations are subject to certain qualifications and exceptions, which may have the effect of significantly limiting the applicability of those restrictions.

For cash management purposes, the Company transfers cash between the Parent Guarantor, Issuer, Subsidiary Guarantors and non-guarantors through intercompany financing arrangements, contributions or declaration of dividends between the respective parent and its subsidiaries. While the non-guarantor subsidiaries do not guarantee the Issuer's obligations under our outstanding debt, the transfer of cash under these activities facilitates the ability of the recipient to make specified third-party payments for principal and interest on the Senior Notes, Credit Agreement, the Company's other outstanding debt, Common Stock dividends and Common Stock repurchases.

The summarized financial information of the Obligor Group is presented below on a combined basis after the elimination of: (i) intercompany transactions among such entities and (ii) equity in earnings from and investments in the non-guarantor subsidiaries. Transactions with, and amounts due to or from, non-guarantor subsidiaries and affiliates are separately disclosed.

	Year Ended December 31, 2021
	(In \$ millions)
Net sales to third parties	1,745
Net sales to non-guarantor subsidiaries	1,015
Total net sales	<u>2,760</u>
Gross profit	506
Earnings (loss) from continuing operations	495
Net earnings (loss)	476
Net earnings (loss) attributable to the Obligor Group	476

	As of December 31,	
	2021	2020
	(In \$ millions)	
Receivables from non-guarantor subsidiaries	624	318
Other current assets	1,236	1,597
Total current assets	<u>1,860</u>	<u>1,915</u>
Goodwill	578	399
Other noncurrent assets	3,963	3,519
Total noncurrent assets	<u>4,541</u>	<u>3,918</u>
Current liabilities due to non-guarantor subsidiaries	2,493	1,206
Current liabilities due to affiliates	64	58
Other current liabilities	1,347	958
Total current liabilities	<u>3,904</u>	<u>2,222</u>
Noncurrent liabilities due to non-guarantor subsidiaries	2,348	1,593
Other noncurrent liabilities	3,610	3,648
Total noncurrent liabilities	<u>5,958</u>	<u>5,241</u>

Share Capital

On February 9, 2022, we declared a quarterly cash dividend of \$0.68 per share on our Common Stock amounting to approximately \$73 million. The cash dividend will be paid on March 8, 2022 to holders of record as of February 22, 2022.

Our Board of Directors has authorized the aggregate repurchase of \$6.9 billion of our Common Stock since February 2008. These authorizations give management discretion in determining the timing and conditions under which shares may be

repurchased. This repurchase program does not have an expiration date. During the year ended December 31, 2021, we repurchased shares of our Common Stock at an aggregate cost of \$1.0 billion. As of December 31, 2021, we had \$1.1 billion remaining under authorizations by our Board of Directors.

See [Note 14 - Stockholders' Equity](#) in the accompanying consolidated financial statements for further information.

Contractual Obligations, Guarantees and Commitments

We calculated \$282 million of all future interest payments on debt and other obligations using the rate in effect on December 31, 2021 and \$448 million of all future pension and other postretirement funding obligations.

We have not entered into any material off-balance sheet arrangements.

In the accompanying consolidated financial statements, see [Note 10 - Current Other Liabilities](#) for current asset retirement obligations, [Note 11 - Debt](#) for a description of the guarantees under our Senior Notes and Credit Agreement, [Note 12 - Benefit Obligations](#) for a description of the pension and other postretirement funding obligations, [Note 13 - Environmental](#) for a description of environmental obligations, [Note 16 - Income Taxes](#) for a description of uncertain tax positions, [Note 17 - Leases](#) for lease obligations and [Note 20 - Commitments and Contingencies](#) for a discussion of commitments and contingencies related to legal and regulatory proceedings.

Market Risks

See [Item 7A. Quantitative and Qualitative Disclosure about Market Risk](#) for further information.

Business Environment

In the latter part of 2021, we experienced significant cost inflation, inflationary pressure and supply disruptions related to the sourcing of raw materials, energy, logistics and labor. We continue to closely monitor the impact of COVID-19 variants on demand conditions and the supply chain. Average prices of energy feedstocks, particularly natural gas, which are a significant input and source of energy for our manufacturing operations, have continued to increase in the Western Hemisphere and particularly in Europe. We also experienced, and continue to experience, cost pressure on raw material inputs. We undertook pricing actions throughout the year intended to offset these inflationary headwinds. Moderation of Chinese acetyls pricing is expected to continue trending to more normalized levels into the middle of 2022. While we took proactive actions to accelerate turnaround and maintenance activity to earlier in the year, which supported our ability to increase volume and meet the demand by our customers, the sourcing constraints we experienced led to lost production. We expect that sourcing cost and inflationary pressures will continue to be significant across the business through 2022.

Critical Accounting Policies and Estimates

Our consolidated financial statements are based on the selection and application of significant accounting policies. The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of net sales, expenses and allocated charges during the reporting period. Actual results could differ from those estimates. However, we are not currently aware of any reasonably likely events or circumstances that would result in materially different results.

We believe the following accounting policies and estimates are critical to understanding the financial reporting risks present in the current economic environment. These matters, and the judgments and uncertainties affecting them, are also essential to understanding our reported and future operating results. See [Note 2 - Summary of Accounting Policies](#) in the accompanying consolidated financial statements for further information.

- ***Recoverability of Long-Lived Assets***

Recoverability of Goodwill and Indefinite-Lived Assets

We assess the recoverability of the carrying amount of our goodwill and other indefinite-lived intangible assets annually during the third quarter of our fiscal year using June 30 balances or whenever events or changes in circumstances indicate that the carrying amount of the asset may not be fully recoverable.

When assessing the recoverability of goodwill and other indefinite-lived intangible assets, we may first assess qualitative factors in determining whether it is more likely than not that the fair value of a reporting unit or other indefinite-lived intangible asset is less than its carrying amount. The qualitative evaluation is an assessment of multiple factors, including the current operating environment, financial performance and market considerations. We may elect to bypass the qualitative assessment for some or all of our reporting units or other indefinite-lived intangible assets and proceed directly to a quantitative analysis depending on the facts and circumstances.

In performing a quantitative analysis of goodwill, recoverability of goodwill for each reporting unit is measured using a discounted cash flow model incorporating discount rates commensurate with the risks involved. The key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, tax rates, cash flow projections and terminal value rates. Discount rates, growth rates and cash flow projections are the most sensitive and susceptible to change as they require significant management judgment.

Management tests other indefinite-lived intangible assets quantitatively utilizing the relief from royalty method under the income approach to determine the estimated fair value for each indefinite-lived intangible asset. Key assumptions used in this model include discount rates, royalty rates, growth rates, tax rates, sales projections and terminal value rates. Discount rates, royalty rates, growth rates, growth rates and sales projections are the assumptions most sensitive and susceptible to change as they require significant management judgment.

Specific assumptions discussed above are updated at the date of each test to consider current industry and company-specific risk factors from the perspective of a market participant. The current business environment is subject to evolving market conditions and requires significant management judgment to interpret the potential impact to our assumptions. To the extent that changes in the current business environment result in adjusted management projections, impairment losses may occur in future periods.

See [Note 9 - Goodwill and Intangible Assets, Net](#) in the accompanying consolidated financial statements for further information.

- ***Benefit Obligations***

Various assumptions are used in the calculation of the actuarial valuation of the employee benefit plans. These assumptions include the discount rate, compensation levels, expected long-term rates of return on plan assets and trends in health care costs. In addition, actuarial consultants use factors such as withdrawal and mortality rates to estimate the projected benefit obligation. The actuarial assumptions used may differ materially from actual results due to changing market and economic conditions, higher or lower withdrawal rates or longer or shorter life spans of participants. These differences may result in a significant impact to the amount of net periodic benefit cost recorded in future periods.

Pension assumptions are reviewed annually in the fourth quarter of each fiscal year and whenever a plan is required to be remeasured. Assumptions are reviewed on a plan and country-specific basis by third-party actuaries and senior management. Such assumptions are adjusted as appropriate to reflect changes in market rates and outlook.

See [Note 12 - Benefit Obligations](#) in the accompanying consolidated financial statements for further information.

- ***Income Taxes***

We regularly review our deferred tax assets for recoverability and establish a valuation allowance as needed. In forming our judgment regarding the recoverability of deferred tax assets related to deductible temporary differences and tax attribute carryforwards, we give weight to positive and negative evidence based on the extent to which the forms of evidence can be objectively verified.

The recoverability of deferred tax assets and the recognition and measurement of uncertain tax positions are subject to various assumptions and management judgment. If actual results differ from the estimates made by management in establishing or maintaining valuation allowances against deferred tax assets, the resulting change in the valuation allowance would generally impact earnings or Other comprehensive income depending on the nature of the respective deferred tax asset. In addition, the positions taken with regard to tax contingencies may be subject to audit and review by tax authorities, which may result in future taxes, interest and penalties.

See [Note 16 - Income Taxes](#) in the accompanying consolidated financial statements for further information.

Recent Accounting Pronouncements

See [Note 3 - Recent Accounting Pronouncements](#) in the accompanying consolidated financial statements for information regarding recent accounting pronouncements.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Market Risks

Our financial market risk consists principally of exposure to currency exchange rates, interest rates and commodity prices. Exchange rate and interest rate risks are managed with a variety of techniques, including use of derivatives. We have in place policies of hedging against changes in currency exchange rates, interest rates and commodity prices as described below.

See [Note 2 - Summary of Accounting Policies](#) in the accompanying consolidated financial statements for further information regarding our derivative and hedging instruments accounting policies related to financial market risk.

See [Note 18 - Derivative Financial Instruments](#) in the accompanying consolidated financial statements for further information regarding our market risk management and the related impact on our financial position and results of operations.

- **Foreign Currency Forwards and Swaps**

A portion of our assets, liabilities, net sales and expenses are denominated in currencies other than the U.S. dollar. Fluctuations in the value of these currencies against the U.S. dollar can have a direct and material impact on the business and financial results. Our largest exposures are to the Euro and Chinese Yuan ("CNY"). A decline in the value of the Euro and CNY versus the U.S. dollar results in a decline in the U.S. dollar value of our sales and earnings denominated in Euros and CNYs. Likewise, an increase in the value of the Euro and CNY versus the U.S. dollar would result in an opposite effect. We estimate that a 10% change in the Euro/U.S. dollar and CNY/U.S. dollar exchange rates would impact our earnings by \$84 million and \$38 million, respectively.

Item 8. Financial Statements and Supplementary Data

The selected quarterly financial data is no longer required, as the Company has adopted the amendment to Item 302 of Regulation S-K contained in SEC Release No. 33-10890, which became effective on February 10, 2021. There were no material retrospective changes to any quarters in the two most recent fiscal years that would require this disclosure.

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

None.

Item 9A. Controls and Procedures

Under the supervision and with the participation of our management, including the Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of our disclosure controls and procedures pursuant to Rule 13a-15(b) under the Securities Exchange Act of 1934, as amended, as of the end of the period covered by this Annual Report. Based on that evaluation, as of December 31, 2021, the Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures are effective.

Changes in Internal Control Over Financial Reporting

During the three months ended December 31, 2021, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Management on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company. Internal control over financial reporting is a process to provide reasonable assurance regarding the reliability of our financial reporting for external purposes in accordance with accounting principles generally accepted in the United States of America. Internal control over financial reporting includes maintaining records that in reasonable detail accurately and fairly reflect our transactions; providing reasonable assurance that transactions are recorded as necessary for preparation of our consolidated financial statements; providing reasonable assurance that receipts and expenditures of company assets are made in

accordance with management authorization; and providing reasonable assurance that unauthorized acquisition, use or disposition of company assets that could have a material effect on our consolidated financial statements would be prevented or detected on a timely basis. Because of its inherent limitations, internal control over financial reporting is not intended to provide absolute assurance that a misstatement of our consolidated financial statements would be prevented or detected.

Management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Management has elected to exclude the internal control over financial reporting of the recently acquired Santoprene™ thermoplastic vulcanizates ("TPV") elastomers business of Exxon Mobil Corporation ("Santoprene") from its assessment of internal control over financial reporting as of December 31, 2021, see [Note 4 - Acquisitions, Dispositions and Plant Closures](#) in the accompanying consolidated financial statements for further information. The excluded financial statement amounts of Santoprene constituted less than 5% of our consolidated Total assets and less than 1% of our consolidated Net sales as of and for the year ended December 31, 2021. Based on this evaluation, management concluded that the Company's internal control over financial reporting was effective as of December 31, 2021. The Company's independent registered public accounting firm, KPMG LLP, has issued an audit report on the effectiveness of the Company's internal control over financial reporting. Their report follows on [page 62](#).

Item 9B. *Other Information*

None.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections*

Not applicable.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance*

The information required by this Item 10 is incorporated herein by reference from the subsections of "Governance," captioned "Item 1: Election of Directors," "Director Nominees," "Board and Committee Governance," "Additional Governance Matters" and the sections "Stock Ownership Information — Delinquent Section 16(a) Reports" and "Questions and Answers — Company Documents, Communications and Shareholder Proposals" sections of the Company's definitive proxy statement for the 2022 annual meeting of stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "2022 Proxy Statement"). Information about executive officers of the Company is contained in Part I of this Annual Report.

Codes of Ethics

The Company has adopted a Business Conduct Policy for directors, officers and employees along with a Financial Code of Ethics for its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. These codes are available on the corporate governance portal of the Company's investor relations website at investors.celanese.com. The Company intends to satisfy the disclosure requirements under Item 5.05 of Form 8-K regarding amendments to and waivers from these codes by posting such information on the same website.

Item 11. *Executive Compensation*

The information required by this Item 11 is incorporated herein by reference from the section "Governance – Director Compensation" and the subsections of "Executive Compensation" captioned "Compensation Discussion and Analysis," "Compensation Risk Assessment," "Compensation and Management Development Committee Report," "Compensation Tables" and "CEO Pay Ratio" of the 2022 Proxy Statement.

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

The information with respect to beneficial ownership and equity compensation plans required by this Item 12 is incorporated herein by reference from the subsections of "Stock Ownership Information" captioned "Principal Shareholders and Beneficial Owners" and "Securities Authorized for Issuance Under Equity Compensation Plans" in the 2022 Proxy Statement.

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

The information required by this Item 13 is incorporated herein by reference from the "Governance — Director Independence and Related Person Transactions" section of the 2022 Proxy Statement.

Item 14. *Principal Accounting Fees and Services*

Our independent registered public accounting firm is KPMG LLP, Dallas, TX, Auditor Firm ID: 185.

The information required by this Item 14 is incorporated herein by reference from the "Audit Matters — Item 2: Ratification of Independent Registered Public Accounting Firm" section of the 2022 Proxy Statement.

PART IV

Item 15. Exhibits and Financial Statement Schedules

1. *Financial Statements.* The report of our independent registered public accounting firm and our consolidated financial statements are listed below and begin on [page 62](#) of this Annual Report.

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2. *Financial Statement Schedules.*

The financial statement schedules required by this item, if any, are included as Exhibits to this Annual Report.

3. *Exhibit List.*

INDEX TO EXHIBITS⁽¹⁾

Exhibits will be furnished upon request for a nominal fee, limited to reasonable expenses.

Exhibit Number	Description
3.1	Second Amended and Restated Certificate of Incorporation (incorporated by reference to Exhibit 3.1 to the Quarterly Report on Form 10-Q filed with the SEC on October 18, 2016).
3.1(a)	Certificate of Amendment to the Second Amended and Restated Certificate of Incorporation of Celanese Corporation dated as of April 21, 2016 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the SEC on April 22, 2016).
3.1(b)	Certificate of Amendment to the Second Amended and Restated Certificate of Incorporation of Celanese Corporation dated as of September 17, 2018 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the SEC on September 17, 2018).
3.1(c)	Certificate of Amendment to the Second Amended and Restated Certificate of Incorporation of Celanese Corporation dated as of April 18, 2019 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the SEC on April 23, 2019).
3.2	Sixth Amended and Restated By-laws, effective as of July 15, 2019 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the SEC on July 18, 2019).
4.1	Form of certificate of Common Stock (incorporated by reference to Exhibit 4.1 to the Registration Statement on Form 8-A/A filed with the SEC on September 18, 2018).
4.2	Indenture, dated May 6, 2011, by and between Celanese US Holdings LLC, Celanese Corporation and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on May 6, 2011).
4.3	Second Supplemental Indenture, 4.625% Senior Notes due 2022, dated November 13, 2012, by and between Celanese US Holdings LLC, the guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on November 13, 2012).
4.4	Fifth Supplemental Indenture, dated July 8, 2015, among Celanese US Holdings LLC, Celanese Sales U.S. Ltd. and Wells Fargo Bank National Association, as trustee (incorporated by reference to Exhibit 4.7 to the Annual Report on Form 10-K filed with the SEC on February 5, 2016).

Exhibit Number	Description
4.5	<u>Sixth Supplemental Indenture, dated as of September 26, 2016, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto, Wells Fargo Bank, National Association, as trustee, and Deutsche Bank Trust Companies Americas, as paying agent, registrar and transfer agent (incorporated by reference to Exhibit 4.2 to the Form 8-K filed with the SEC on September 26, 2016).</u>
4.6	<u>Seventh Supplemental Indenture, dated as of December 11, 2017, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto, Wells Fargo Bank, National Association, as trustee, and Deutsche Bank Trust Companies Americas, as paying agent, registrar and transfer agent (incorporated by reference to Exhibit 4.2 to the Form 8-K filed with the SEC on December 11, 2017).</u>
4.7	<u>Eighth Supplemental Indenture, dated as of November 5, 2018, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto, Wells Fargo Bank, National Association, as trustee, and Deutsche Bank Trust Company Americas, as paying agent, registrar and transfer agent (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on November 5, 2018).</u>
4.8	<u>Ninth Supplemental Indenture, dated as of May 8, 2019, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on May 8, 2019).</u>
4.9	<u>Tenth Supplemental Indenture, dated as of August 5, 2021, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on August 5, 2021).</u>
4.10	<u>Eleventh Supplemental Indenture, dated as of September 10, 2021, among Celanese US Holdings LLC, Celanese Corporation, the subsidiary guarantors party thereto and Wells Fargo Bank, National Association, as trustee, and Deutsche Bank Trust Company Americas, as paying agent, registrar and transfer agent (incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K filed with the SEC on September 10, 2021).</u>
4.11*	<u>Description of the Company's Securities Registered Under Section 12 of the Securities Exchange Act of 1934.</u>
10.1	<u>Credit Agreement, dated as of January 7, 2019, by and among Celanese Corporation, Celanese US Holdings LLC, Celanese Europe B.V., certain subsidiaries of Celanese US Holdings LLC from time to time party thereto as borrowers, each lender from time to time party thereto, Bank of America N.A., as Administrative Agent, a Swing Line Lender and an L/C Issuer and other Swing Line Lenders and L/C Issuers party thereto (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the SEC on January 11, 2019).</u>
10.2‡	<u>Celanese Corporation 2008 Deferred Compensation Plan (incorporated by reference to Exhibit 10.6 to the Annual Report on Form 10-K filed on February 29, 2008).</u>
10.2(a)‡	<u>Amendment Number One to Celanese Corporation 2008 Deferred Compensation Plan dated December 11, 2008 (incorporated by reference to Exhibit 10.2 to the Registration Statement on Form S-8 filed with the SEC on April 23, 2009).</u>
10.2(b)‡	<u>Amendment Number Two to Celanese Corporation 2008 Deferred Compensation Plan dated December 22, 2008 (incorporated by reference to Exhibit 10.4(b) to the Annual Report on Form 10-K filed with the SEC on February 7, 2014).</u>
10.2(c)‡	<u>Amendment Number Three to the Celanese Corporation 2008 Deferred Compensation Plan dated October 31, 2019 (incorporated by reference to Exhibit 10.4(c) to the Annual Report on Form 10-K filed with the SEC on February 6, 2020).</u>
10.2(d)‡	<u>Amendment Number Four to the Celanese Corporation Deferred Compensation Plan dated February 5, 2020 (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).</u>
10.2(e)‡	<u>Amendment Number Five to the Celanese Corporation Deferred Compensation Plan dated December 28, 2020 (incorporated by reference to Exhibit 10.2(e) to the Annual Report on Form 10-K filed with the SEC on February 11, 2021).</u>
10.3‡	<u>Celanese Corporation 2009 Employee Stock Purchase Program (incorporated by reference to Exhibit 4.5 to the Registration Statement on Form S-8 filed on April 23, 2009).</u>
10.4‡	<u>Celanese Corporation 2018 Global Incentive Plan, effective as of April 23, 2018 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the SEC on April 20, 2018).</u>

Exhibit Number	Description
10.5(a)‡	Form of 2019 Performance-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2019).
10.5(b)‡	Form of 2019 Restricted Stock Award Agreement for the Chief Executive Officer (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2019).
10.5(c)‡	Form of 2019 Time-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2019).
10.5(d)‡	Form of Amendment Agreement to the 2019 Restricted Stock Unit Award Agreements dated February 5, 2020 (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.5(e)‡	Form of 2020 Performance-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.5(f)‡	Form of 2020 Time-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.4 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.5(g)‡	Form of 2021 Executive Officer Performance-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2021).
10.5(h)‡	Form of 2021 Time-Based Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2021).
10.5(i)‡	Form of 2021 Time-Based Restricted Stock Unit Award Agreement (for non-employee directors) (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q filed with the SEC on July 23, 2021).
10.6(a)‡	Executive Severance Benefits Plan, amended effective February 6, 2013 (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed with the SEC on February 12, 2013).
10.6(b)‡	Executive Severance Benefits Plan, amended effective October 18, 2017 (incorporated by reference to Exhibit 10.9(b) to the Annual Report on Form 10-K filed with the SEC on February 9, 2018).
10.6(c)‡	Executive Severance Benefits Plan, amended effective February 5, 2020 (incorporated by reference to Exhibit 10.5 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.7(a)‡	Offer Letter, dated December 12, 2018, between Celanese Corporation and A. Lynne Puckett (incorporated by reference to Exhibit 10.6 to the Quarterly Report on Form 10-Q filed with the SEC on April 23, 2019).
10.7(b)‡	Amended and Restated Offer Letter, dated February 5, 2020, between Celanese Corporation and Lori J. Ryerkerk (incorporated by reference to Exhibit 10.6 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.8(a)‡	Form of Amended and Restated Change in Control Agreement between Celanese Corporation and Lori J. Ryerkerk (incorporated by reference to Exhibit 10.7 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.8(b)‡	Form of Amended and Restated Change in Control Agreement between Celanese Corporation and participant, together with a schedule identifying each of the executive officers with substantially identical agreements (incorporated by reference to Exhibit 10.8 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.8(b).1*‡	Amended Schedule of Participants to Form of Non-CEO Amended and Restated Change in Control Agreement.
10.9‡	Form of Long-Term Incentive Claw-Back Agreement between Celanese Corporation and award recipient (incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K/A filed with the SEC on January 26, 2009).
10.10‡	Celanese Americas Supplemental Retirement Savings Plan, as amended and restated effective January 1, 2014 (incorporated by reference to Exhibit 10.14(a) to the Annual Report on Form 10-K filed with the SEC on February 6, 2015).
10.10(a)‡	Amendment Number One to the Celanese Americas Supplemental Retirement Savings Plan, as amended and restated effective January 1, 2014, dated December 28, 2020 (incorporated by reference to Exhibit 10.11(a) to the Annual Report on Form 10-K filed with the SEC on February 11, 2021).
10.11‡	Celanese Americas Supplemental Retirement Pension Plan, as amended and restated effective January 1, 2009 (incorporated by reference to Exhibit 10.15 to the Annual Report on Form 10-K filed with the SEC on February 6, 2020).

Exhibit Number	Description
10.11(a)‡	First Amendment to the Celanese Americas Supplemental Retirement Pension Plan, as amended and restated effective January 1, 2009, dated as of July 22, 2013 (incorporated by reference to Exhibit 10.15(a) to the Annual Report on Form 10-K filed with the SEC on February 6, 2020).
10.11(b)‡	Amendment Number Two to the Celanese Americas Supplemental Retirement Pension Plan, as amended and restated effective January 1, 2009, dated as of February 5, 2020 (incorporated by reference to Exhibit 10.9 to the Quarterly Report on Form 10-Q filed with the SEC on April 28, 2020).
10.12*‡	Summary of Non-Employee Director Compensation.
21.1*	List of Subsidiaries of Celanese Corporation.
22.1*	List of Guarantor Subsidiaries.
23.1*	Consent of Independent Registered Public Accounting Firm of Celanese Corporation, KPMG LLP.
24.1*	Power of Attorney (included on the signature page of this Annual Report on Form 10-K).
31.1*	Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2*	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1*	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2*	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH*	Inline XBRL Taxonomy Extension Schema Document.
101.CAL*	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2021 has been formatted in Inline XBRL.

* Filed herewith.

‡ Indicates a management contract or compensatory plan or arrangement.

(1) The Company and its subsidiaries have in the past issued, and may in the future issue from time to time, long-term debt. The Company may not file with the applicable report copies of the instruments defining the rights of holders of long-term debt to the extent that the aggregate principal amount of the debt instruments of any one series of such debt instruments for which the instruments have not been filed has not exceeded or will not exceed 10% of the assets of the Company at any pertinent time. The Company hereby agrees to furnish a copy of any such instrument(s) to the SEC upon request.

SIGNATURES

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

CELANESE CORPORATION

By: /s/ LORI J. RYERKERK
Name: Lori J. Ryerkerk
Title: Chairman of the Board of Directors,
Chief Executive Officer and President
Date: February 10, 2022

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Scott A. Richardson and Benita M. Casey, and each of them, his or her true and lawful attorney-in-fact and agent, each with full power of substitution and resubstitution to sign in his or her name, place and stead, in any and all capacities, to do any and all things and execute any and all instruments that any such attorney-in-fact may deem necessary or advisable under the Securities Exchange Act of 1934 and any rules, regulations and requirements of the U.S. Securities and Exchange Commission in connection with the Annual Report on Form 10-K for the fiscal year ended December 31, 2021 and any and all amendments hereto, as fully for all intents and purposes as he or she might or could do in person, and hereby ratifies and confirms all that such said attorney-in-fact, acting alone, or his substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

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

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ LORI J. RYERKERK</u> Lori J. Ryerkerk	Chairman of the Board of Directors, Chief Executive Officer and President (Principal Executive Officer)	February 10, 2022
<u>/s/ SCOTT A. RICHARDSON</u> Scott A. Richardson	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 10, 2022
<u>/s/ BENITA M. CASEY</u> Benita M. Casey	Vice President, Finance, Controller and Chief Accounting Officer (Principal Accounting Officer)	February 10, 2022
<u>/s/ JEAN S. BLACKWELL</u> Jean S. Blackwell	Director	February 10, 2022
<u>/s/ WILLIAM M. BROWN</u> William M. Brown	Director	February 10, 2022
<u>/s/ EDWARD G. GALANTE</u> Edward G. Galante	Director	February 10, 2022
<u>/s/ RAHUL GHAI</u> Rahul Ghai	Director	February 10, 2022
<u>/s/ KATHRYN M. HILL</u> Kathryn M. Hill	Director	February 10, 2022

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<u>Signature</u>	<u>Title</u>	<u>Date</u>
<hr/> <u>/s/ DAVID F. HOFFMEISTER</u> David F. Hoffmeister	Director	February 10, 2022
<hr/> <u>/s/ JAY V. IHLENFELD</u> Jay V. Ihlenfeld	Director	February 10, 2022
<hr/> <u>/s/ DEBORAH J. KISSIRE</u> Deborah J. Kissire	Director	February 10, 2022
<hr/> <u>/s/ MICHAEL KOENIG</u> Michael Koenig	Director	February 10, 2022
<hr/> <u>/s/ KIM K.W. RUCKER</u> Kim K.W. Rucker	Director	February 10, 2022

**CELANESE CORPORATION AND SUBSIDIARIES
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Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Celanese Corporation:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Celanese Corporation and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), equity, and cash flows for each of the years in the three-year period ended December 31, 2021, and the related notes (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

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, 2021 and 2020, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2021, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

The Company acquired the Santoprene thermoplastic vulcanizates elastomers business of Exxon Mobil Corporation ("Santoprene") during 2021, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, Santoprene's internal control over financial reporting associated with less than 5% of total assets and less than 1% of net sales included in the consolidated financial statements of the Company as of and for the year ended December 31, 2021. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of Santoprene.

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 the accompanying Report of Management on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the 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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit

preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Evaluation of the Company's determination and realizability of foreign tax credit carryforwards

As discussed in [Note 16](#) to the consolidated financial statements, the Company had \$184 million of U.S. foreign tax credit carryforwards, and a related valuation allowance of \$171 million, as of December 31, 2021. Foreign tax credit carryforwards may be used to reduce current U.S. tax liabilities related to foreign source income or deferred and utilized over a ten-year period. Realization of these deferred tax assets requires generation of sufficient foreign source taxable income that is applicable.

We identified the evaluation of the Company's determination and realizability of foreign tax credits and foreign tax credit carryforwards available for U.S. federal income tax purposes as a critical audit matter. This is due to the complex auditor judgment required to evaluate the application of U.S. federal income tax regulations related to the generation and utilization of foreign tax credits and foreign tax credit carryforwards. Additionally, a high degree of auditor judgment and the use of income tax professionals with specialized skills and knowledge were required in evaluating the Company's related forecast of foreign source taxable income, allocation of overhead and other directly allocable expenses.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the critical audit matter. This included controls related to 1) the computation of foreign tax credits generated, 2) assessing the realizability of associated deferred tax assets, and 3) the application of relevant income tax regulations for the generation of foreign tax credits and foreign source taxable income forecasted to be generated prior to carryforward expirations. To assess the Company's ability to forecast, we compared historical forecasts of foreign source taxable income to actual results. We involved income tax professionals with specialized skills and knowledge, who assisted in evaluating the types and amounts of foreign source taxable income utilized in the Company's forecasts, including the allocable expenses and method of expense allocation. They also assisted in assessing 1) the application of U.S. federal income tax regulations related to the generation and utilization of foreign tax credits and credit carryforwards, and 2) the determination of the foreign tax credits generated and credit carryforwards, including their realizability, by independently re-performing the computation and comparing our determination to the Company's assessment.

Evaluation of the Company's application of multinational income tax regulations

As discussed in [Note 16](#) to the consolidated financial statements, the Company recorded \$330 million of income tax expense for the year ended December 31, 2021. Because of its multinational presence, the Company's effective income tax rate and related income tax attributes are significantly impacted by tax regulations in certain operating locations. As a result, the Company continuously monitors, evaluates, and responds to these impacts.

We identified the evaluation of the Company's ongoing assessment and application of multinational income tax regulations as a critical audit matter. This was due to the complex, subjective and evolving nature of tax regulations, the steps taken by the Company to interpret and respond to changes in the tax environment, and taxing authorities' collective impacts on the Company's consolidated income tax computations. As a result, a high degree of auditor judgment and the use of income tax professionals with specialized skills and knowledge were required to 1) evaluate significant income tax regulations, including changes thereto, 2) assess the application of the taxing authorities'

regulations on the Company's business operations, and 3) evaluate the Company's accounting for income taxes pertaining to significant transactions and restructurings.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the critical audit matter. This included controls related to 1) the application of tax regulations, 2) the execution of certain significant transactions and restructurings, and 3) their collective impacts on consolidated income tax computations. We involved income tax professionals with specialized skills and knowledge, who assisted in evaluating the Company's interpretation and application of tax regulations, including tax regulation changes, and the associated income tax consequences. They also assisted in assessing certain significant transactions and restructurings, including reviewing the underlying documentation and evaluating the impact on the Company's global tax rate.

Fair value of customer-related intangible assets and trade name acquired in a business combination

As discussed in [Note 4](#) to the consolidated financial statements, the Company acquired Santoprene on December 1, 2021. The fair value of the total consideration for the acquired business was \$1.15 billion of which \$300 million was allocated to customer-related intangible assets and \$142 million was allocated to trade names.

We identified the evaluation of the fair values of the customer-related intangible assets and one of the trade names acquired in the business combination as a critical audit matter. A high degree of subjective auditor judgment and valuation specialized skills and knowledge were required in evaluating certain inputs into the fair value determinations, including the royalty rate and discount rates. Changes in these inputs could have a significant impact on the estimated fair values of the intangible assets.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's purchase accounting process, including controls related to the development of the above-listed inputs into the valuation of the customer-related intangible assets and the trade name. In addition, we involved valuation professionals with specialized skills and knowledge who assisted in: (1) evaluating the discount rates by comparing them to an independently developed range of discount rates based on publicly available market data for comparable entities; (2) developing an estimate of fair value of the customer-related intangible assets using projected cash flows of the Santoprene business and an independently developed range of discount rates, and comparing it to the Company's fair value estimate; (3) evaluating the royalty rate for the trade name by comparing it to royalty rates from comparable licensing agreements within the industry; and (4) developing an estimate of fair value of the trade name using the royalty rate and projected cash flows of the Santoprene business, and an independently developed range of discount rates, and comparing it to the Company's fair value estimate.

/s/ KPMG LLP

We have served as the Company's auditor since 2004.

Dallas, Texas
February 10, 2022

CELANESE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF OPERATIONS

	Year Ended December 31,		
	2021	2020	2019
(In \$ millions, except share and per share data)			
Net sales	8,537	5,655	6,297
Cost of sales	(5,855)	(4,362)	(4,691)
Gross profit	2,682	1,293	1,606
Selling, general and administrative expenses	(633)	(482)	(483)
Amortization of intangible assets	(25)	(22)	(24)
Research and development expenses	(86)	(74)	(67)
Other (charges) gains, net	3	(39)	(203)
Foreign exchange gain (loss), net	2	(5)	7
Gain (loss) on disposition of businesses and assets, net	3	(7)	(2)
Operating profit (loss)	1,946	664	834
Equity in net earnings (loss) of affiliates	146	134	182
Non-operating pension and other postretirement employee benefit (expense) income	106	17	(20)
Interest expense	(91)	(109)	(115)
Refinancing expense	(9)	—	(4)
Interest income	8	6	6
Dividend income - equity investments	147	126	113
Gain (loss) on sale of investments in affiliates	—	1,408	—
Other income (expense), net	(5)	5	(8)
Earnings (loss) from continuing operations before tax	2,248	2,251	988
Income tax (provision) benefit	(330)	(247)	(124)
Earnings (loss) from continuing operations	1,918	2,004	864
Earnings (loss) from operation of discontinued operations	(27)	(14)	(8)
Income tax (provision) benefit from discontinued operations	5	2	2
Earnings (loss) from discontinued operations	(22)	(12)	(6)
Net earnings (loss)	1,896	1,992	858
Net (earnings) loss attributable to noncontrolling interests	(6)	(7)	(6)
Net earnings (loss) available to common stockholders	1,890	1,985	852
Amounts attributable to Celanese Corporation			
Earnings (loss) from continuing operations	1,912	1,997	858
Earnings (loss) from discontinued operations	(22)	(12)	(6)
Net earnings (loss)	1,890	1,985	852
Earnings (loss) per common share - basic			
Continuing operations	17.19	16.95	6.93
Discontinued operations	(0.20)	(0.10)	(0.05)
Net earnings (loss) - basic	16.99	16.85	6.88
Earnings (loss) per common share - diluted			
Continuing operations	17.06	16.85	6.89
Discontinued operations	(0.20)	(0.10)	(0.05)
Net earnings (loss) - diluted	16.86	16.75	6.84
Weighted average shares - basic	111,224,017	117,817,445	123,925,697
Weighted average shares - diluted	112,084,412	118,481,376	124,651,759

See the accompanying notes to the consolidated financial statements.

CELANESE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Net earnings (loss)	1,896	1,992	858
Other comprehensive income (loss), net of tax			
Foreign currency translation	(11)	(8)	(16)
Gain (loss) on cash flow hedges	13	(18)	(30)
Pension and postretirement benefits	(3)	(2)	(7)
Total other comprehensive income (loss), net of tax	(1)	(28)	(53)
Total comprehensive income (loss), net of tax	1,895	1,964	805
Comprehensive (income) loss attributable to noncontrolling interests	(6)	(7)	(6)
Comprehensive income (loss) attributable to Celanese Corporation	1,889	1,957	799

See the accompanying notes to the consolidated financial statements.

CELANESE CORPORATION AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

	As of December 31,	
	2021	2020
	(In \$ millions, except share data)	
ASSETS		
Current Assets		
Cash and cash equivalents	536	955
Trade receivables - third party and affiliates	1,161	792
Non-trade receivables, net	506	450
Inventories	1,524	978
Marketable securities	10	533
Other assets	70	55
Total current assets	<u>3,807</u>	<u>3,763</u>
Investments in affiliates	823	820
Property, plant and equipment (net of accumulated depreciation - 2021: \$3,484; 2020: \$3,279)	4,193	3,939
Operating lease right-of-use assets	236	232
Deferred income taxes	248	259
Other assets	521	411
Goodwill	1,412	1,166
Intangible assets, net	735	319
Total assets	<u>11,975</u>	<u>10,909</u>
LIABILITIES AND EQUITY		
Current Liabilities		
Short-term borrowings and current installments of long-term debt - third party and affiliates	791	496
Trade payables - third party and affiliates	1,160	797
Other liabilities	473	680
Income taxes payable	81	—
Total current liabilities	<u>2,505</u>	<u>1,973</u>
Long-term debt, net of unamortized deferred financing costs	3,176	3,227
Deferred income taxes	555	509
Uncertain tax positions	280	240
Benefit obligations	558	643
Operating lease liabilities	200	208
Other liabilities	164	214
Commitments and Contingencies		
Stockholders' Equity		
Preferred stock, \$0.01 par value, 100,000,000 shares authorized (2021 and 2020: 0 issued and outstanding)	—	—
Common stock, \$0.0001 par value, 400,000,000 shares authorized (2021: 169,760,024 issued and 108,023,735 outstanding; 2020: 169,402,979 issued and 114,168,464 outstanding)	—	—
Treasury stock, at cost (2021: 61,736,289 shares; 2020: 55,234,515 shares)	(5,492)	(4,494)
Additional paid-in capital	333	257
Retained earnings	9,677	8,091
Accumulated other comprehensive income (loss), net	(329)	(328)
Total Celanese Corporation stockholders' equity	<u>4,189</u>	<u>3,526</u>
Noncontrolling interests	348	369
Total equity	<u>4,537</u>	<u>3,895</u>
Total liabilities and equity	<u>11,975</u>	<u>10,909</u>

See the accompanying notes to the consolidated financial statements.

CELANESE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY

	Year Ended December 31,					
	2021		2020		2019	
	Shares	Amount	Shares	Amount	Shares	Amount
(In \$ millions, except share data)						
Common Stock						
Balance as of the beginning of the period	114,168,464	—	119,555,207	—	128,095,849	—
Stock option exercises	—	—	—	—	14,045	—
Purchases of treasury stock	(6,556,378)	—	(5,889,073)	—	(9,166,267)	—
Stock awards	411,649	—	502,330	—	611,580	—
Balance as of the end of the period	<u>108,023,735</u>	—	<u>114,168,464</u>	—	<u>119,555,207</u>	—
Treasury Stock						
Balance as of the beginning of the period	55,234,515	(4,494)	49,417,965	(3,846)	40,323,105	(2,849)
Purchases of treasury stock, including related fees	6,556,378	(1,000)	5,889,073	(650)	9,166,267	(1,000)
Issuance of treasury stock under stock plans	(54,604)	2	(72,523)	2	(71,407)	3
Balance as of the end of the period	<u>61,736,289</u>	<u>(5,492)</u>	<u>55,234,515</u>	<u>(4,494)</u>	<u>49,417,965</u>	<u>(3,846)</u>
Additional Paid-In Capital						
Balance as of the beginning of the period		257		254		233
Stock-based compensation, net of tax		76		3		22
Stock option exercises, net of tax		—		—		(1)
Balance as of the end of the period		<u>333</u>		<u>257</u>		<u>254</u>
Retained Earnings						
Balance as of the beginning of the period		8,091		6,399		5,847
Net earnings (loss) attributable to Celanese Corporation		1,890		1,985		852
Common stock dividends		(304)		(293)		(300)
Balance as of the end of the period		<u>9,677</u>		<u>8,091</u>		<u>6,399</u>
Accumulated Other Comprehensive Income (Loss), Net						
Balance as of the beginning of the period		(328)		(300)		(247)
Other comprehensive income (loss), net of tax		(1)		(28)		(53)
Balance as of the end of the period		<u>(329)</u>		<u>(328)</u>		<u>(300)</u>
Total Celanese Corporation stockholders' equity		<u>4,189</u>		<u>3,526</u>		<u>2,507</u>
Noncontrolling Interests						
Balance as of the beginning of the period		369		391		395
Net earnings (loss) attributable to noncontrolling interests		6		7		6
(Distributions to) contributions from noncontrolling interests		(27)		(29)		(10)
Balance as of the end of the period		<u>348</u>		<u>369</u>		<u>391</u>
Total equity		<u>4,537</u>		<u>3,895</u>		<u>2,898</u>

See the accompanying notes to the consolidated financial statements.

CELANESE CORPORATION AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Operating Activities			
Net earnings (loss)	1,896	1,992	858
Adjustments to reconcile net earnings (loss) to net cash provided by (used in) operating activities			
Asset impairments	2	31	83
Depreciation, amortization and accretion	378	356	356
Pension and postretirement net periodic benefit cost	(136)	(99)	(58)
Pension and postretirement contributions	(51)	(48)	(47)
Actuarial (gain) loss on pension and postretirement plans	41	96	87
Pension curtailments and settlements, net	3	(1)	—
Deferred income taxes, net	13	77	(31)
(Gain) loss on disposition of businesses and assets, net	(5)	3	3
Stock-based compensation	95	28	48
Undistributed earnings in unconsolidated affiliates	(34)	13	(14)
(Gain) loss on sale of investments in affiliates	—	(1,408)	—
Other, net	28	18	18
Operating cash provided by (used in) discontinued operations	15	5	—
Changes in operating assets and liabilities			
Trade receivables - third party and affiliates, net	(396)	141	165
Inventories	(367)	124	6
Other assets	(80)	60	(9)
Trade payables - third party and affiliates	353	(6)	(59)
Other liabilities	2	(39)	48
Net cash provided by (used in) operating activities	1,757	1,343	1,454
Investing Activities			
Capital expenditures on property, plant and equipment	(467)	(364)	(370)
Acquisitions, net of cash acquired	(1,142)	(100)	(91)
Proceeds from sale of businesses and assets, net	27	21	1
Proceeds from sale of investments in affiliates	—	1,575	—
Proceeds from sale of marketable securities	516	43	—
Purchases of marketable securities	—	(544)	(16)
Other, net	(53)	(39)	(17)
Net cash provided by (used in) investing activities	(1,119)	592	(493)
Financing Activities			
Net change in short-term borrowings with maturities of 3 months or less	206	(287)	247
Proceeds from short-term borrowings	—	311	117
Repayments of short-term borrowings	(6)	(466)	(91)
Proceeds from long-term debt	990	—	499
Repayments of long-term debt	(786)	(30)	(360)
Purchases of treasury stock, including related fees	(1,000)	(650)	(996)
Stock option exercises	—	—	(1)
Common stock dividends	(304)	(293)	(300)
(Distributions to) contributions from noncontrolling interests	(27)	(29)	(10)
Settlement of forward-starting interest rate swaps	(72)	—	—
Other, net	(43)	(27)	(40)
Net cash provided by (used in) financing activities	(1,042)	(1,471)	(935)
Exchange rate effects on cash and cash equivalents	(15)	28	(2)
Net increase (decrease) in cash and cash equivalents	(419)	492	24
Cash and cash equivalents as of beginning of period	955	463	439
Cash and cash equivalents as of end of period	536	955	463

See the accompanying notes to the consolidated financial statements.

**CELANESE CORPORATION AND SUBSIDIARIES
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS**

1. Description of the Company and Basis of Presentation

Description of the Company

Celanese Corporation and its subsidiaries (collectively, the "Company") is a global chemical and specialty materials company. The Company produces high performance engineered polymers that are used in a variety of high-value applications, as well as acetyl products, which are intermediate chemicals for nearly all major industries. The Company also engineers and manufactures a wide variety of products essential to everyday living. The Company's broad product portfolio serves a diverse set of end-use applications including automotive, chemical additives, construction, consumer and industrial adhesives, consumer and medical, energy storage, filtration, food and beverage, paints and coatings, paper and packaging, performance industrial and textiles.

Definitions

In this Annual Report on Form 10-K ("Annual Report"), the term "Celanese" refers to Celanese Corporation, a Delaware corporation, and not its subsidiaries. The term "Celanese U.S." refers to the Company's subsidiary, Celanese US Holdings LLC, a Delaware limited liability company, and not its subsidiaries.

Basis of Presentation

The consolidated financial statements contained in this Annual Report were prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") for all periods presented and include the accounts of the Company, its majority owned subsidiaries over which the Company exercises control and, when applicable, variable interest entities in which the Company is the primary beneficiary. The consolidated financial statements and other financial information included in this Annual Report, unless otherwise specified, have been presented to separately show the effects of discontinued operations.

In the ordinary course of business, the Company enters into contracts and agreements relative to a number of topics, including acquisitions, dispositions, joint ventures, supply agreements, product sales and other arrangements. The Company endeavors to describe those contracts or agreements that are material to its business, results of operations or financial position. The Company may also describe some arrangements that are not material but in which the Company believes investors may have an interest or which may have been included in a Form 8-K filing. Investors should not assume the Company has described all contracts and agreements relative to the Company's business in this Annual Report.

For those consolidated ventures in which the Company owns or is exposed to less than 100% of the economics, the outside stockholders' interests are shown as noncontrolling interests.

2. Summary of Accounting Policies

Critical Accounting Policies

Recoverability of Goodwill and Indefinite-Lived Assets

The Company assesses the recoverability of the carrying amount of its reporting unit goodwill and other indefinite-lived intangible assets either qualitatively or quantitatively annually during the third quarter of its fiscal year using June 30 balances or whenever events or changes in circumstances indicate that the carrying amount of the asset may not be fully recoverable. Recoverability of the carrying amount of goodwill is measured at the reporting unit level. The Company assesses the recoverability of finite-lived intangible assets in the same manner as for property, plant and equipment. Impairment losses are generally recorded in Other (charges) gains, net in the consolidated statements of operations.

When assessing the recoverability of goodwill and other indefinite-lived intangible assets, the Company may first assess qualitative factors in determining whether it is more likely than not that the fair value of a reporting unit, including goodwill, or an other indefinite-lived intangible asset is less than its carrying amount. The qualitative evaluation is an assessment of multiple factors, including the current operating environment, financial performance and market considerations. The Company may elect to bypass this qualitative assessment for some or all of its reporting units or other indefinite-lived intangible assets and perform a quantitative test, based on management's judgment.

In performing a quantitative analysis of goodwill, the Company measures the recoverability of goodwill for each reporting unit using a discounted cash flow model incorporating discount rates commensurate with the risks involved, which is classified as a Level 3 fair value measurement. The key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, tax rates, cash flow projections and terminal value rates. Discount rates, growth rates and cash flow projections are the most sensitive and susceptible to change as they require significant management judgment. Discount rates used are similar to the rates estimated by the weighted average cost of capital ("WACC") considering any differences in company-specific risk factors. The Company may engage third-party valuation consultants to assist with this process.

Management tests other indefinite-lived intangible assets for impairment quantitatively utilizing the relief from royalty method under the income approach to determine the estimated fair value for each indefinite-lived intangible asset, which is classified as a Level 3 fair value measurement. The relief from royalty method estimates the Company's theoretical royalty savings from ownership of the intangible asset. The key assumptions used in this model include discount rates, royalty rates, growth rates, tax rates, sales projections and terminal value rates. Discount rates, royalty rates, growth rates and sales projections are the assumptions most sensitive and susceptible to change as they require significant management judgment. Discount rates used are similar to the rates estimated by the WACC considering any differences in company-specific risk factors. Royalty rates are established by management and are periodically substantiated by third-party valuation consultants.

Pension and Other Postretirement Obligations

The Company recognizes a balance sheet asset or liability for each of its pension and other postretirement benefit plans equal to the plan's funded status as of a December 31 measurement date. The amounts recognized in the consolidated financial statements related to pension and other postretirement benefits are determined on an actuarial basis. Various assumptions are used in the calculation of the actuarial valuation of the employee benefit plans. These assumptions include the discount rate, compensation levels, expected long-term rates of return on plan assets and trends in health care costs. In addition, actuarial consultants use factors such as withdrawal and mortality rates to estimate the projected benefit obligation.

The Company applies the long-term expected rate of return to the fair value of plan assets and immediately recognizes in operating results the change in fair value of plan assets and net actuarial gains and losses annually in the fourth quarter of each fiscal year and whenever a plan is required to be remeasured. Events requiring a plan remeasurement will be recognized in the quarter in which such remeasurement event occurs. The remaining components of pension and other postretirement plan net periodic benefit costs are recorded on a quarterly basis.

The Company allocates the service cost and amortization of prior service cost (or credit) components of its pension and postretirement plans to its business segments. Interest cost, expected return on assets and net actuarial gains and losses are considered financing activities managed at the corporate level and are recorded to Other Activities. The Company believes the expense allocation appropriately matches the cost incurred for active employees to the respective business segment.

Other postretirement benefit plans provide medical and life insurance benefits to retirees who meet minimum age and service requirements. The key determinants of the accumulated postretirement benefit obligation are the discount rate and the health care cost trend rate.

- ***Discount Rate***

As of the measurement date, the Company determines the appropriate discount rate used to calculate the present value of future cash flows currently expected to be required to settle the pension and other postretirement benefit obligations. The discount rate is generally based on the yield on high-quality corporate fixed-income securities.

In the U.S., the rate used to discount pension and other postretirement benefit plan liabilities is based on a yield curve developed from market data of over 300 Aa-grade non-callable bonds at the measurement date. This yield curve has discount rates that vary based on the duration of the obligations. The estimated future cash flows for the pension and other benefit obligations were matched to the corresponding rates on the yield curve to derive a weighted average discount rate.

Outside of the U.S., a similar approach of discounting pension and other postretirement benefit plan liabilities is used based on the high quality corporate bonds available in each market. There are some exceptions to this methodology, namely in locations where there is a sparse corporate bond market, and in such cases the discount rate takes into account yields of government bonds at the appropriate duration.

- ***Expected Long-Term Rate of Return on Assets***

The Company determines the long-term expected rate of return on plan assets by considering the current target asset allocation, as well as the historical and expected rates of return on various asset categories in which the plans are invested. A single long-term expected rate of return on plan assets is then calculated for each plan as the weighted average of the target asset allocation and the long-term expected rate of return assumptions for each asset category within each plan. The expected rate of return is assessed annually.

- ***Investment Policies and Strategies***

The investment objectives for the Company's pension plans are to earn, over a moving 20-year period, a long-term expected rate of return, net of investment fees and transaction costs, sufficient to satisfy the benefit obligations of the plan, while at the same time maintaining adequate liquidity to pay benefit obligations and proper expenses, and meet any other cash needs, in the short- to medium-term.

The equity and debt securities objectives are to provide diversified exposure across the U.S. and global equity and fixed income markets, and to manage the risks and returns of the plans through the use of multiple managers and strategies. The fixed income strategies are designed to reduce liability-related interest rate risk by investing in bonds that match the duration and credit quality of the plan liabilities. Derivatives-based strategies may be used to mitigate investment risks.

The financial objectives of the qualified pension plans are established in conjunction with a comprehensive review of each plan's liability structure. The Company's asset allocation policy is based on detailed asset/liability analysis. In developing investment policy and financial goals, consideration is given to each plan's demographics, the returns and risks associated with current and alternative investment strategies and the current and projected cash, expense and funding ratios of each plan. Investment policies must also comply with local statutory requirements as determined by each country. A formal asset/liability study of each plan is undertaken approximately every three to five years or whenever there has been a material change in plan demographics, benefit structure or funding status and investment market. The Company has adopted a long-term investment horizon such that the risk and duration of investment losses are weighed against the long-term potential for appreciation of assets. Although there cannot be complete assurance that these objectives will be realized, it is believed that the likelihood for their realization is reasonably high, based upon the asset allocation chosen and the historical and expected performance of the asset classes utilized by the plans. The intent is for investments to be broadly diversified across asset classes, investment styles, market sectors, investment managers, developed and emerging markets and securities in order to moderate portfolio volatility and risk. Investments may be in separate accounts, commingled trusts, mutual funds and other pooled asset portfolios provided they all conform to fiduciary standards.

External investment managers are hired to manage pension assets. Investment consultants assist with the screening process for each new manager hired. Over the long-term, the investment portfolio is expected to earn returns that exceed a composite of market indices that are weighted to match each plan's target asset allocation. The portfolio return should also (over the long-term) meet or exceed the return used for actuarial calculations in order to meet the future needs of each plan.

Income Taxes

The provision for income taxes is determined using the asset and liability approach of accounting for income taxes. Under this approach, deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes and net operating loss and tax credit carryforwards. The amount of deferred taxes on these temporary differences is determined using the tax rates that are expected to apply to the period when the asset is realized or the liability is settled, as applicable, based on tax rates and laws in the respective tax jurisdiction enacted as of the balance sheet date.

The Company reviews its deferred tax assets for recoverability and establishes a valuation allowance based on historical taxable income, projected future taxable income, remaining carryforward periods, applicable tax strategies and the expected timing of the reversals of existing temporary differences. A valuation allowance is provided when it is more likely than not (likelihood of greater than 50%) that some portion or all of the deferred tax assets will not be realized.

The Company considers many factors when evaluating and estimating its tax positions and tax benefits, which may require periodic adjustments and which may not accurately anticipate actual outcomes. Tax positions are recognized only when it is more likely than not (likelihood of greater than 50%), based on technical merits, that the positions will be sustained upon examination. Tax positions that meet the more-likely-than-not threshold are measured using a probability weighted approach as the largest amount of tax benefit that is greater than 50% likely of being realized upon settlement. Whether the more-likely-than-not recognition threshold is met for a tax position is a matter of judgment based on the individual facts and circumstances of that position evaluated in light of all available evidence.

The Company recognizes interest and penalties related to uncertain tax positions in Income tax (provision) benefit in the consolidated statements of operations.

Other Accounting Policies

Consolidation Principles

The consolidated financial statements have been prepared in accordance with U.S. GAAP for all periods presented and include the accounts of the Company and its majority owned subsidiaries over which the Company exercises control. All intercompany accounts and transactions have been eliminated in consolidation.

Estimates and Assumptions

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of net sales, expenses and allocated charges during the reporting period. Significant estimates pertain to impairments of goodwill, intangible assets and other long-lived assets, purchase price allocations, restructuring costs and other (charges) gains, net, income taxes, pension and other postretirement benefits, asset retirement obligations, environmental liabilities and loss contingencies, among others. Actual results could differ from those estimates.

Purchase Accounting

The Company recognizes the identifiable tangible and intangible assets acquired and liabilities assumed based on their estimated fair values as of the acquisition date. The excess of purchase price over the aggregate fair values is recorded as goodwill. Intangible assets are valued using the relief from royalty, multi-period excess earnings and discounted cash flow methodologies, which are considered Level 3 measurements. The relief from royalty method estimates the Company's theoretical royalty savings from ownership of the intangible asset. Key assumptions used in this method include discount rates, royalty rates, growth rates, sales projections and terminal value rates. Key assumptions used in the multi-period excess earnings method include discount rates, retention rates, growth rates, sales projections, expense projections and contributory asset charges. Key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, tax rates, cash flow projections and terminal value rates. All of these methodologies require significant management judgment and, therefore, are susceptible to change. The Company calculates the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed to allocate the purchase price at the acquisition date. The Company may use the assistance of third-party valuation consultants.

Variable Interest Entities

The Company assesses whether it has a variable interest in legal entities in which it has a financial relationship and, if so, whether or not those entities are variable interest entities ("VIEs"). A VIE is an entity with insufficient equity at risk for the entity to finance its activities without additional subordinated financial support or in which equity investors lack the characteristics of a controlling financial interest. If an entity is determined to be a VIE, the Company evaluates whether the Company is the primary beneficiary. The primary beneficiary analysis is a qualitative analysis based on power and economics. The Company concludes that it is the primary beneficiary and consolidates the VIE if the Company has both (i) the power to direct the activities of the VIE that most significantly influence the VIE's economic performance, and (ii) the obligation to absorb losses of, or the right to receive benefits from, the VIE that could potentially be significant to the VIE.

The Company has a joint venture, Fairway Methanol LLC ("Fairway"), with Mitsui & Co., Ltd., of Tokyo, Japan ("Mitsui"), in which the Company owns 50% of Fairway, for the production of methanol at the Company's integrated chemical plant in Clear Lake, Texas. Fairway is a VIE in which the Company is the primary beneficiary. Accordingly, the Company consolidates the venture and records a noncontrolling interest for the share of the venture owned by Mitsui. Fairway is included in the Company's Acetyl Chain segment. As of December 31, 2021 and 2020, the carrying amount of the total assets associated with Fairway included in the consolidated balance sheets were \$628 million and \$666 million, respectively, made up primarily of \$560 million and \$592 million, respectively, of property, plant and equipment.

The Company holds variable interests in entities that supply certain raw materials and services to the Company. The variable interests primarily relate to cost-plus contractual arrangements with the suppliers and recovery of capital expenditures for certain plant assets plus a rate of return on such assets. Liabilities for such supplier recoveries of capital expenditures have been recorded as finance lease obligations. The entities are not consolidated because the Company is not the primary beneficiary of the entities as it does not have the power to direct the activities of the entities that most significantly impact the entities' economic performance. The Company's maximum exposure to loss as a result of its involvement with these VIEs as of December 31, 2021 and 2020 were \$235 million and \$267 million, respectively, related primarily to the recovery of capital expenditures for certain property, plant and equipment.

Fair Value Measurements

The Company determines fair value based on the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required to be recorded at fair value, the Company considers assumptions that market participants would use when pricing the asset or liability. Market participant assumptions are categorized by a three-tiered fair value hierarchy which prioritizes the inputs used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurement) and the lowest priority to unobservable inputs (Level 3 measurement). This hierarchy requires entities to maximize the use of observable inputs and minimize the use of unobservable inputs. If a financial instrument uses inputs that fall in different levels of the hierarchy, the instrument will be categorized based upon the lowest level of input that is significant to the fair value calculation. Valuations for fund investments, such as common/collective trusts, registered investment companies and short-term investment funds, which do not have readily determinable fair values, are typically estimated using a net asset value provided by a third party as a practical expedient.

The levels of inputs used to measure fair value are as follows:

Level 1 - unadjusted quoted prices for identical assets or liabilities in active markets accessible by the Company

Level 2 - inputs that are observable in the marketplace other than those inputs classified as Level 1

Level 3 - inputs that are unobservable in the marketplace and significant to the valuation

Cash and Cash Equivalents

All highly liquid investments with original maturities of three months or less are considered cash equivalents.

Marketable Securities

Marketable securities represent equity securities with readily determinable fair values and are accounted for at fair value. All gains and losses on investments in equity securities are recognized in the consolidated statements of operations.

Inventories

Inventories, including stores and supplies, are stated at the lower of cost and net realizable value. Cost for inventories is determined using the first-in, first-out method. Cost includes raw materials, direct labor and manufacturing overhead. Cost for stores and supplies is primarily determined by the average cost method.

Investments in Affiliates

Investments in equity securities where the Company can exercise significant influence over operating and financial policies of an investee, which is generally considered when an investor owns 20% or more of the voting stock of an investee, are accounted for under the equity method of accounting. Investments in equity securities where the Company does not exercise significant influence are accounted for at fair value or, if such investments do not have a readily determinable fair value, an election may be made to measure them at cost after considering observable price changes for similar instruments, minus impairment, if any. The Company determined it cannot exercise significant influence over certain investments where the Company owns greater than a 20% interest due to local government investment in and influence over these entities, limitations on the Company's involvement in the day-to-day operations and the present inability of the entities to provide timely financial information prepared in accordance with U.S. GAAP. Further, these investments were determined not to have a readily determinable fair value. Accordingly, these investments are accounted for using the alternative measure described above.

In certain instances, the financial information of the Company's equity investees is not available on a timely basis. Accordingly, the Company records its proportional share of the investee's earnings or losses on a consistent lag of no more than one quarter.

When required to assess the recoverability of its investments in affiliates, the Company estimates fair value using a discounted cash flow model. The Company may engage third-party valuation consultants to assist with this process.

Property, Plant and Equipment, Net

Land is recorded at historical cost. Buildings, machinery and equipment, including capitalized interest, and property under finance lease agreements, are recorded at cost less accumulated depreciation. The Company records depreciation and amortization in its consolidated statements of operations as either Cost of sales, Selling, general and administrative expenses or Research and development expenses consistent with the utilization of the underlying assets. Depreciation is calculated on a straight-line basis over the following estimated useful lives of depreciable assets:

Land improvements	20 years
Buildings and improvements	30 years
Machinery and equipment	20 years

Leasehold improvements are amortized over 10 years or the remaining life of the respective lease, whichever is shorter.

Accelerated depreciation is recorded when the estimated useful life is shortened. Ordinary repair and maintenance costs, including costs for planned maintenance turnarounds, that do not extend the useful life of the asset are charged to earnings as incurred. Fully depreciated assets are retained in property and depreciation accounts until sold or otherwise disposed. In the case of disposals, assets and related depreciation are removed from the accounts, and the net amounts, less proceeds from disposal, are included in earnings.

The Company assesses the recoverability of the carrying amount of its property, plant and equipment whenever events or changes in circumstances indicate that the carrying amount of an asset or asset group may not be recoverable. An impairment loss would be assessed when estimated undiscounted future cash flows from the operation and disposition of the asset group are less than the carrying amount of the asset group. Asset groups have identifiable cash flows and are largely independent of other asset groups. Measurement of an impairment loss is based on the excess of the carrying amount of the asset group over its fair

value. The Company calculates the fair value using a discounted cash flow model incorporating discount rates commensurate with the risks involved for the asset group, which is classified as a Level 3 fair value measurement. The key assumptions used in the discounted cash flow valuation model include discount rates, growth rates, tax rates, cash flow projections and terminal value rates. Discount rates, growth rates and cash flow projections involve significant judgment and are based on management's estimate of current and forecasted market conditions and cost structure. Impairment losses are generally recorded in Other (charges) gains, net in the consolidated statements of operations.

Definite-lived Intangible Assets

Customer-related intangible assets and other intangible assets with finite lives are amortized on a straight-line basis over their estimated useful lives, which range from three to 30 years.

Derivative and Hedging Instruments

The Company manages its exposures to interest rates, foreign exchange rates and commodity prices through a risk management program that includes the use of derivative financial instruments. The Company does not use derivative financial instruments for speculative trading purposes. The fair value of derivative instruments other than foreign currency forwards and swaps is recorded as an asset or liability on a net basis at the balance sheet date.

- ***Interest Rate Risk Management***

The Company entered into a forward-starting interest rate swap to mitigate the risk of variability in the benchmark interest rate for an expected debt issuance in 2021. The interest rate swap agreement is designated as a cash flow hedge. Accordingly, to the extent the cash flow hedge is effective, changes in the fair value of the interest rate swap are included in gain (loss) from cash flow hedges within Accumulated other comprehensive income (loss), net in the consolidated balance sheets. Hedge accounting is discontinued when the interest rate swap is no longer effective in offsetting cash flows attributable to the hedged risk, the interest rate swap expires or the cash flow hedge is dedesignated because it is no longer probable that the forecasted transaction will occur according to the original strategy. Cash flows related to the settlement of the forward-starting interest rate swaps are reported as financing activities.

- ***Foreign Exchange Risk Management***

Certain subsidiaries of the Company have assets and liabilities denominated in currencies other than their respective functional currencies, which creates foreign exchange risk. The Company also is exposed to foreign currency fluctuations on transactions with third-party entities as well as intercompany transactions. The Company minimizes its exposure to foreign currency fluctuations by entering into foreign currency forwards and swaps. These foreign currency forwards and swaps are not designated as hedges. Gains and losses on foreign currency forwards and swaps entered into to offset foreign exchange impacts on intercompany balances are included in Other income (expense), net in the consolidated statements of operations. Gains and losses on foreign currency forwards and swaps entered into to offset foreign exchange impacts on all other assets and liabilities are included in Foreign exchange gain (loss), net in the consolidated statements of operations.

The Company uses non-derivative financial instruments that may give rise to foreign currency transaction gains or losses to hedge the foreign currency exposure of net investments in foreign operations. Accordingly, the effective portion of gains and losses from remeasurement of the non-derivative financial instrument is included in foreign currency translation within Accumulated other comprehensive income (loss), net in the consolidated balance sheets. Gains and losses are reclassified to earnings in the period the hedged investment is sold or liquidated.

The Company entered into a cross-currency swap to synthetically convert its USD borrowing to EUR borrowing in 2019. The cross-currency swap agreement is designated as a net investment hedge. Accordingly, to the extent the net investment hedge is effective, changes in the fair value of the cross-currency swap are included in foreign currency translation within Accumulated other comprehensive income (loss), net in the consolidated balance sheets. Gains and losses are reclassified to earnings in the period the hedged investment is sold or liquidated.

- ***Commodity Risk Management***

The Company has exposure to the prices of commodities in its procurement of certain raw materials. The Company manages its exposure to commodity risk primarily through the use of long-term supply agreements, multi-year purchasing and sales agreements and forward purchase contracts. The Company regularly assesses its practice of using forward purchase contracts and other raw material hedging instruments in accordance with changes in economic conditions. Forward purchases and swap contracts for raw materials are principally settled through physical delivery of the commodity. For qualifying contracts, the

Company has elected to apply the normal purchases and normal sales exception based on the probability at the inception and throughout the term of the contract that the Company would not net settle and the transaction would result in the physical delivery of the commodity. Accordingly, realized gains and losses on these contracts are included in the cost of the commodity upon the settlement of the contract.

The Company also uses commodity swaps to hedge the risk of fluctuating price changes in certain raw materials and in which physical settlement does not occur. These commodity swaps fix the variable fee component of the price of certain commodities. All or a portion of these commodity swap agreements may be designated as cash flow hedges. Accordingly, to the extent the cash flow hedge was effective, changes in the fair value of commodity swaps are included in gain (loss) from cash flow hedges within Accumulated other comprehensive income (loss), net in the consolidated balance sheets. Gains and losses are reclassified to earnings in the period that the hedged item affected earnings.

Asset Retirement Obligations

Periodically, the Company will conclude a site no longer has an indeterminate life based on long-lived asset impairment triggering events and decisions made by the Company. Accordingly, the Company will record asset retirement obligations associated with such sites. To measure the fair value of the asset retirement obligations, the Company will use the expected present value technique, which is classified as a Level 3 fair value measurement. The expected present value technique uses a set of cash flows that represent the probability-weighted average of all possible cash flows based on the Company's judgment. The Company uses the following inputs to determine the fair value of the asset retirement obligations based on the Company's experience with fulfilling obligations of this type and the Company's knowledge of market conditions: (a) labor costs; (b) allocation of overhead costs; (c) profit on labor and overhead costs; (d) effect of inflation on estimated costs and profits; (e) risk premium for bearing the uncertainty inherent in cash flows, other than inflation; (f) time value of money represented by the risk-free interest rate commensurate with the timing of the associated cash flows; and (g) nonperformance risk relating to the liability, which includes the Company's own credit risk. The asset retirement obligations are accreted to their undiscounted values until the time at which they are expected to be settled.

The Company has identified but not recognized asset retirement obligations related to certain of its existing operating facilities. Examples of these types of obligations include demolition, decommissioning, disposal and restoration activities. Legal obligations exist in connection with the retirement of these assets upon closure of the facilities or abandonment of the existing operations. However, the Company currently plans on continuing operations at these facilities indefinitely and therefore, a reasonable estimate of fair value cannot be determined at this time. In the event the Company considers plans to abandon or cease operations at these sites, an asset retirement obligation will be reassessed at that time. If certain operating facilities were to close, the related asset retirement obligations could significantly affect the Company's results of operations and cash flows.

Environmental Liabilities

The Company manufactures and sells a diverse line of chemical products throughout the world. Accordingly, the Company's operations are subject to various hazards incidental to the production of industrial chemicals including the use, handling, processing, storage and transportation of hazardous materials. The Company recognizes losses and accrues liabilities relating to environmental matters if available information indicates that it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Depending on the nature of the site, the Company accrues through 15 years, unless the Company has government orders or other agreements that extend beyond 15 years. The Company estimates environmental liabilities on a case-by-case basis using the most current status of available facts, existing technology, presently enacted laws and regulations and prior experience in remediation of contaminated sites. Recoveries of environmental costs from other parties are recorded as assets when their receipt is deemed probable.

An environmental liability related to cleanup of a contaminated site might include, for example, a provision for one or more of the following types of costs: site investigation and testing costs, cleanup costs, costs related to soil and water contamination resulting from tank ruptures and post-remediation monitoring costs. These undiscounted liabilities do not take into account any claims or recoveries from insurance. The measurement of environmental liabilities is based on the Company's periodic estimate of what it will cost to perform each of the elements of the remediation effort. The Company utilizes third parties to assist in the management and development of cost estimates for its sites. Changes to environmental regulations or other factors affecting environmental liabilities are reflected in the consolidated financial statements in the period in which they occur.

Loss Contingencies

When determinable, the Company accrues a liability for loss contingencies deemed probable of occurring for which an amount can be reasonably estimated. For certain potentially material loss contingencies, the Company is sometimes unable to estimate

and accrue a loss deemed probable of occurring. For such matters, the Company discloses an estimate of the possible loss, range of loss or a statement that such estimate cannot be made.

Because the Company's evaluation and assessment of critical facts and circumstances surrounding a contingent loss often occurs well in advance of the matter's final determination, there is an inherent subjectivity and unpredictability involved in estimating, accounting for and reporting contingent losses. Generally, the less progress made in the resolution of a contingent loss matter or the broader the range of potential outcomes, the more difficult it is for the Company to estimate, accrue and report a loss. For example, the Company may disclose certain information about a plaintiff's legal claim against the Company that is alleged in the plaintiff's pleadings or otherwise publicly available. While information of this type may provide more insight into the potential magnitude of a matter, it may not necessarily be indicative of the Company's estimate of probable or possible loss. In addition, some of the Company's contingent loss exposures may be eligible for reimbursement under the provisions of its insurance coverage. The Company does not consider the potential availability of insurance coverage in determining its probable or possible loss estimates. As a result of these factors among others, the Company's ultimate contingent loss exposure may be higher or lower, and possibly materially so, than the Company's recorded probable loss accruals and disclosures of possible losses.

Revenue Recognition

Revenue is recognized when performance obligations under the terms of a contract with a customer are satisfied. The majority of the Company's contracts have a single performance obligation to transfer products. Accordingly, the Company recognizes revenue when title and risk of loss have been transferred to the customer, generally at the time of shipment of products. Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring products and is generally based upon a negotiated, formula, list or fixed price. The Company sells its products both directly to customers and through distributors generally under agreements with payment terms typically less than 90 days.

The Company has elected to account for shipping and handling as activities to fulfill the promise to transfer the good. As such, shipping and handling fees billed to customers in a sales transaction are recorded in Net sales and shipping and handling costs incurred are recorded in Cost of sales. The Company has elected to exclude from Net sales any value add, sales and other taxes which it collects concurrent with revenue-producing activities.

- ***Contract Estimates***

The nature of certain of the Company's contracts gives rise to variable consideration, which may be constrained, including retrospective volume-based rebates to certain customers. The Company issues retrospective volume-based rebates to customers when they purchase a certain volume level, and the rebates are applied retroactively to prior purchases. The Company also issues prospective volume-based rebates to customers when they purchase a certain volume level, and the rebates are applied to future purchases. Prospective volume-based rebates represent a material right within the contract and therefore are considered to be separate performance obligations. For both retrospective and prospective volume-based rebates, the Company estimates the level of volumes based on anticipated purchases at the beginning of the period and records a rebate accrual for each purchase toward the requisite rebate volume. These estimated rebates, which are reassessed each reporting period, are included in the transaction price of the Company's contracts with customers as a reduction to Net sales and are included in Current Other liabilities in the consolidated balance sheets ([Note 10](#)).

The majority of the Company's revenue is derived from contracts (i) with an original expected length of one year or less and (ii) contracts for which it recognizes revenue at the amount in which it has the right to invoice as product is delivered. The Company has elected the practical expedient not to disclose the value of remaining performance obligations associated with these types of contracts. However, the Company has certain contracts that represent take-or-pay revenue arrangements in which the Company's performance obligations extend over multiple years. As of December 31, 2021, the Company had \$784 million of remaining performance obligations related to take-or-pay contracts. The Company expects to recognize approximately \$284 million of its remaining performance obligations as Net sales in 2022, \$193 million in 2023, \$151 million in 2024 and the balance thereafter.

The Company has certain contracts which contain performance obligations which are immaterial in the context of the contract with the customer. The Company has elected the practical expedient not to assess whether these promised goods or services are performance obligations.

- ***Contract Balances***

Contract liabilities primarily relate to advances or deposits received from the Company's customers before revenue is recognized. These amounts are recorded as deferred revenue and are included in Noncurrent Other liabilities in the consolidated balance sheets.

The Company does not have any material contract assets as of December 31, 2021.

Research and Development

The costs of research and development are charged as an expense in the period in which they are incurred.

Leases

The Company leases certain real estate, fleet assets, warehouses and equipment. Leases with an initial term of 12 months or less ("short-term leases") are not recorded on the consolidated balance sheet; the Company recognizes lease expense for these leases on a straight-line basis over the lease term. The Company determines if an arrangement is a lease at inception.

Operating lease right-of-use ("ROU") assets and operating lease liabilities are recognized based on the present value of lease payments over the lease term at commencement date. Because most of the Company's leases do not provide an implicit rate of return, the Company uses its imputed collateralized rate based on the information available at commencement date in determining the present value of lease payments. The estimated rate is based on a risk-free rate plus a risk-adjusted margin. Operating lease ROU assets are comprised of the lease liability plus prepaid rents and are reduced by lease incentives or deferred rents. The Company has lease agreements with non-lease components which are not bifurcated.

Most leases include one or more options to renew, with renewal terms that can extend the lease term from one to 30 years. The exercise of a lease renewal option typically occurs at the discretion of both parties. Certain leases also include options to purchase the leased property. For purposes of calculating operating lease liabilities, lease terms are deemed not to include options to extend the lease termination until it is reasonably certain that the Company will exercise that option. Certain of the Company's lease agreements include payments adjusted periodically for inflation based on the consumer price index. The Company's lease agreements do not contain any material residual value guarantees or material restrictive covenants.

Functional and Reporting Currencies

For the Company's international operations where the functional currency is other than the U.S. dollar, assets and liabilities are translated using period-end exchange rates, while the statement of operations amounts are translated using the average exchange rates for the respective period. Differences arising from the translation of assets and liabilities in comparison with the translation of the previous periods or from initial recognition during the period are included as a separate component of Accumulated other comprehensive income (loss), net.

3. Recent Accounting Pronouncements

The following table provides a brief description of recent Accounting Standard Updates ("ASU") issued by the Financial Accounting Standards Board ("FASB"):

Standard	Description	Effective Date	Effect on the Financial Statements or Other Significant Matters
In March 2020, the FASB issued ASU 2020-04, <i>Facilitation of the Effects of Reference Rate Reform on Financial Reporting</i> .	The new guidance provides optional expedients and exceptions for applying U.S. GAAP to contracts, hedging relationships and other transactions affected by reference rate reform if certain criteria are met. The guidance applies only to contracts, hedging relationships and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform.	March 12, 2020 through December 31, 2022.	The Company has completed its assessment, and the adoption of the new guidance did not have a material impact to the Company.
In December 2019, the FASB issued ASU 2019-12, <i>Simplifying the Accounting for Income Taxes</i> .	The new guidance simplifies the accounting for income taxes by removing certain exceptions to the general principles in FASB Accounting Standards Codification Topic 740, Income Taxes ("Topic 740"). The guidance also clarifies and amends existing guidance under Topic 740.	January 1, 2021.	The Company adopted the new guidance effective January 1, 2021. The adoption of the new guidance did not have a material impact to the Company.

4. Acquisitions, Dispositions and Plant Closures

Acquisition

On December 1, 2021, the Company acquired the Santoprene™ thermoplastic vulcanizates ("TPV") elastomers business of Exxon Mobil Corporation ("Santoprene") for a purchase price of \$1.15 billion in an all-cash transaction. The Company acquired the Santoprene™, Dytron™ and Geolast™ trademarks and product portfolios, customer and supplier contracts and agreements, both production facilities producing TPV, the TPV intellectual property portfolio with associated technical and R&D assets and employees of the TPV elastomer business. The acquisition of Santoprene substantially strengthens our existing elastomers portfolio, allowing the Company to bring a wider range of functionalized solutions into targeted growth areas including future mobility, medical and sustainability. The acquisition was accounted for as a business combination and the acquired operations are included in the Engineered Materials segment.

Pro forma financial information since the respective acquisition date has not been provided as the acquisition did not have a material impact on the Company's financial information. The Company allocated the purchase price of the acquisition to identifiable assets acquired and liabilities assumed based on their estimated fair values as of the acquisition date. The excess of the purchase price over the aggregate fair values was recorded as goodwill. The Company calculated the fair value of the assets acquired using the income, market or cost approach (or a combination thereof). Fair values of certain assets were determined based on Level 3 inputs including estimated future cash flows, discount rates, royalty rates, growth rates, sales projections, retention rates and terminal values, all of which require significant management judgment and are susceptible to change. The purchase price allocation was based upon preliminary information and is subject to change if additional information about the facts and circumstances that existed at the acquisition date becomes available. We are in the ongoing process of conducting a valuation of the assets acquired and liabilities assumed related to the acquisition, including personal and real property, lease obligations, deferred taxes and intangible assets. The final fair value of the net assets acquired may result in adjustments to these assets and liabilities, including goodwill. However, any subsequent measurement period adjustments are not expected to have a material impact on the Company's results of operations.

The preliminary purchase price allocation for the Santoprene acquisition is as follows:

	As of December 1, 2021 (In \$ millions)
Inventories	207
Property, plant and equipment, net	194
Goodwill (Note 9) ⁽¹⁾	295
Intangible assets, net (Note 9)	441
Other	16
Total fair value of assets acquired	1,153
Total fair value of liabilities assumed	(26)
Net assets acquired	1,127

⁽¹⁾ Goodwill consists of expected revenue and operating synergies resulting from the acquisition, a portion of which is expected to be deductible for income tax purposes.

During the year ended December 31, 2021, transaction related costs of \$21 million were expensed as incurred to Selling, general and administrative expenses in the consolidated statements of operations. The amount of pro forma Earnings (loss) from continuing operations before tax of Santoprene was less than 3% (unaudited) of the Company's consolidated Earnings (loss) from continuing operations before tax, had the acquisition occurred as of the beginning of 2021. The amount of Santoprene Earnings (loss) from continuing operations before tax consolidated by the Company since the acquisition date was not material.

5. Receivables, Net

	As of December 31,	
	2021	2020
	(In \$ millions)	
Trade receivables - third party and affiliates	1,171	803
Allowance for doubtful accounts - third party and affiliates	(10)	(11)
Trade receivables - third party and affiliates, net	1,161	792

	As of December 31,	
	2021	2020
	(In \$ millions)	
Non-income taxes receivable	282	267
Reinsurance receivables	14	12
Income taxes receivable	123	100
Other	87	71
Non-trade receivables, net	506	450

6. Inventories

	As of December 31,	
	2021	2020
	(In \$ millions)	
Finished goods	1,014	653
Work-in-process	75	74
Raw materials and supplies	435	251
Total	<u>1,524</u>	<u>978</u>

7. Investments in Affiliates

Entities in which the Company has an investment accounted for under the equity method of accounting or equity investments without readily determinable fair values are considered affiliates; any transactions or balances with such companies are considered affiliate transactions.

In October 2020, the Company completed the sale of its 45% joint venture equity interest in Polyplastics Co., Ltd. ("Polyplastics"), to its joint venture partner Daicel Corporation ("Daicel"), for a purchase price of approximately \$1.6 billion in cash. In connection with the transaction, the Company recorded a gain on the sale of its equity interest in Polyplastics of \$1.4 billion to Gain (loss) on sale of investments in affiliates in the consolidated statements of operations and income tax expense, net, of approximately \$254 million during the three months ended December 31, 2020. The gain on the sale of the Company's equity interest in Polyplastics was included in its Engineered Materials segment.

In addition to the sale of the Company's 45% equity interest in Polyplastics, the agreement also provided for the amendment of certain supply agreements and the execution of certain intellectual property licenses between Celanese, certain of its affiliates and Polyplastics and Daicel, as applicable, as well as the termination of certain agreements and a mutual release of liabilities under such terminated agreements.

Equity Method

Equity method investments and ownership interests by business segment are as follows:

	Ownership as of December 31,		Carrying Value as of December 31,		Share of Earnings (Loss) Year Ended December 31,			Dividends and Other Distributions Year Ended December 31,		
	2021	2020	2021	2020	2021	2020	2019	2021	2020	2019
	(In percentages)		(In \$ millions)							
Engineered Materials										
Ibn Sina	25	25	179	172	61	37	68	(50)	(29)	(69)
InfraServ GmbH & Co. Hoechst KG ⁽¹⁾⁽²⁾ ..	31	31	121	124	24	18	14	(18)	(18)	(17)
Fortron Industries LLC	50	50	145	136	17	12	18	(8)	(9)	(7)
Korea Engineering Plastics Co., Ltd.	50	50	150	153	31	19	27	(22)	(23)	(28)
Polyplastics Co., Ltd.	—	—	—	—	—	34	44	—	(58)	(39)
Other Activities⁽²⁾										
InfraServ GmbH & Co. Gendorf KG	30	30	43	47	11	11	8	(11)	(7)	(5)
YNCORIS GmbH & Co. KG ⁽³⁾	22	22	15	17	2	3	3	(3)	(3)	(3)
Total			<u>653</u>	<u>649</u>	<u>146</u>	<u>134</u>	<u>182</u>	<u>(112)</u>	<u>(147)</u>	<u>(168)</u>

(1) InfraServ GmbH & Co. Hoechst KG is owned primarily by an entity included in the Company's Engineered Materials segment. The Company's Acetyl Chain segment also holds an ownership percentage.

(2) InfraServ real estate service companies ("InfraServ Entities") own and operate sites in Frankfurt am Main-Hoechst, Gendorf and Knapsack, Germany. The InfraServ Entities were created to own land and property and to provide various technical and administrative services at these manufacturing locations.

(3) Formerly known as InfraServ GmbH & Co. Knapsack KG.

Because financial information for Ibn Sina is not available to the Company on a timely basis, the Company's proportional share is reported on a one quarter lag. Accordingly, summarized financial information for Ibn Sina is as follows:

	As of September 30,	
	2021	2020
	(In \$ millions)	
Current assets	283	244
Noncurrent assets	806	817
Current liabilities	196	201
Noncurrent liabilities	324	372

	Twelve Months Ended September 30,		
	2021	2020	2019
	(In \$ millions)		
Revenues	734	625	726
Gross profit	272	187	299
Net income	207	118	227

Equity Investments Without Readily Determinable Fair Values

Equity investments without readily determinable fair values and ownership interests by business segment are as follows:

	Ownership as of December 31,		Carrying Value as of December 31,		Dividend Income for the Year Ended December 31,		
	2021	2020	2021	2020	2021	2020	2019
	(In percentages)		(In \$ millions)				
Acetate Tow							
Kunming Cellulose Fibers Co. Ltd.	30	30	14	14	13	11	11
Nantong Cellulose Fibers Co. Ltd.	31	31	121	121	106	91	79
Zhuhai Cellulose Fibers Co. Ltd.	30	30	30	30	27	24	22
Other Activities							
InfraServ GmbH & Co. Wiesbaden KG	8	8	5	6	1	—	1
Total			170	171	147	126	113

Transactions with Affiliates

The Company owns manufacturing facilities at the InfraServ location in Frankfurt am Main-Hoechst, Germany and has contractual agreements with the InfraServ Entities and certain other equity affiliates and investees accounted for at cost less impairment, adjusted for observable price changes for an identical or similar investment of the same issuer. These contractual agreements primarily relate to energy purchases, site services and purchases of product for consumption and resale.

Transactions and balances with affiliates are as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Purchases	334	249	291
Sales and other credits	74	42	102
Interest expense	—	—	1
As of December 31,			
	2021	2020	
	(In \$ millions)		
Non-trade receivables	32	22	
Total due from affiliates	32	22	
Short-term borrowings ⁽¹⁾	64	58	
Trade payables	71	38	
Current Other liabilities	12	9	
Total due to affiliates	147	105	

⁽¹⁾ The Company has agreements with certain affiliates whereby excess affiliate cash is lent to and managed by the Company at variable interest rates governed by those agreements.

8. Property, Plant and Equipment, Net

	As of December 31,	
	2021	2020
	(In \$ millions)	
Land	48	53
Land improvements	78	79
Buildings and building improvements	833	826
Machinery and equipment	5,993	5,768
Construction in progress	725	492
Gross asset value	7,677	7,218
Accumulated depreciation	(3,484)	(3,279)
Net book value	<u>4,193</u>	<u>3,939</u>

Assets under finance leases, net, included in the amounts above are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Buildings	13	14
Machinery and equipment	357	365
Accumulated depreciation	(239)	(231)
Net book value	<u>131</u>	<u>148</u>

Capitalized interest costs and depreciation expense are as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Capitalized interest	12	8	8
Depreciation expense	346	327	327

During 2021, 2020 and 2019, certain long-lived assets were impaired ([Note 15](#)).

9. Goodwill and Intangible Assets, Net

Goodwill

	Engineered Materials	Acetate Tow	Acetyl Chain	Total
	(In \$ millions)			
As of December 31, 2019	727	148	199	1,074
Acquisitions	—	—	30	30 ⁽¹⁾
Exchange rate changes	41	1	20	62
As of December 31, 2020	768	149	249	1,166
Acquisitions (Note 4)	299	—	2	301 ⁽²⁾
Exchange rate changes	(37)	—	(18)	(55)
As of December 31, 2021 ⁽³⁾	<u>1,030</u>	<u>149</u>	<u>233</u>	<u>1,412</u>

⁽¹⁾ Represents goodwill related to the acquisition of Nouryon's redispersible polymer powders business offered under the Elotex® brand ("Elotex").

⁽²⁾ Primarily represents goodwill related to the acquisition of Santoprene.

⁽³⁾ There were no accumulated impairment losses as of December 31, 2021.

In connection with the Company's annual goodwill impairment assessment, the Company did not record an impairment loss to goodwill during the nine months ended September 30, 2021, as the estimated fair value for each of the Company's reporting units exceeded the carrying amount of the underlying assets by a substantial margin ([Note 2](#)). No events or changes in circumstances occurred during the three months ended December 31, 2021 that indicated the carrying amount of the assets may not be fully recoverable. Accordingly, no additional impairment analysis was performed during that period.

Intangible Assets, Net

Finite-lived intangible assets are as follows:

	Licenses	Customer- Related Intangible Assets	Developed Technology	Covenants Not to Compete and Other	Total
	(In \$ millions)				
Gross Asset Value					
As of December 31, 2019.....	42	667	44	56	809
Acquisitions	—	16	—	—	16 ⁽¹⁾
Exchange rate changes	2	41	1	—	44
As of December 31, 2020.....	44	724	45	56	869
Acquisitions (Note 4).....	—	307	—	—	307 ⁽²⁾
Exchange rate changes	1	(35)	—	(1)	(35)
As of December 31, 2021.....	45	996	45	55	1,141
Accumulated Amortization					
As of December 31, 2019.....	(35)	(504)	(35)	(38)	(612)
Amortization	(1)	(17)	(3)	(1)	(22)
Exchange rate changes	(2)	(34)	(2)	—	(38)
As of December 31, 2020.....	(38)	(555)	(40)	(39)	(672)
Amortization	(2)	(19)	(3)	(1)	(25)
Exchange rate changes	(1)	31	1	1	32
As of December 31, 2021.....	(41)	(543)	(42)	(39)	(665)
Net book value	4	453	3	16	476

⁽¹⁾ Related to intangible assets acquired from Elotex with a weighted average amortization period of 14 years.

⁽²⁾ Primarily related to \$300 million of intangible assets acquired from Santoprene with a weighted average amortization period of 14 years.

Indefinite-lived intangible assets are as follows:

	Trademarks and Trade Names
	(In \$ millions)
As of December 31, 2019.....	115
Acquisitions.....	2 ⁽¹⁾
Impairment loss (Note 2).....	(1)
Exchange rate changes	6
As of December 31, 2020.....	122
Acquisitions (Note 4).....	142 ⁽²⁾
Exchange rate changes	(5)
As of December 31, 2021.....	259

⁽¹⁾ Related to indefinite-lived intangible assets acquired from Elotex.

⁽²⁾ Related to indefinite-lived intangible assets acquired from Santoprene.

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In connection with the Company's annual indefinite-lived intangible assets impairment assessment, the Company did not record an impairment loss during the nine months ended September 30, 2021, as the estimated fair value for each of the Company's indefinite-lived intangible assets exceeded the carrying value of the underlying asset by a substantial margin ([Note 2](#)). No events or changes in circumstances occurred during the three months ended December 31, 2021 that indicated the carrying amount of the assets may not be fully recoverable. Accordingly, no additional impairment analysis was performed during that period.

During the year ended December 31, 2021, the Company did not renew or extend any intangible assets.

Estimated amortization expense for the succeeding five fiscal years is as follows:

	(In \$ millions)
2022	43
2023	40
2024	40
2025	40
2026	40

10. Current Other Liabilities

	As of December 31,	
	2021	2020
	(In \$ millions)	
Asset retirement obligations	14	10
Benefit obligations (Note 12)	26	27
Customer rebates	96	53
Derivatives (Note 18)	5	87
Environmental (Note 13)	9	11
Interest	30	29
Legal (Note 20)	33	107
Operating leases (Note 17)	37	36
Restructuring (Note 15)	7	11
Salaries and benefits	135	121
Sales and use tax/foreign withholding tax payable	27	140
Other	54	48
Total	<u>473</u>	<u>680</u>

11. Debt

	As of December 31,	
	2021	2020
(In \$ millions)		
Short-Term Borrowings and Current Installments of Long-Term Debt - Third Party and Affiliates		
Current installments of long-term debt	527	431
Short-term borrowings, including amounts due to affiliates ⁽¹⁾	64	65
Revolving credit facility ⁽²⁾	200	—
Total	791	496

⁽¹⁾ The weighted average interest rate was 0.2% and 0.6% as of December 31, 2021 and 2020, respectively. During the year ended December 31, 2020, the Company entered into an aggregate of \$300 million in short-term, bilateral term loans, which were repaid during the same period.

⁽²⁾ The weighted average interest rate was 1.4% and 0.0% as of December 31, 2021 and 2020, respectively.

	As of December 31,	
	2021	2020
(In \$ millions)		
Long-Term Debt		
Senior unsecured notes due 2021, interest rate of 5.875%	—	400
Senior unsecured notes due 2022, interest rate of 4.625%	500	500
Senior unsecured notes due 2023, interest rate of 1.125%	509	919
Senior unsecured notes due 2024, interest rate of 3.500%	499	499
Senior unsecured notes due 2025, interest rate of 1.250%	339	368
Senior unsecured notes due 2026, interest rate of 1.400%	400	—
Senior unsecured notes due 2027, interest rate of 2.125%	564	610
Senior unsecured notes due 2028, interest rate of 0.625%	566	—
Pollution control and industrial revenue bonds due at various dates through 2030, interest rates ranging from 4.05% to 5.00%	166	166
Bank loans due at various dates through 2026 ⁽¹⁾	6	8
Obligations under finance leases due at various dates through 2054	173	201
Subtotal	3,722	3,671
Unamortized debt issuance costs ⁽²⁾	(19)	(13)
Current installments of long-term debt	(527)	(431)
Total	3,176	3,227

⁽¹⁾ The weighted average interest rate was 1.3% and 1.3% as of December 31, 2021 and 2020, respectively.

⁽²⁾ Related to the Company's long-term debt, excluding obligations under finance leases.

Senior Credit Facilities

The Company has a senior credit agreement (the "Credit Agreement") consisting of a \$1.25 billion senior unsecured revolving credit facility (with a letter of credit sublimit), maturing in 2024. The Credit Agreement is guaranteed by Celanese, Celanese U.S. and domestic subsidiaries together representing substantially all of the Company's U.S. assets and business operations ("the Subsidiary Guarantors"). The Subsidiary Guarantors are listed in [Exhibit 22.1](#) to this Annual Report.

The Company's debt balances and amounts available for borrowing under its senior unsecured revolving credit facility are as follows:

	As of December 31, 2021
	(In \$ millions)
Revolving Credit Facility	
Borrowings outstanding ⁽¹⁾	200
Available for borrowing ⁽²⁾	1,050

⁽¹⁾ The Company borrowed \$850 million and repaid \$650 million under its senior unsecured revolving credit facility during the year ended December 31, 2021.

⁽²⁾ The margin for borrowings under the senior unsecured revolving credit facility was 1.25% above LIBOR or EURIBOR at current Company credit ratings.

Senior Notes

The Company has outstanding senior unsecured notes, issued in public offerings registered under the Securities Act of 1933 ("Securities Act"), as amended (collectively, the "Senior Notes"). The Senior Notes were issued by Celanese U.S. and are guaranteed on a senior unsecured basis by Celanese and the Subsidiary Guarantors. Celanese U.S. may redeem some or all of each of the Senior Notes, prior to their respective maturity dates, at a redemption price of 100% of the principal amount, plus a "make-whole" premium as specified in the applicable indenture, plus accrued and unpaid interest, if any, to the redemption date.

On August 5, 2021, Celanese U.S. completed an offering of \$400 million in principal amount of 1.400% senior unsecured notes due August 5, 2026 (the "1.400% Notes") in a public offering registered under the Securities Act. The 1.400% Notes were issued at a discount to par at a price of 99.899%, which is being amortized to Interest expense in the consolidated statement of operations over the term of the 1.400% Notes. Net proceeds from the sale of the 1.400% Notes were used to repay \$396 million of outstanding borrowings under the senior unsecured revolving credit facility and for general corporate purposes.

On September 10, 2021, Celanese U.S. completed an offering of €500 million in principal amount of 0.625% senior unsecured notes due September 10, 2028 (the "0.625% Notes") in a public offering registered under the Securities Act. The 0.625% Notes were issued at a discount to par at a price of 99.898%, which is being amortized to Interest expense in the consolidated statements of operations over the term of the 0.625% Notes.

On September 13, 2021, Celanese U.S. completed a cash tender offer for €300 million in principal amount of 1.125% senior unsecured notes due September 26, 2023 (the "1.125% Notes") at a purchase price of €1,027.35 per €1,000 of principal amount plus accrued interest, for a total principal and premium payment of \$363 million plus accrued interest of \$4 million. A portion of the proceeds from the issuance of the 0.625% Notes were used to fund the tender offer for €300 million of the 1.125% Notes. As a result of the tender offer, the carrying value of the 1.125% Notes was reduced by \$353 million. The Company recognized financing costs of \$9 million, which are included in Refinancing expense in the consolidated statement of operations for the year ended December 31, 2021.

Principal payments scheduled to be made on the Company's debt, including short-term borrowings, are as follows:

	(In \$ millions)
2022	791
2023	533
2024	541
2025	425
2026	498
Thereafter	1,198
Total	3,986

Accounts Receivable Purchasing Facility

On June 18, 2021, the Company entered into an amendment to the amended and restated receivables purchase agreement (the "Amended Receivables Purchase Agreement") under its U.S. accounts receivable purchasing facility among certain of the Company's subsidiaries, its wholly-owned, "bankruptcy remote" special purpose subsidiary ("SPE") and certain global financial institutions ("Purchasers"). The Amended Receivables Purchase Agreement extends the term of the accounts receivable purchasing facility such that the SPE may sell certain receivables until June 18, 2024. Under the Amended Receivables Purchase Agreement, transfers of U.S. accounts receivable from the SPE are treated as sales and are accounted for as a reduction in accounts receivable because the agreement transfers effective control over and risk related to the U.S. accounts receivable to the SPE. The Company and related subsidiaries have no continuing involvement in the transferred U.S. accounts receivable, other than collection and administrative responsibilities and, once sold, the U.S. accounts receivable are no longer available to satisfy creditors of the Company or the related subsidiaries. These sales are transacted at 100% of the face value of the relevant U.S. accounts receivable, resulting in derecognition of the U.S. accounts receivables from the Company's unaudited consolidated balance sheet. The Company de-recognized \$1.1 billion and \$595 million of accounts receivable under this agreement for the years ended December 31, 2021 and 2020, respectively, and collected \$1.1 billion and \$476 million of accounts receivable sold under this agreement during the same periods. Unsold U.S. accounts receivable of \$115 million were pledged by the SPE as collateral to the Purchasers as of December 31, 2021.

Factoring and Discounting Agreements

The Company has factoring agreements in Europe and Singapore with financial institutions to sell 100% and 90% of certain accounts receivable, respectively, on a non-recourse basis. These transactions are treated as sales and are accounted for as reductions in accounts receivable because the agreements transfer effective control over and risk related to the receivables to the buyer. The Company has no continuing involvement in the transferred receivables, other than collection and administrative responsibilities and, once sold, the accounts receivable are no longer available to satisfy creditors in the event of bankruptcy. The Company de-recognized \$230 million and \$233 million of accounts receivable under these factoring agreements for the years ended December 31, 2021 and 2020, respectively, and collected \$185 million and \$237 million of accounts receivable sold under these factoring agreements during the same periods.

In March 2021, the Company entered into an agreement in Singapore with a financial institution to discount, on a non-recourse basis, documentary credits or other documents recorded as accounts receivable. These transactions are treated as a sale and are accounted for as a reduction in accounts receivable because the agreement transfers effective control over and risk related to the receivables to the buyer. The Company has no continuing involvement in the transferred receivables and, once sold, the accounts receivable are no longer available to satisfy creditors in the event of bankruptcy. The Company de-recognized \$70 million of accounts receivable under this agreement for the year ended December 31, 2021.

Covenants

The Company's material financing arrangements contain customary covenants, including the maintenance of certain financial ratios, events of default and change of control provisions. Failure to comply with these covenants, or the occurrence of any other event of default, could result in acceleration of the borrowings and other financial obligations. The Company is in compliance with all of the covenants related to its debt agreements as of December 31, 2021.

12. Benefit Obligations

Pension Obligations

The Company sponsors defined benefit pension plans in North America, Europe and Asia. Independent trusts or insurance companies administer the majority of these plans. Pension obligations are established for benefits payable in the form of retirement, disability and surviving dependent pensions. The commitments result from participation in defined contribution and defined benefit plans, primarily in the U.S. Benefits are dependent on years of service and the employee's compensation. Supplemental retirement benefits provided to certain employees are nonqualified for U.S. tax purposes. Separate nonqualified trusts have been established for certain U.S. nonqualified plan obligations. Pension costs under the Company's retirement plans are actuarially determined.

Other Postretirement Obligations

Certain retired employees receive postretirement health care and life insurance benefits under plans sponsored by the Company, which has the right to modify or terminate these plans at any time. The cost for coverage is shared between the Company and the retiree. The cost of providing retiree health care and life insurance benefits is actuarially determined and accrued over the service period of the active employee group. The Company's policy is to fund benefits as claims and premiums are paid. The U.S. postretirement health care plan was closed to new participants effective January 1, 2006.

Defined Contribution Plans

The Company sponsors various defined contribution plans in North America, Europe and Asia covering certain employees. Employees may contribute to these plans and the Company will match these contributions in varying amounts. The Company's matching contribution to the defined contribution plans are based on specified percentages of employee contributions.

The amount of costs recognized for the Company's defined contribution plans are as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Defined contribution plans	47	39	42

Summarized information on the Company's pension and postretirement benefit plans is as follows:

	Pension Benefits		Postretirement Benefits	
	As of December 31,		As of December 31,	
	2021	2020	2021	2020
(In \$ millions)				
Change in Projected Benefit Obligation				
Projected benefit obligation as of beginning of period	3,847	3,610	61	64
Service cost	13	12	1	1
Interest cost	54	85	1	1
Net actuarial (gain) loss ⁽¹⁾	(119)	275	(7)	—
Acquisitions	7 ⁽²⁾	42 ⁽³⁾	—	—
Settlements	(38)	(7)	—	—
Benefits paid	(226)	(230)	(4)	(5)
Curtailments	—	—	—	(1)
Special termination benefits	—	1	—	—
Exchange rate changes	(50)	59	(1)	1
Projected benefit obligation as of end of period	<u>3,488</u>	<u>3,847</u>	<u>51</u>	<u>61</u>
Change in Plan Assets				
Fair value of plan assets as of beginning of period	3,388	3,141	—	—
Actual return on plan assets	36	380	—	—
Employer contributions	47	43	4	5
Acquisitions	—	30 ⁽³⁾	—	—
Settlements	(38)	(7)	—	—
Benefits paid ⁽⁴⁾	(226)	(230)	(4)	(5)
Exchange rate changes	(24)	31	—	—
Fair value of plan assets as of end of period	<u>3,183</u>	<u>3,388</u>	<u>—</u>	<u>—</u>
Funded status as of end of period	<u>(305)</u>	<u>(459)</u>	<u>(51)</u>	<u>(61)</u>
Amounts Recognized in the Consolidated Balance Sheets				
Consist of:				
Noncurrent Other assets	221	142	—	—
Current Other liabilities	(22)	(22)	(4)	(4)
Benefit obligations	(504)	(579)	(47)	(57)
Net amount recognized	<u>(305)</u>	<u>(459)</u>	<u>(51)</u>	<u>(61)</u>
Amounts Recognized in Accumulated Other Comprehensive				
Income Consist of:				
Net actuarial (gain) loss ⁽⁵⁾	20	17	—	—
Prior service (benefit) cost	—	—	(1)	(1)
Net amount recognized ⁽⁶⁾	<u>20</u>	<u>17</u>	<u>(1)</u>	<u>(1)</u>

(1) Primarily relates to changes in discount rates.

(2) Represents plan obligations related to the Santoprene acquisition.

(3) Represents plan obligations and assets related to the Elotex acquisition.

(4) Includes benefit payments to nonqualified pension plans of \$21 million and \$21 million as of December 31, 2021 and 2020, respectively.

(5) Relates to the pension plans of the Company's equity method investments.

(6) Amount shown net of an income tax benefit of \$4 million and \$4 million as of December 31, 2021 and 2020, respectively, in the consolidated statements of equity ([Note 14](#)).

The percentage of U.S. and international projected benefit obligation at the end of the period is as follows:

	Pension Benefits As of December 31,		Postretirement Benefits As of December 31,	
	2021	2020	2021	2020
	(In percentages)			
U.S. plans	78	78	50	50
International plans	22	22	50	50
Total	100	100	100	100

The percentage of U.S. and international fair value of plan assets at the end of the period is as follows:

	Pension Benefits As of December 31,	
	2021	2020
	(In percentages)	
U.S. plans	85	85
International plans	15	15
Total	100	100

Pension plans with projected benefit obligations in excess of plan assets are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Projected benefit obligation	803	913
Fair value of plan assets	277	311

Pension plans with accumulated benefit obligations in excess of plan assets are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Accumulated benefit obligation	781	888
Fair value of plan assets	277	311

Other postretirement plans with accumulated postretirement benefit obligations in excess of plan assets are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Accumulated postretirement benefit obligation	52	61

The accumulated benefit obligation for all defined benefit pension plans is as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Accumulated benefit obligation	3,461	3,819

The components of net periodic benefit cost are as follows:

	Pension Benefits Year Ended December 31,			Postretirement Benefits Year Ended December 31,		
	2021	2020	2019	2021	2020	2019
	(In \$ millions)					
Service cost	13	12	9	1	1	—
Interest cost	54	85	115	1	1	2
Expected return on plan assets	(205)	(199)	(185)	—	—	—
Recognized actuarial (gain) loss	47	97	79	(6)	(1)	8
Curtailment (gain) loss	—	—	—	—	(1)	—
Settlement (gain) loss	3	—	—	—	—	—
Special termination benefit	—	1	1	—	—	—
Total	<u>(88)</u>	<u>(4)</u>	<u>19</u>	<u>(4)</u>	<u>—</u>	<u>10</u>

The Company maintains nonqualified pension plans funded with nonqualified trusts for certain U.S. employees as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Nonqualified Trust Assets		
Marketable securities	10	17
Noncurrent Other assets, consisting of insurance contracts	28	30
Nonqualified Pension Obligations		
Current Other liabilities	19	20
Benefit obligations	204	221

(Income) expense relating to the nonqualified pension plans included in net periodic benefit cost, excluding returns on the assets held by the nonqualified trusts, is as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Total	3	23	26

Valuation

The principal weighted average assumptions used to determine benefit obligation are as follows:

	Pension Benefits As of December 31,		Postretirement Benefits As of December 31,	
	2021	2020	2021	2020
(In percentages)				
Discount Rate Obligations				
U.S. plans	2.8	2.4	2.7	2.2
International plans	1.4	1.0	2.4	1.9
Combined	2.5	2.1	2.5	2.1
Rate of Compensation Increase				
U.S. plans	N/A	N/A		
International plans	2.5	2.5		
Combined	2.5	2.5		

The principal weighted average assumptions used to determine net periodic benefit cost are as follows:

	Pension Benefits Year Ended December 31,			Postretirement Benefits Year Ended December 31,		
	2021	2020	2019	2021	2020	2019
(In percentages)						
Discount Rate Obligations						
U.S. plans	2.4	3.2	4.2	2.2	3.1	4.1
International plans	1.0	1.4	2.1	1.9	2.7	3.4
Combined	2.1	2.8	3.8	2.1	2.9	3.8
Discount Rate Service Cost						
U.S. plans	N/A	1.9	3.1	N/A	3.8	4.6
International plans	1.1	1.8	2.5	1.9	2.7	3.4
Combined	1.1	1.8	2.5	1.9	2.7	3.4
Discount Rate Interest Cost						
U.S. plans	1.7	2.8	3.9	1.5	2.6	3.8
International plans	0.7	1.1	1.8	1.5	2.5	3.2
Combined	1.4	2.4	3.5	1.5	2.6	3.5
Expected Return on Plan Assets						
U.S. plans	6.5	6.7	6.7			
International plans	4.8	5.1	5.6			
Combined	6.3	6.5	6.5			
Rate of Compensation Increase						
U.S. plans	N/A	N/A	N/A			
International plans	2.5	2.6	2.8			
Combined	2.5	2.6	2.8			
Interest Crediting Rate						
U.S. plans	1.4	2.1	3.0			
International plans	1.0	N/A	N/A			
Combined	1.4	2.1	3.0			

The Company's health care cost trend assumptions for U.S. postretirement medical plan's net periodic benefit cost are as follows:

	As of December 31,		
	2021	2020	2019
	(In percentages, except year)		
Health care cost trend rate assumed for next year	7.3	7.5	8.0
Health care cost trend ultimate rate	5.0	5.0	5.0
Health care cost trend ultimate rate year	2031	2031	2026

Plan Assets

The weighted average target asset allocations for the Company's pension plans in 2021 are as follows:

	U.S. Plans	International Plans
	(In percentages)	
Bonds - domestic to plans	85	44
Equities - domestic to plans	8	21
Equities - international to plans	7	6
Other	—	29
Total	100	100

On average, the actual return on the U.S. qualified defined pension plans' assets over the long-term (20 years) has exceeded the expected long-term rate of asset return assumption. The U.S. qualified defined benefit plans' actual return on assets for the year ended December 31, 2021 was 0.6% versus an expected long-term rate of asset return assumption of 6.5%. The expected long-term rate of asset return assumption used to determine 2022 net periodic benefit cost is 5.5% for the U.S. qualified defined benefit plans.

The Company's defined benefit plan assets are measured at fair value on a recurring basis ([Note 2](#)) as follows:

Cash and Cash Equivalents: Foreign and domestic currencies as well as short-term securities are valued at cost plus accrued interest, which approximates fair value.

Equity securities, treasuries and corporate debt: Valued at the closing price reported on the active market in which the individual securities are traded. Automated quotes are provided by multiple pricing services and validated by the plan custodian. These securities are traded on exchanges as well as in the over the counter market.

Registered Investment Companies: Composed of various mutual funds and other investment companies whose diversified portfolio is comprised of foreign and domestic equities, fixed income securities, and short-term investments. Investments are valued at the net asset value of units held by the plan at year-end.

Common/Collective Trusts: Composed of various funds whose diversified portfolio is comprised of foreign and domestic equities, fixed income securities, and short-term investments. Investments are valued at the net asset value of units held by the plan at year-end.

Derivatives: Derivative financial instruments are valued in the market using discounted cash flow techniques. These techniques incorporate Level 1 and Level 2 fair value measurement inputs such as interest rates and foreign currency exchange rates. These market inputs are utilized in the discounted cash flow calculation considering the instrument's term, notional amount, discount rate and credit risk. Significant inputs to the derivative valuation for interest rate swaps, foreign currency forwards and swaps, and options are observable in the active markets and are classified as Level 2 in the fair value measurement hierarchy.

Mortgage backed securities: Fair value is estimated based on valuations obtained from third-party pricing services for identical or comparable assets. Mortgage Backed Securities are traded in the over the counter broker/dealer market.

Insurance contracts: Valued at contributions made, plus earnings, less participant withdrawals and administrative expenses, which approximates fair value.

Short-term investment funds: Composed of various funds whose portfolio is comprised of foreign and domestic currencies as well as short-term securities. Investments are valued at the net asset value of units held by the plan at year-end.

Other: Composed of real estate investment trust common stock valued at closing price as reported on the active market in which the individual securities are traded.

	Fair Value Measurement					
	Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Total	
	As of December 31,					
	2021	2020	2021	2020	2021	2020
(In \$ millions)						
Assets						
Cash and cash equivalents	5	10	—	—	5	10
Derivatives						
Swaps	—	—	6	3	6	3
Equity securities						
International companies	95	82	—	—	95	82
Fixed income						
Corporate debt	—	—	895	890	895	890
Treasuries, other debt	118	17	1,338	1,447	1,456	1,464
Mortgage backed securities	—	—	16	16	16	16
Insurance contracts	—	—	57	63	57	63
Other	4	4	6	6	10	10
Total investments, at fair value ⁽¹⁾	222	113	2,318	2,425	2,540	2,538
Liabilities						
Derivatives						
Swaps	—	—	6	3	6	3
Total liabilities	—	—	6	3	6	3
Total net assets ⁽²⁾	222	113	2,312	2,422	2,534	2,535

⁽¹⁾ Certain investments that are measured at fair value using the NAV per share practical expedient have not been classified in the fair value hierarchy. Total investments, at fair value, for the year ended December 31, 2021 excludes investments in common/collective trusts, registered investment companies and short-term investment funds with fair values of \$538 million, \$69 million and \$37 million, respectively. Total investments, at fair value, for the year ended December 31, 2020 excludes investments in common/collective trusts, registered investment companies and short-term investment funds with fair values of \$732 million, \$71 million and \$45 million, respectively.

⁽²⁾ Total net assets excludes non-financial plan receivables and payables of \$13 million and \$8 million, respectively, as of December 31, 2021 and \$72 million and \$67 million, respectively, as of December 31, 2020. Non-financial items include due to/from broker, interest receivables and accrued expenses.

Benefit obligation funding is as follows:

	Total Expected 2022
	(In \$ millions)
Cash contributions to defined benefit pension plans	24
Benefit payments to nonqualified pension plans	19
Benefit payments to other postretirement benefit plans	4

The Company's estimates of its U.S. defined benefit pension plan contributions reflect the provisions of the Pension Protection Act of 2006.

Pension and postretirement benefits expected to be paid are as follows:

	Pension Benefit Payments⁽¹⁾	Company Portion of Postretirement Benefit Cost⁽²⁾
	(In \$ millions)	
2022	232	4
2023	224	3
2024	219	3
2025	215	3
2026	213	3
2027-2031	988	14

⁽¹⁾ Payments are expected to be made primarily from plan assets.

⁽²⁾ Payments are expected to be made primarily from Company assets.

13. Environmental

The Company is subject to environmental laws and regulations worldwide that impose limitations on the discharge of pollutants into the air and water, establish standards for the treatment, storage and disposal of solid and hazardous wastes, and impose record keeping and notification requirements. Failure to timely comply with these laws and regulations may expose the Company to penalties. The Company believes that it is in substantial compliance with all applicable environmental laws and regulations and engages in an ongoing process of updating its controls to mitigate compliance risks. The Company is also subject to retained environmental obligations specified in various contractual agreements arising from the divestiture of certain businesses by the Company or one of its predecessor companies.

The components of environmental remediation liabilities are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Demerger obligations (Note 20)	24	29
Divestiture obligations (Note 20)	14	15
Active sites	8	12
U.S. Superfund sites	12	11
Other environmental remediation liabilities	2	2
Total	<u>60</u>	<u>69</u>

Remediation

Due to its industrial history and through retained contractual and legal obligations, the Company has the obligation to remediate specific areas on its own sites as well as on divested, demerger, orphan or U.S. Superfund sites (as defined below). In addition, as part of the demerger agreement between the Company and Hoechst AG ("Hoechst"), a specified portion of the responsibility for environmental liabilities from a number of Hoechst divestitures was transferred to the Company (Note 20). Certain of these sites, at which the Company maintains continuing involvement, were and continue to be designated as discontinued operations when closed. The Company provides for such obligations when the event of loss is probable and reasonably estimable. The Company believes that environmental remediation costs will not have a material adverse effect on the financial position of the Company, but may have a material adverse effect on the results of operations or cash flows in any given period.

The Company did not record any insurance recoveries during 2021 or have any receivables for insurance recoveries related to these matters as of December 31, 2021.

German InfraServ Entities

The Company's InfraServ Entities (Note 7) are liable for any residual contamination and other pollution because they own the real estate on which the individual facilities operate. In addition, Hoechst, and its legal successors, as the responsible party under German public law, is liable to third parties for all environmental damage that occurred while it was still the owner of the plants and real estate (Note 20). The contribution agreements entered into in 1997 between Hoechst and the respective operating companies, as part of the divestiture of these companies, provide that the operating companies will indemnify Hoechst, and its legal successors, against environmental liabilities resulting from the transferred businesses. Additionally, the InfraServ Entities have agreed to indemnify Hoechst, and its legal successors, against any environmental liability arising out of or in connection with environmental pollution of any site.

The InfraServ partnership agreements provide that, as between the partners, each partner is responsible for any contamination caused predominantly by such partner. Any liability, which cannot be attributed to an InfraServ partner and for which no third party is responsible, is required to be borne by the InfraServ partnership. Also, under lease agreements entered into by an InfraServ partner as landlord, the tenants agreed to pay certain remediation costs on a pro rata basis.

If an InfraServ partner defaults on its respective indemnification obligations to eliminate residual contamination, the owners of the remaining participation in the InfraServ companies have agreed to fund such liabilities, subject to a number of limitations. To the extent that any liabilities are not satisfied by either the InfraServ Entities or their owners, these liabilities are to be borne by the Company in accordance with the demerger agreement. However, Hoechst, and its legal successors, will reimburse the Company for two-thirds of any such costs. Likewise, in certain circumstances the Company could be responsible for the elimination of residual contamination on several sites that were not transferred to InfraServ companies, in which case Hoechst, and its legal successors, must also reimburse the Company for two-thirds of any costs so incurred.

The Company's ownership interest and environmental liability participation percentages for such liabilities, which cannot be attributed to an InfraServ partner are as follows:

	As of December 31, 2021		
	Ownership (In percentages)	Liability	Reserves ⁽¹⁾ (In \$ millions)
InfraServ GmbH & Co. Gendorf KG	30	10	10
InfraServ GmbH & Co. Hoechst KG	31	40	69
YNCORIS GmbH & Co. KG ⁽²⁾	22	22	1

⁽¹⁾ Gross reserves maintained by the respective entity.

⁽²⁾ Formerly known as InfraServ GmbH & Co. Knapsack KG.

U.S. Superfund Sites

In the U.S., the Company may be subject to substantial claims brought by U.S. federal or state regulatory agencies or private individuals pursuant to statutory authority or common law. In particular, the Company has a potential liability under the U.S. Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, and related state laws (collectively referred to as "Superfund") for investigation and cleanup costs at certain sites. At most of these sites, numerous companies, including the Company, or one of its predecessor companies, have been notified that the U.S. Environmental Protection Agency ("EPA"), state governing bodies or private individuals consider such companies to be potentially responsible parties ("PRP") under Superfund or related laws. The proceedings relating to these sites are in various stages. The cleanup process has not been completed at most sites, and the status of the insurance coverage for some of these proceedings is uncertain. Consequently, the Company cannot accurately determine its ultimate liability for investigation or cleanup costs at these sites.

As events progress at each site for which it has been named a PRP, the Company accrues any probable and reasonably estimable liabilities. In establishing these liabilities, the Company considers the contaminants of concern, the potential impact thereof, the relationship of the contaminants of concern to its current and historic operations, its shipment of waste to a site, its percentage of total waste shipped to the site, the types of wastes involved, the conclusions of any studies, the magnitude of any remedial actions that may be necessary and the number and viability of other PRPs. Often the Company joins with other PRPs to sign joint defense agreements that settle, among PRPs, each party's percentage allocation of costs at the site. Although the ultimate liability may differ from the estimate, the Company routinely reviews the liabilities and revises the estimate, as appropriate, based on the most current information available.

One such site is the Diamond Alkali Superfund Site, which is comprised of a number of sub-sites, including the Lower Passaic River Study Area ("LPRSA"), which is the lower 17-mile stretch of the Passaic River ("Lower Passaic River Site"), and the Newark Bay Area. The Company and 70 other companies are parties to a May 2007 Administrative Order on Consent with the EPA to perform a Remedial Investigation/Feasibility Study ("RI/FS") at the Lower Passaic River Site in order to identify the levels of contaminants and potential cleanup actions, including the potential migration of contaminants between the Lower Passaic River Site and the Newark Bay Area. Work on the RI/FS is ongoing.

In March 2016, the EPA issued its final Record of Decision concerning the remediation of the lower 8.3 miles of the Lower Passaic River Site ("Lower 8.3 Miles"). Pursuant to the EPA's Record of Decision, the Lower 8.3 Miles must be dredged bank to bank and an engineered cap must be installed at an EPA estimated cost of approximately \$1.4 billion. In September 2021, the EPA issued a Record of Decision selecting an interim remedial plan for the upper 9 miles of the Lower Passaic River ("Upper 9 Miles"). Pursuant to the EPA's Record of Decision, targeted dredging will be conducted in the Upper 9 Miles to address surface sediments with elevated contamination followed by the installation of an engineered cap at an EPA estimated cost of \$441 million. The Company owned and/or operated facilities in the vicinity of the Lower 8.3 Miles, but has found no evidence that it contributed any of the contaminants of concern to the Passaic River. In June 2018, Occidental Chemical Corporation ("OCC"), the successor to the Diamond Alkali Company, sued a subsidiary of the Company and 119 other parties alleging claims for joint and several damages, contribution and declaratory relief under Section 107 and 113 of Superfund for costs to clean up the LPRSA portion of the Diamond Alkali Superfund Site, *Occidental Chemical Corporation v. 21st Century Fox America, Inc., et al*, No. 2:18-CV-11273-JLL-JAD (U.S. District Court New Jersey), alleging that each of the defendants owned or operated a facility that contributed contamination to the LPRSA. With respect to the Company, the OCC lawsuit is limited to the former Celanese facility that Essex County, New Jersey has agreed to indemnify the Company for and does not change the Company's estimated liability for LPRSA cleanup costs. The Company is vigorously defending these matters and currently believes that its ultimate allocable share of the cleanup costs with respect to the Lower Passaic River Site, estimated at less than 1%, will not be material to the Company's results of operations, cash flows or financial position.

14. Stockholders' Equity

Common Stock

The Company's Board of Directors follows a policy of declaring, subject to legally available funds, a quarterly cash dividend on each share of the Company's common stock, par value \$0.0001 per share ("Common Stock"), unless the Company's Board of Directors, in its sole discretion, determines otherwise. The amount available to the Company to pay cash dividends is not currently restricted by its existing senior credit facility and its indentures governing its senior unsecured notes. Any decision to declare and pay dividends in the future will be made at the discretion of the Company's Board of Directors and will depend on, among other things, the results of operations, cash requirements, financial condition, contractual restrictions and other factors that the Company's Board of Directors may deem relevant.

On February 9, 2022, the Company declared a quarterly cash dividend of \$0.68 per share on its Common Stock amounting to approximately \$73 million. The cash dividend will be paid on March 8, 2022 to holders of record as of February 22, 2022.

Treasury Stock

The Company's Board of Directors authorizes repurchases of Common Stock from time to time. These authorizations give management discretion in determining the timing and conditions under which shares may be repurchased. This repurchase program does not have an expiration date.

The share repurchase activity pursuant to this authorization is as follows:

	Year Ended December 31,			Total From February 2008 Through December 31, 2021
	2021	2020	2019	
Shares repurchased	6,556,378	5,889,073	9,166,267	69,324,429
Average purchase price per share	\$ 152.53	\$ 110.41	\$ 109.10	\$ 83.71
Amount spent on repurchased shares (in millions)	\$ 1,000	\$ 650	\$ 1,000	\$ 5,803
Aggregate Board of Directors repurchase authorizations during the period (in millions)	\$ 1,000	\$ 500	\$ 1,500	\$ 6,866

The purchase of treasury stock reduces the number of shares outstanding. The repurchased shares may be used by the Company for compensation programs utilizing the Company's stock and other corporate purposes. The Company accounts for treasury stock using the cost method and includes treasury stock as a component of stockholders' equity.

Other Comprehensive Income (Loss), Net

	Year Ended December 31,								
	2021			2020			2019		
	Gross Amount	Income Tax (Provision) Benefit	Net Amount	Gross Amount	Income Tax (Provision) Benefit	Net Amount	Gross Amount	Income Tax (Provision) Benefit	Net Amount
	(In \$ millions)								
Foreign currency translation	20	(31)	(11)	(4)	(4)	(8)	(10)	(6)	(16)
Gain (loss) on cash flow hedges	34	(21)	13	(26)	8	(18)	(38)	8	(30)
Pension and postretirement benefits	(3)	—	(3)	(2)	—	(2)	(6)	(1)	(7)
Total	51	(52)	(1)	(32)	4	(28)	(54)	1	(53)

Adjustments to Accumulated other comprehensive income (loss), net, are as follows:

	Foreign Currency Translation Gain (Loss)	Gain (Loss) on Cash Flow Hedges (Note 18)	Pension and Postretirement Benefits Gain (Loss) (Note 12)	Accumulated Other Comprehensive Income (Loss), Net
	(In \$ millions)			
As of December 31, 2018	(236)	(8)	(3)	(247)
Other comprehensive income (loss) before reclassifications	(10)	(36)	(6)	(52)
Amounts reclassified from accumulated other comprehensive income (loss)	—	(2)	—	(2)
Income tax (provision) benefit	(6)	8	(1)	1
As of December 31, 2019	(252)	(38)	(10)	(300)
Other comprehensive income (loss) before reclassifications	(4)	(28)	(2)	(34)
Amounts reclassified from accumulated other comprehensive income (loss)	—	2	—	2
Income tax (provision) benefit	(4)	8	—	4
As of December 31, 2020	(260)	(56)	(12)	(328)
Other comprehensive income (loss) before reclassifications	20	34	(3)	51
Income tax (provision) benefit	(31)	(21)	—	(52)
As of December 31, 2021	(271)	(43)	(15)	(329)

15. Other (Charges) Gains, Net

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Restructuring	(5)	(20)	(23)
Asset impairments	(2)	(31)	(83)
Plant/office closures	10	7	(4)
Commercial disputes	—	6	(4)
European Commission investigation	—	(2)	(89)
Other	—	1	—
Total	3	(39)	(203)

2020

During the year ended December 31, 2020, the Company recorded \$20 million of employee termination benefits primarily related to Company-wide business optimization projects.

During the year ended December 31, 2020, the Company recorded a \$26 million long-lived asset impairment loss related to certain fixed assets used in compounding operations at its facilities in Kaiserslautern, Germany; Wehr, Germany and Ferrara Marconi, Italy.

2019

During the year ended December 31, 2019, the Company recorded \$23 million of employee termination benefits primarily related to Company-wide business optimization projects.

During the year ended December 31, 2019, the Company recorded an \$83 million long-lived asset impairment loss related to the closure of its acetate flake manufacturing operations in Ocotlán, Mexico. The long-lived asset impairment loss was

measured at the date of impairment to write-off the related property, plant and equipment and was included in the Company's Acetate Tow segment.

During the year ended December 31, 2019, the Company recorded a reserve of \$89 million as a result of information learned from the European Commission's investigation of certain past ethylene purchases, which was included within the Other Activities segment ([Note 20](#)).

16. Income Taxes

In December 2017, the Tax Cuts and Jobs Act (the "TCJA") was enacted and was effective January 1, 2018. The U.S. Treasury has issued various final and proposed regulatory packages supplementing the TCJA provisions since 2018. On December 28, 2021, the U.S. Treasury issued final foreign tax credit regulations clarifying certain items in the TCJA and prior guidance related to disallowance of foreign income taxes related to income exempt from U.S. tax, treatment of debt between foreign affiliates for expense apportionment purposes, allocation and apportionment of foreign income taxes, and the definition of creditable foreign income taxes. The regulations were published in the Federal Register on January 4, 2022, and will be effective in the first quarter of 2022. The Company does not currently expect the final regulations to have a material impact to current or future income tax expense.

Income Tax Provision

Earnings (loss) from continuing operations before tax by jurisdiction are as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
U.S.	202	1,530	252
International	2,046	721	736
Total	2,248	2,251	988

The income tax provision (benefit) consists of the following:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Current			
U.S.	—	13	(8)
International	323	126	149
Total	323	139	141
Deferred			
U.S.	(16)	308	1
International	23	(200)	(18)
Total	7	108	(17)
Total	330	247	124

A reconciliation of the significant differences between the U.S. federal statutory tax rate of 21% and the effective income tax rate on income from continuing operations is as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions, except percentages)		
Income tax provision computed at U.S. federal statutory tax rate	472	473	208
Change in valuation allowance	(50)	(1)	(47)
Equity income and dividends	(29)	(54)	(38)
(Income) expense not resulting in tax impact, net	(53)	(46)	(9)
U.S. tax effect of foreign earnings and dividends	332	65	85
Foreign tax credits	(328)	(51)	(76)
Other foreign tax rate differentials	(66)	7	4
Legislative changes	(8)	1	(3)
State income taxes, net of federal benefit	6	4	6
Recognition of basis differences in investments in affiliates	—	(14)	—
Asset transfers between wholly owned foreign affiliates	—	(170)	—
Other, net	54	33	(6)
Income tax provision (benefit)	<u>330</u>	<u>247</u>	<u>124</u>
Effective income tax rate	15 %	11 %	13 %

In October 2020, the Company completed the sale of its 45% joint venture equity interest in Polyplastics (see [Note 7](#)). The tax gain on this disposal was less than the related gain for financial reporting purposes due to basis differences. In November 2020, the Company relocated certain tangible and intangible assets in response to various geopolitical risks in certain regions in which it operates. The transfer of these assets between wholly owned foreign affiliates in this reorganization generated a deferred tax benefit of approximately \$170 million. Included in the Other, net line in the effective income tax rate reconciliation above are charges of approximately \$65 million and \$40 million related to changes in uncertain tax positions for the years ended December 31, 2021 and 2020, respectively, and impacts of amended tax return filings.

Deferred Income Taxes

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes. Significant components of the consolidated deferred tax assets and liabilities are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Deferred Tax Assets		
Pension and postretirement obligations	96	132
Accrued expenses	31	32
Inventory	7	12
Net operating loss carryforwards	526	535
Tax credit carryforwards	207	247
Other	226	322
Subtotal	1,093	1,280
Valuation allowance ⁽¹⁾	(642)	(748)
Total	451	532
Deferred Tax Liabilities		
Depreciation and amortization	312	256
Investments in affiliates	382	402
Other	64	124
Total	758	782
Net deferred tax assets (liabilities)	<u>(307)</u>	<u>(250)</u>

⁽¹⁾ Includes deferred tax asset valuation allowances for the Company's deferred tax assets in the U.S., Luxembourg, Singapore, Spain, China, the United Kingdom, Mexico, Canada and France. These valuation allowances relate primarily to net operating loss carryforward benefits and other net deferred tax assets, all of which may not be realizable.

As a result of the TCJA, U.S. federal and state income taxes have been recorded on undistributed foreign earnings accumulated from 1986 through 2017. The Company's previously taxed income for its foreign subsidiaries significantly exceeds its offshore cash balances. The Company has not recorded a deferred tax liability for foreign withholding or other foreign local tax that would be due when cash is actually repatriated to the U.S. because those foreign earnings are considered permanently reinvested in the business or may be remitted substantially free of any additional local taxes. The determination of the amount of the unrecognized deferred tax liability related to the undistributed earnings is not practicable.

Tax Carryforwards

• **Net Operating Loss Carryforwards**

As of December 31, 2021, the Company had available U.S. federal net operating loss carryforwards of \$25 million that are subject to limitation. These net operating loss carryforwards begin to expire in 2025. As of December 31, 2021, the Company also had available state net operating loss carryforwards, net of federal tax impact, of \$28 million, \$24 million of which are offset by a valuation allowance due to uncertain recoverability. The Company also has foreign net operating loss carryforwards available as of December 31, 2021 of \$2.4 billion primarily for Canada, China, Luxembourg, Malta, Mexico, Singapore, Spain, and the United Kingdom, with various expiration dates. Net operating loss carryforwards of \$125 million in China are scheduled to expire beginning in 2022 through 2025. Net operating losses in most other foreign jurisdictions do not have an expiration date.

• **Tax Credit Carryforwards**

The Company had available \$184 million of foreign tax credit carryforwards, which are offset by a valuation allowance of \$171 million due to uncertain recoverability and \$18 million of alternative minimum tax credit carryforwards in the U.S. The foreign tax credit carryforwards are subject to a ten-year carryforward period and expire beginning in 2027. The alternative minimum tax credits are subject to annual limitation due to prior ownership changes but have an unlimited carryforward period and can be used to offset federal tax liability in future years.

The Company evaluates its deferred tax assets on a quarterly basis to determine whether a valuation allowance is necessary. Realization of deferred tax assets ultimately depends on the existence of sufficient taxable income of the appropriate character in the applicable carryback or carryforward periods. Changes in the Company's estimates of future taxable income and prudent and feasible tax planning strategies will affect the estimate of the realization of the tax benefits of these foreign tax credit carryforwards. As such, the Company is currently evaluating tax planning strategies to enable use of the foreign tax credit carryforwards that may decrease the Company's effective tax rate in future periods as the valuation allowance is reversed.

Uncertain Tax Positions

Activity related to uncertain tax positions is as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
As of the beginning of the year	165	134	162
Increases in tax positions for the current year	33	18	1
Increases in tax positions for prior years ⁽¹⁾	28	26	37
Decreases in tax positions for prior years	(11)	(13)	(41)
Increases (decreases) due to settlements	3	—	(25)
As of the end of the year	<u>218</u>	<u>165</u>	<u>134</u>
Total uncertain tax positions that if recognized would impact the effective tax rate	224	182	132
Total amount of interest expense (benefit) and penalties recognized in the consolidated statements of operations ⁽²⁾	2	6	5
Total amount of interest expense and penalties recognized in the consolidated balance sheets	52	54	45

⁽¹⁾ Includes the impact on uncertain tax positions for the year ended December 31, 2019 due to the closure of federal income tax audits for the years 2009 through 2012.

⁽²⁾ This amount reflects interest on uncertain tax positions and release of tax positions due to changes in assessment, statute lapses, or audit closures that were reflected in the consolidated statements of operations.

The increase in uncertain tax positions for the year ended December 31, 2021 was primarily due to increases in foreign tax positions.

The Company primarily operates in the U.S., Germany, Belgium, Canada, China, Italy, Mexico, the Netherlands, the United Kingdom, Switzerland and Singapore. Examinations are ongoing in a number of these jurisdictions. The Company's tax returns are under audit for the years 2013 through 2015 by the U.S., the Netherlands and Germany (the "Authorities"). On September 30, 2021, the Company received a draft joint audit report proposing adjustments to transfer pricing and the reallocation of income between the related jurisdictions. The Authorities also propose to apply these adjustments to open tax years through 2019. The Company is engaged in discussions with the Authorities to evaluate the proposals and is currently evaluating all potential remedies.

The Company believes that an adequate provision for income taxes has been made for all open tax years related to the examination. However, the outcome of tax audits cannot be predicted with certainty. If any issues raised by the Authorities are resolved in a manner inconsistent with the Company's expectations or the Company is unsuccessful in defending its position,

the Company could be required to adjust its provision for income taxes in the period such resolution occurs. If required, any such adjustments could be material to the statements of operations and cash flows in the period(s) recorded.

In addition, the Company's Mexico tax returns are under audit for the years 2018 and 2019. On January 14, 2022, the Mexico tax authorities issued preliminary findings for disallowance of operating expenses on several of the applicable tax returns. The Company has determined that the preliminary findings are unfounded and will take the necessary steps to provide the requested documentation to mitigate any potential liability through the next phase of the audit.

17. Leases

The components of lease expense are as follows:

	Year Ended December 31,		Statement of Operations Classification
	2021	2020	
	(In \$ millions)		
Lease Cost			
Operating lease cost	40	40	Cost of sales / Selling, general and administrative expenses
Short-term lease cost	18	24	Cost of sales / Selling, general and administrative expenses
Variable lease cost	12	11	Cost of sales / Selling, general and administrative expenses
Finance lease cost			
Amortization of leased assets	19	18	Cost of sales
Interest on lease liabilities	13	15	Interest expense
Total net lease cost	<u>102</u>	<u>108</u>	

Supplemental consolidated balance sheet information related to leases is as follows:

	As of December 31,		Balance Sheet Classification
	2021	2020	
	(In \$ millions)		
Leases			
Assets			
Operating lease assets	236	232	Operating lease ROU assets
Finance lease assets	131	148	Property, plant and equipment, net
Total leased assets	<u>367</u>	<u>380</u>	
Liabilities			
Current			
Operating	37	36	Current Other liabilities
Finance	25	30	Short-term borrowings and current installments of long-term debt
Noncurrent			
Operating	200	208	Operating lease liabilities
Finance	148	171	Long-term debt
Total lease liabilities	<u>410</u>	<u>445</u>	

	As of December 31,	
	2021	2020
Weighted-Average Remaining Lease Term (years)		
Operating leases	12.8	13.8
Finance leases	8.9	9.6
Weighted-Average Discount Rate		
Operating leases	2.0 %	2.1 %
Finance leases	6.9 %	7.1 %

Supplemental consolidated cash flow information related to leases is as follows:

	Year Ended December 31,	
	2021	2020
(In \$ millions)		
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from operating leases	37	37
Operating cash flows from finance leases	13	15
Financing cash flows from finance leases	29	29
ROU assets obtained in exchange for finance lease liabilities (Note 21)	—	78
ROU assets obtained in exchange for operating lease liabilities	52	58

Maturities of lease liabilities are as follows:

	As of December 31, 2021	
	Operating Leases	Finance Leases
(In \$ millions)		
2022	42	36
2023	36	31
2024	28	28
2025	23	24
2026	15	22
Later years	126	101
Total lease payments	270	242
Less amounts representing interest	(33)	(69)
Total lease obligations	237	173

As of December 31, 2021, there was one financing lease commitment that has not yet commenced of approximately \$28 million that is contracted to begin in June 2022 with a lease term of 10 years. As of December 31, 2021, there were two operating lease commitments that have not yet commenced of approximately \$4 million that are contracted to begin in 2022 with lease terms of 2 years to 10 years.

18. Derivative Financial Instruments

Derivatives Designated As Hedges

Cash Flow Hedges

The total notional amount of the forward-starting interest rate swap designated as a cash flow hedge is as follows:

	<u>As of December 31,</u>	
	<u>2021</u>	<u>2020</u>
	(In \$ millions)	
Total	—	400

The Company settled the forward-starting interest rate swap on August 2, 2021, resulting in a payment to the counterparty of \$72 million, which payment is included as part of financing activities in the consolidated statements of cash flows.

Net Investment Hedges

The total notional amount of foreign currency denominated debt designated as a net investment hedge of net investments in foreign operations are as follows:

	<u>As of December 31,</u>	
	<u>2021</u>	<u>2020</u>
	(In € millions)	
Total	1,653	1,358

Derivatives Not Designated As Hedges

Foreign Currency Forwards and Swaps

Each of the contracts included in the table below will have approximately offsetting effects from actual underlying payables, receivables, intercompany loans or other assets or liabilities subject to foreign exchange remeasurement. The total U.S. dollar equivalents of net foreign exchange exposure related to (short) long foreign exchange forward contracts outstanding by currency are as follows:

	<u>2022 Maturity</u>
	(In \$ millions)
Currency	
Brazilian real	(24)
British pound sterling	(31)
Canadian dollar	21
Chinese yuan	(13)
Euro	120
Hungarian forint	13
Indonesian rupiah	(5)
Japanese yen	(11)
Korean won	15
Mexican peso	(43)
Singapore dollar	49
Swedish krona	(10)
Swiss franc	10
Total	<u>91</u>

Gross notional values of the foreign currency forwards and swaps are as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Total	663	546

Hedging activity for foreign currency forwards, commodity swaps and interest rate swaps is as follows:

	Year Ended December 31,			Statement of Operations Classification
	2021	2020	2019	
	(In \$ millions)			
Hedging activities	—	(5)	2	Cost of sales; Interest expense

Information regarding changes in the fair value of the Company's derivative and non-derivative instruments is as follows:

	Gain (Loss) Recognized in Other Comprehensive Income (Loss)			Gain (Loss) Recognized in Earnings (Loss)			Statement of Operations Classification
	Year Ended December 31,			Year Ended December 31,			
	2021	2020	2019	2021	2020	2019	
(In \$ millions)							
Designated as Cash Flow Hedges							
Commodity swaps	25	13	(5)	3	(4)	2	Cost of sales
Interest rate swaps	10	(41)	(30)	(3)	—	—	Interest expense
Foreign currency forwards	(1)	(1)	—	—	(1)	—	Cost of sales
Total	<u>34</u>	<u>(29)</u>	<u>(35)</u>	<u>—</u>	<u>(5)</u>	<u>2</u>	
Designated as Net Investment Hedges							
Foreign currency denominated debt (Note 11)	107	(81)	37	—	—	—	N/A
Cross-currency swaps (Note 11)	27	(26)	3	—	—	—	N/A
Total	<u>134</u>	<u>(107)</u>	<u>40</u>	<u>—</u>	<u>—</u>	<u>—</u>	
Not Designated as Hedges							
Foreign currency forwards and swaps	—	—	—	(13)	(8)	(3)	Foreign exchange gain (loss), net; Other income (expense), net
Total	<u>—</u>	<u>—</u>	<u>—</u>	<u>(13)</u>	<u>(8)</u>	<u>(3)</u>	

See [Note 19](#) for additional information regarding the fair value of the Company's derivative instruments.

Certain of the Company's commodity swaps, interest rate swaps, cross-currency swaps and foreign currency forwards and swaps permit the Company to net settle all contracts with the counterparty through a single payment in an agreed upon currency in the event of default or early termination of the contract, similar to a master netting arrangement.

Information regarding the gross amounts of the Company's derivative instruments and the amounts offset in the consolidated balance sheets is as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Derivative Assets		
Gross amount recognized.....	40	26
Gross amount offset in the consolidated balance sheets.....	—	2
Net amount presented in the consolidated balance sheets.....	40	24
Gross amount not offset in the consolidated balance sheets.....	2	11
Net amount.....	<u>38</u>	<u>13</u>
	As of December 31,	
	2021	2020
	(In \$ millions)	
Derivative Liabilities		
Gross amount recognized.....	5	123
Gross amount offset in the consolidated balance sheets.....	—	2
Net amount presented in the consolidated balance sheets.....	5	121
Gross amount not offset in the consolidated balance sheets.....	2	11
Net amount.....	<u>3</u>	<u>110</u>

19. Fair Value Measurements

The Company's financial assets and liabilities are measured at fair value on a recurring basis ([Note 2](#)) as follows:

Derivatives. Derivative financial instruments include interest rate swaps, commodity swaps, cross-currency swaps and foreign currency forwards and swaps and are valued in the market using discounted cash flow techniques. These techniques incorporate Level 1 and Level 2 fair value measurement inputs such as interest rates and foreign currency exchange rates. These market inputs are utilized in the discounted cash flow calculation considering the instrument's term, notional amount, discount rate and credit risk. Significant inputs to the derivative valuation for interest rate swaps, commodity swaps, cross-currency swaps and foreign currency forwards and swaps are observable in the active markets and are classified as Level 2 in the fair value measurement hierarchy.

Fair Value Measurement								Balance Sheet Classification
Quoted Prices in Active Markets for Identical Assets (Level 1)		Significant Other Observable Inputs (Level 2)		Total				
As of December 31,								
2021	2020	2021	2020	2021	2020			
(In \$ millions)								
Derivatives Designated as Cash Flow Hedges								
Commodity swaps	—	—	8	2	8	2	Current Other assets	
Commodity swaps	—	—	23	8	23	8	Noncurrent Other assets	
Designated as Net Investment Hedges								
Cross-currency swaps	—	—	2	13	2	13	Current Other assets	
Cross-currency swaps	—	—	5	—	5	—	Noncurrent Other assets	
Derivatives Not Designated as Hedges								
Foreign currency forwards and swaps	—	—	2	1	2	1	Current Other assets	
Total assets	—	—	40	24	40	24		
Derivatives Designated as Cash Flow Hedges								
Commodity swaps	—	—	—	(1)	—	(1)	Noncurrent Other liabilities	
Interest rate swaps	—	—	—	(81)	—	(81)	Current Other liabilities	
Derivatives Designated as Net Investment Hedges								
Cross-currency swaps	—	—	(2)	(1)	(2)	(1)	Current Other liabilities	
Cross-currency swaps	—	—	—	(33)	—	(33)	Noncurrent Other liabilities	
Derivatives Not Designated as Hedges								
Foreign currency forwards and swaps	—	—	(3)	(5)	(3)	(5)	Current Other liabilities	
Total liabilities	—	—	(5)	(121)	(5)	(121)		

Carrying values and fair values of financial instruments that are not carried at fair value are as follows:

	Fair Value Measurement							
	Carrying Amount		Significant Other Observable Inputs (Level 2)		Unobservable Inputs (Level 3)		Total	
As of December 31,								
	2021	2020	2021	2020	2021	2020	2021	2020
(In \$ millions)								
Equity investments without readily determinable fair values	170	171	—	—	—	—	—	—
Insurance contracts in nonqualified trusts	28	30	28	31	—	—	28	31
Long-term debt, including current installments of long-term debt	3,722	3,671	3,639	3,644	173	201	3,812	3,845

In general, the equity investments included in the table above are not publicly traded and their fair values are not readily determinable. The Company believes the carrying values approximate fair value. Insurance contracts in nonqualified trusts consist of long-term fixed income securities, which are valued using independent vendor pricing models with observable inputs in the active market and therefore represent a Level 2 fair value measurement. The fair value of long-term debt is based on valuations from third-party banks and market quotations and is classified as Level 2 in the fair value measurement hierarchy.

The fair value of obligations under finance leases, which are included in long-term debt, is based on lease payments and discount rates, which are not observable in the market and therefore represents a Level 3 fair value measurement.

As of December 31, 2021 and 2020, the fair values of cash and cash equivalents, receivables, marketable securities, trade payables, short-term borrowings and the current installments of long-term debt approximate carrying values due to the short-term nature of these instruments. These items have been excluded from the table with the exception of the current installments of long-term debt.

20. Commitments and Contingencies

Commitments

Guarantees

The Company has agreed to guarantee or indemnify third parties for environmental and other liabilities pursuant to a variety of agreements, including asset and business divestiture agreements, leases, settlement agreements and various agreements with affiliated companies. Although many of these obligations contain monetary and/or time limitations, others do not provide such limitations.

The Company has accrued for all probable and reasonably estimable losses associated with all known matters or claims. These known obligations include the following:

- ***Demerger Obligations***

In connection with the Hoechst demerger, the Company agreed to indemnify Hoechst, and its legal successors, for various liabilities under the demerger agreement, including for environmental liabilities associated with contamination arising either from environmental damage in general ("Category A") or under 19 divestiture agreements entered into by Hoechst prior to the demerger ("Category B") ([Note 13](#)).

The Company's obligation to indemnify Hoechst, and its legal successors, is capped under Category B at €250 million. If and to the extent the environmental damage should exceed €750 million in aggregate, the Company's obligation to indemnify Hoechst and its legal successors applies, but is then limited to 33.33% of the remediation cost without further limitations. Cumulative payments under the divestiture agreements as of December 31, 2021 are \$102 million. Though the Company is significantly under its obligation cap under Category B, most of the divestiture agreements have become time barred and/or any notified environmental damage claims have been partially settled.

The Company has also undertaken in the demerger agreement to indemnify Hoechst and its legal successors for (i) 33.33% of any and all Category A liabilities that result from Hoechst being held as the responsible party pursuant to public law or current or future environmental law or by third parties pursuant to private or public law related to contamination and (ii) liabilities that Hoechst is required to discharge, including tax liabilities, which are associated with businesses that were included in the demerger but were not demerged due to legal restrictions on the transfers of such items. These indemnities do not provide for any monetary or time limitations. The Company has not been requested by Hoechst to make any payments in connection with this indemnification. Accordingly, the Company has not made any payments to Hoechst and its legal successors.

Based on the Company's evaluation of currently available information, including the lack of requests for indemnification, the Company cannot estimate the remaining demerger obligations, if any, in excess of amounts accrued.

- ***Divestiture Obligations***

The Company and its predecessor companies agreed to indemnify third-party purchasers of former businesses and assets for various pre-closing conditions, as well as for breaches of representations, warranties and covenants. Such liabilities also include environmental liability, product liability, antitrust and other liabilities. These indemnifications and guarantees represent standard contractual terms associated with typical divestiture agreements and, other than environmental liabilities, the Company does not believe that they expose the Company to significant risk ([Note 13](#)).

The Company has divested numerous businesses, investments and facilities through agreements containing indemnifications or guarantees to the purchasers. Many of the obligations contain monetary and/or time limitations, which extend through 2037. The aggregate amount of outstanding indemnifications and guarantees provided for under these agreements is \$116 million as of December 31, 2021. Other agreements do not provide for any monetary or time limitations.

Based on the Company's evaluation of currently available information, including the number of requests for indemnification or other payment received by the Company, the Company cannot estimate the remaining divestiture obligations, if any, in excess of amounts accrued.

Purchase Obligations

In the normal course of business, the Company enters into various purchase commitments for goods and services. The Company maintains a number of "take-or-pay" contracts for purchases of raw materials, utilities and other services. Certain of the contracts contain a contract termination buy-out provision that allows for the Company to exit the contracts for amounts less than the remaining take-or-pay obligations. Additionally, the Company has other outstanding commitments representing maintenance and service agreements, energy and utility agreements, consulting contracts and software agreements. As of December 31, 2021, the Company had unconditional purchase obligations of \$3.5 billion, which extend through 2042.

Contingencies

The Company is involved in legal and regulatory proceedings, lawsuits, claims and investigations incidental to the normal conduct of business, relating to such matters as product liability, land disputes, insurance coverage disputes, contracts, employment, antitrust or competition compliance, intellectual property, personal injury and other actions in tort, workers' compensation, chemical exposure, asbestos exposure, taxes, trade compliance, acquisitions and divestitures, claims of current and legacy stockholders, past waste disposal practices and release of chemicals into the environment. The Company is actively defending those matters where the Company is named as a defendant and, based on the current facts, does not believe the outcomes from these matters would be material to the Company's results of operations, cash flows or financial position.

European Commission Investigation

In May 2017, the Company learned that the European Commission had opened a competition law investigation involving certain subsidiaries of the Company with respect to certain past ethylene purchases. Based on information learned from the European Commission regarding its investigation, Celanese recorded a reserve of \$89 million in 2019, which was included within the Company's Other Activities segment. In July 2020, Celanese reached a final settlement with the European Commission in respect of this matter of \$92 million, which was included in Current Other liabilities as of December 31, 2020. The Company paid this settlement in full on January 12, 2021.

21. Supplemental Cash Flow Information

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Interest paid, net of amounts capitalized	105	120	118
Taxes paid, net of refunds	215	167	157
Noncash Investing and Financing Activities			
Accrued treasury stock repurchases	—	—	4
Finance lease obligations (Note 17)	—	78	—
Accrued capital expenditures	23	(16)	20
Other	2	5	6

22. Segment Information

Business Segments

The Company operates through business segments according to the nature and economic characteristics of its products and customer relationships, as well as the manner in which the information is used internally by the Company's key decision maker, who is the Company's Chief Executive Officer.

The Company's business segments are as follows:

- ***Engineered Materials***

The Company's Engineered Materials segment includes the engineered materials business, our food ingredients business and certain strategic affiliates. The engineered materials business develops, produces and supplies a broad portfolio of high performance specialty polymers for automotive and medical applications, as well as industrial products and consumer electronics. Together with its strategic affiliates, the Company's engineered materials business is a leading participant in the global specialty polymers industry. The primary products of Engineered Materials are used in a broad range of end-use products including fuel system components, automotive safety systems, medical applications, electronics, appliances, industrial products, battery separators, conveyor belts, filtration equipment, coatings, and electrical applications and products. It is also a leading global supplier of acesulfame potassium for the food and beverage industry and is a leading producer of food protection ingredients, such as potassium sorbate and sorbic acid.

- ***Acetate Tow***

The Company's Acetate Tow segment serves consumer-driven applications and is a leading global producer and supplier of acetate tow and acetate flake, primarily used in filter products applications.

- ***Acetyl Chain***

The Company's Acetyl Chain segment includes the integrated chain of intermediate chemistry, emulsion polymers, ethylene vinyl acetate ("EVA") polymers and redispersible powders ("RDP") businesses. The Company's intermediate chemistry business produces and supplies acetyl products, including acetic acid, vinyl acetate monomer, acetic anhydride and acetate esters. These products are generally used as starting materials for colorants, paints, adhesives, coatings and pharmaceuticals. It also produces organic solvents and intermediates for pharmaceutical, agricultural and chemical products. The Company's emulsion polymers business is a leading global producer of vinyl acetate-based emulsions and develops products and application technologies to improve performance, create value and drive innovation in applications such as paints and coatings, adhesives, construction, glass fiber, textiles and paper. The Company's EVA polymers business is a leading North American manufacturer of a full range of specialty EVA resins and compounds, as well as select grades of low-density polyethylene. The Company's EVA polymers products are used in many applications, including flexible packaging films, lamination film products, hot melt adhesives, automotive parts and carpeting. The Company's RDP business is a leading producer of products that have applications in a number of building and construction applications including flooring, plasters, insulation, tiling and waterproofing.

- ***Other Activities***

Other Activities primarily consists of corporate center costs, including administrative activities such as finance, information technology and human resource functions, interest income and expense associated with financing activities and results of the Company's captive insurance companies. Other Activities also includes the components of net periodic benefit cost (interest cost, expected return on assets and net actuarial gains and losses) for the Company's defined benefit pension plans and other postretirement plans not allocated to the Company's business segments.

The business segment management reporting and controlling systems are based on the same accounting policies as those described in the summary of significant accounting policies ([Note 2](#)).

Sales transactions between business segments are generally recorded at values that approximate third-party selling prices.

	Engineered Materials	Acetate Tow	Acetyl Chain	Other Activities	Eliminations	Consolidated
(In \$ millions)						
Year Ended December 31, 2021						
Net sales	2,718	514	5,430 ⁽¹⁾	—	(125)	8,537
Other (charges) gains, net (Note 15)	6	—	1	(4)	—	3
Operating profit (loss)	411	56	1,819	(340)	—	1,946
Equity in net earnings (loss) of affiliates	126	—	7	13	—	146
Depreciation and amortization	144	39	171	17	—	371
Capital expenditures	154	42	269	25	—	490 ⁽²⁾
As of December 31, 2021						
Goodwill and intangible assets, net	1,714	154	279	—	—	2,147
Total assets	5,363	1,098	4,428	1,086	—	11,975
Year Ended December 31, 2020						
Net sales	2,081	519	3,147 ⁽¹⁾	—	(92)	5,655
Other (charges) gains, net (Note 15)	(36)	(1)	7	(9)	—	(39)
Operating profit (loss)	235	118	563	(252)	—	664
Equity in net earnings (loss) of affiliates	115	—	5	14	—	134
Gain (loss) on sale of investments in affiliates (Note 7) ..	1,408	—	—	—	—	1,408
Depreciation and amortization	134	36	163	17	—	350
Capital expenditures	106	37	171	34	—	348 ⁽²⁾
As of December 31, 2020						
Goodwill and intangible assets, net	1,030	154	301	—	—	1,485
Total assets	3,990	975	3,930	2,014	—	10,909
Year Ended December 31, 2019						
Net sales	2,386	636	3,392 ⁽¹⁾	—	(117)	6,297
Other (charges) gains, net (Note 15)	5	(88)	(3)	(117)	—	(203)
Operating profit (loss)	446	52	678	(342)	—	834
Equity in net earnings (loss) of affiliates	168	—	4	10	—	182
Depreciation and amortization	131	45	161	15	—	352
Capital expenditures	104	43	208	35	—	390 ⁽²⁾

⁽¹⁾ Includes intersegment sales of \$125 million, \$92 million and \$117 million for the years ended December 31, 2021, 2020 and 2019, respectively.

⁽²⁾ Includes an increase in accrued capital expenditures of \$23 million, a decrease in accrued capital expenditures of \$16 million and an increase in accrued capital expenditures of \$20 million for the years ended December 31, 2021, 2020 and 2019, respectively.

Geographical Area Information

The Net sales to external customers based on geographic location are as follows:

	Year Ended December 31,		
	2021	2020	2019
	(In \$ millions)		
Belgium	268	274	259
Canada	98	68	75
China	1,621	888	859
Germany	2,675	1,837	2,132
Mexico	330	200	244
Singapore	1,202	627	787
Switzerland	140	81	—
U.S.	2,004	1,490	1,713
Other	199	190	228
Total	8,537	5,655	6,297

Property, plant and equipment, net based on the geographic location of the Company's facilities is as follows:

	As of December 31,	
	2021	2020
	(In \$ millions)	
Belgium	65	60
Canada	96	99
China	413	406
Germany	812	914
Mexico	58	57
Singapore	72	76
U.S.	2,377	2,155
Other	300	172
Total	4,193	3,939

23. Revenue Recognition

Disaggregated Revenue

In general, the Company's business segmentation is aligned according to the nature and economic characteristics of its products and customer relationships and provides meaningful disaggregation of each business segment's results of operations.

The Company manages its Engineered Materials business segment through its project management pipeline, which is comprised of a broad range of projects which are solutions-based and are tailored to each customers' unique needs. Projects are identified and selected based on success rate and may involve a number of different polymers per project for use in multiple end-use applications. Therefore, the Company is agnostic toward products and end-use markets for the Engineered Materials business segment.

Within the Acetate Tow business segment, the Company's primary product is acetate tow, which is managed through contracts with a few major tobacco companies and accounts for a significant amount of filters used in cigarette production worldwide.

The Company manages its Acetyl Chain business segment by leveraging its ability to sell chemicals externally to end-use markets or downstream to its emulsion polymers business. Decisions to sell externally and geographically or downstream and along the Acetyl Chain are based on market demand, trade flows and maximizing the value of its chemicals. Therefore, the Company's strategic focus is on executing within this integrated chain model and less on driving product-specific revenue.

Further disaggregation of Net sales by business segment and geographic destination is as follows:

	Year Ended December 31,		
	2021	2020	2019
(In \$ millions)			
Engineered Materials			
North America	774	577	735
Europe and Africa	1,155	906	1,047
Asia-Pacific	703	534	533
South America	86	64	71
Total	<u>2,718</u>	<u>2,081</u>	<u>2,386</u>
Acetate Tow			
North America	98	92	125
Europe and Africa	267	273	258
Asia-Pacific	140	142	224
South America	9	12	29
Total	<u>514</u>	<u>519</u>	<u>636</u>
Acetyl Chain			
North America	1,435	1,014	1,079
Europe and Africa	1,647	1,019	1,098
Asia-Pacific	2,074	951	1,013
South America	149	71	85
Total ⁽¹⁾	<u>5,305</u>	<u>3,055</u>	<u>3,275</u>

⁽¹⁾ Excludes intersegment sales of \$125 million, \$92 million and \$117 million for the years ended December 31, 2021, 2020 and 2019, respectively.

24. Earnings (Loss) Per Share

	Year Ended December 31,		
	2021	2020	2019
(In \$ millions, except share data)			
Amounts attributable to Celanese Corporation			
Earnings (loss) from continuing operations	1,912	1,997	858
Earnings (loss) from discontinued operations	(22)	(12)	(6)
Net earnings (loss)	<u>1,890</u>	<u>1,985</u>	<u>852</u>
Weighted average shares - basic	111,224,017	117,817,445	123,925,697
Incremental shares attributable to equity awards ⁽¹⁾	<u>860,395</u>	<u>663,931</u>	<u>726,062</u>
Weighted average shares - diluted	<u>112,084,412</u>	<u>118,481,376</u>	<u>124,651,759</u>

⁽¹⁾ Excludes 555, 4,313 and 45 equity award shares for the years ended December 31, 2021, 2020 and 2019, respectively, as their effect would have been antidilutive.

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Corporate Information

Board of Directors

Jean S. Blackwell^{1,3}
*Former Executive Vice President,
Cummins, Inc.*

William M. Brown^{2,3}
*Former Executive Chair and Chief
Executive Officer,
L3Harris Technologies, Inc.*

Edward G. Galante^{2,4}
*Former Senior Vice President,
Exxon Mobil Corporation*

Rahul Ghai^{1,3}
Chief Financial Officer, GE Aerospace

Kathryn M. Hill^{2,4}
*Former Senior Vice President,
Development Strategy, Cisco Systems
Inc.*

David F. Hoffmeister^{1,3}
*Former Senior Vice President and
Chief Financial Officer,
Life Technologies Corporation*

Dr. Jay V. Ihlenfeld^{2,4}
*Former Senior Vice President, Asia
Pacific, 3M Company*

Deborah J. Kissire^{1,4}
Former Vice Chair, Ernst & Young LLP

Michael Koenig^{2,4}
*Chief Executive Officer and Director,
Nobian Industrial Chemicals B.V.*

Kim K.W. Rucker^{1,3}
*Former Executive Vice President, General
Counsel and Secretary, Andeavor Corp.*

Lori J. Ryerkerk
*Chair, Chief Executive Officer and President,
Celanese Corporation*

Current Committee Memberships

¹ Audit Committee

² Compensation and Management Development Committee

³ Nominating and Corporate Governance Committee

⁴ Environmental, Health, Safety, Quality and Public Policy Committee

Executive Officers†

Lori J. Ryerkerk
*Chair, Chief Executive Officer and
President*

Thomas F. Kelly
*Senior Vice President, Engineered
Materials*

Investor Relations

Celanese Corporation
222 W. Las Colinas Blvd., Suite 900N
Irving, TX 75039
1-972-443-2093
investor.relations@celanese.com
www.celanese.com

Transfer Agent

Computershare Investor Services
P.O. Box 43006
Providence, RI 02940-3006
or

150 Royall St., Suite 101
Canton, MA 02021
1-201-680-6578, or
1-800-522-66645 (US holders)
www.computershare.com

Stock Exchange

Celanese Common Stock is listed on the
New York Stock Exchange

Common Stock Symbol: CE

Scott A. Richardson
*Executive Vice President and Chief
Financial Officer*

Mark C. Murray
Senior Vice President, Acetyls

Corporate Governance

Strong corporate governance is an
integral part of Celanese's core values.
Our company's corporate governance
policies and procedures are available
on the company's website at
<https://investors.celanese.com> under
Corporate Governance. This site
includes the Company's Corporate
Governance Guidelines, Board
Committee Charters, Business Conduct
Policy and Financial Code of Ethics.

Investor Information

Shareholders, security analysts and
investors can access Celanese's news
and events, periodic reports filed with
the Securities and Exchange
Commission and other related
company information by visiting our
web site at <https://www.celanese.com>
and <https://investors.celanese.com>.

A. Lynne Puckett
*Senior Vice President, General Counsel and
Corporate Secretary*

Annual Meeting

The 2023 Annual Meeting of Shareholders of
Celanese Corporation will be held virtually at
1:00 p.m. (EDT), Wednesday, April 20, 2023,
accessible at the following site:

www.virtualshareholdermeeting.com/CE2023

Independent Registered Public Accounting Firm

KPMG LLP
2323 Ross Ave., Suite 1400
Dallas, TX 75201

Corporate Address

Celanese Corporation
222 W. Las Colinas Blvd., Suite 900N
Irving, TX 75039
1-972-443-4000
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† Positions as of February 14, 2023.