VENATOR
VENATOR
VENATOR
VENATOR
VENATOR
VENATOR
VENATOR
VENATOR

2019 Annual Report

Dear Shareholders

Simon Turner
President and Chief Executive Officer

2019 was a challenging year highlighted by significant macroeconomic uncertainty. Our team rose to the challenge, making meaningful progress to strengthen our business. We are confident in our strategy and ability to execute on our initiatives to secure Venator's future as a premier global titanium dioxide producer.

In 2019, Venator delivered $194 million of adjusted EBITDA and $0.24 of adjusted diluted earnings per share. A slowdown in industry conditions overshadowed the enormous strides we achieved with our self-help initiatives, improvements in our cost competitiveness and delivery of enhanced value to our customers through product innovation. To that end, we accelerated our Business Improvement Program and grew our TiO_2 volumes through the successful launch of multiple new specialty and differentiated products.

We have implemented a broad range of customer agreements aimed at mitigating price and margin cyclicality for our customers. This customer-tailored approach includes managing our global production network and inventories to align with customer commitments.

We also made progress on the transfer of our specialty and differentiated TiO_2 business from Pori to other sites in our network. Similarly, we have upgraded the mix within our complementary Performance Additives business.

The diversification into these higher growth and higher value products is enabled by our unique asset base and facilitate ongoing collaboration and partnerships with our customers.

In 2019, we took meaningful action to enhance our competitive position and delivered $20 million of adjusted EBITDA benefits from our Business Improvement Program, twice our original target. We expect to deliver the remaining $20 million cost and operational efficiencies as promised. This journey will continue, and we anticipate implementing additional actions to optimize our manufacturing capabilities and cost base, improving our profitability throughout the TiO_2 cycle.

We believe the most important milestone that will increase shareholder value is our ability to generate an improvement in free cash flow. We expect 2019 to have been an inflection point for many of our cash uses. We continue to evaluate actions to reduce our spend, without compromising the integrity of our assets or the ability to serve our customers.

In 2020, our cash uses are expected to significantly decline compared to 2019 and we will build on this momentum in subsequent years.

Looking ahead, 2020 will be another pivotal year for Venator amid an increasingly difficult business environment. Our talented team is focused on driving performance through deliberate self-help initiatives, remaining disciplined with our financial resources and improving our safety performance. Collectively, our commitment and capability to successfully execute our strategic priorities gives me confidence in our ability to enhance shareholder value.

Simon Turner
President and Chief Executive Officer

2019 At-A-Glance

$ in millions, except per share amounts	December 31, 2019	2018	2017
Revenues	**$2,130**	$2,265	$2,209
Net (loss) income attributable to Venator	**$(175)**	$(163)	$134
Diluted (loss) earnings per share	**$(1.64)**	$(1.53)	$1.26
Adjusted net income[(1)]	**$26**	$235	$186
Adjusted diluted earnings per share[(1)]	**$0.24**	$2.20	$1.74
Adjusted EBITDA[(1)]	**$194**	$436	$395
Free cash flow[(2)]	**$(117)**	$(38)	$212
Capital expenditures	**$152**	$326	$197

$ in millions	December 31, 2019	2018	2017
Total assets	**$2,265**	$2,485	$2,847
Net debt[(3)]	**$695**	$583	$519

Reporting Segment Operating Results

Titanium Dioxide

$ in millions	2019
Revenue	$1,614
Adjusted EBITDA[(1)]	$197
EBITDA Margin %	12%

Performance Additives

$ in millions	2019
Revenue	$516
Adjusted EBITDA[(1)]	$47
EBITDA Margin %	9%

(1) For a reconciliation see the Results of Operations included within Management's Discussion and Analysis on pages 7–8.

(2) Free cash flow is defined as cash flows provided by (used in) operating activities from continuing operations and used in investing activities and may be adjusted for items that affect comparability between periods.

(3) Net debt is defined as total debt excluding debt to affiliates, less total cash and cash equivalents.

VENATOR

2019 Financial Review and Form 10-K

Definitions and Note Regarding Forward-Looking Statements	**3**
Selected Financial Data	**5**
Management's Discussion and Analysis of Financial Condition and Results of Operations	**6**
Quantitative and Qualitative Disclosures about Market Risk	**21**
Controls and Procedures	**22**
Report of Independent Registered Public Accounting Firm	**23**
Consolidated Balance Sheets	**26**
Consolidated Statements of Operations	**27**
Consolidated Statements of Comprehensive (Loss) Income	**28**
Consolidated Statements of Equity	**29**
Consolidated Statements of Cash Flows	**30**
Notes to Consolidated Financial Statements	**32**
Free Cash Flow Reconciliation	**71**
Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	**72**
Stock Performance Graph	**73**
Corporate Information	**IBC**

DEFINITIONS

Each capitalized term used without definition in this report has the meaning specified in the Annual Report on Form 10-K for the year ended December 31, 2019 which was filed with the Securities and Exchange Commission on March 12, 2020.

FORWARD-LOOKING STATEMENTS

Certain information set forth in this report contains "forward-looking statements" within the meaning the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933 and Section 21E of the Securities and Exchange Act of 1934. All statements other than historical factual information are forward-looking statements, including without limitation statements regarding: projections of revenue, expenses, profit, margins, tax rates, tax provisions, cash flows, pension and benefit obligations and funding requirements, our liquidity position or other projected financial measures; management's plans and strategies for future operations, including statements relating to anticipated operating performance, cost reductions, construction cost estimates, restructuring activities, new product and service developments, competitive strengths or market position, acquisitions, divestitures, spin-offs, or other distributions, strategic opportunities, securities offerings, share repurchases, dividends and executive compensation; growth, declines and other trends in markets we sell into; new or modified laws, regulations and accounting pronouncements; legal proceedings, environmental, health and safety ("EHS") matters, tax audits and assessments and other contingent liabilities; foreign currency exchange rates and fluctuations in those rates; general economic and capital markets conditions; the timing of any of the foregoing; assumptions underlying any of the foregoing; and any other statements that address events or developments that we intend or believe will or may occur in the future. In some cases, forward-looking statements can be identified by terminology such as "believes," "expects," "may," "will," "should," "anticipates," "estimates" or "intends" or the negative of such terms or other comparable terminology, or by discussions of strategy. We may also make additional forward-looking statements from time to time. All such subsequent forward-looking statements, whether written or oral, by us or on our behalf, are also expressly qualified by these cautionary statements.

Forward-looking statements are based on certain assumptions and expectations of future events which may not be accurate or realized. Forward-looking statements also involve risks and uncertainties, many of which are beyond our control. Important factors that may materially affect such forward-looking statements and projections include:

- volatile global economic conditions;
- cyclical and volatile TiO_2 product applications;
- highly competitive industries and the need to innovate and develop new products;
- industry production capacity and operating rates;
- high levels of indebtedness;
- our ability to maintain sufficient working capital to fund our operations and capital expenditures, and service our debt;
- our ability to obtain future capital on favorable terms;
- planned and unplanned production shutdowns, turnarounds, outages and other disruptions at our or our suppliers' manufacturing facilities;
- any changes to the prices at which we purchase raw materials and energy, any interruptions in supply of raw materials and energy, or any changes in regulations impacting raw materials and our supply chain;
- increased manufacturing, labeling and waste disposal regulations associated with some of our products, including the classification of TiO_2 as a carcinogen in the European Union ("EU") or any increased regulatory scrutiny;
- our ability to successfully grow and transform our business including by way of acquisitions, divestments and restructuring activities;
- our ability to successfully transfer production of certain specialty and differentiated products formerly produced at our Pori, Finland manufacturing facility to other sites within our manufacturing network;
- fluctuations in currency exchange rates and tax rates;
- our ability to adequately protect our critical information technology systems;
- impacts on the markets for our products and the broader global economy from the imposition of tariffs by the U.S. and other countries;
- our ability to realize financial and operational benefits from our business improvement plans and initiatives;
- changes to laws, regulations or the interpretation thereof;
- differences in views with our joint venture participants;
- EHS laws and regulations;
- our ability to successfully defend legal claims against us, or to pursue legal claims against third parties;
- economic conditions and regulatory changes following the exit of the United Kingdom (the "U.K.") from the EU;
- seasonal sales patterns in our product markets;
- our ability to comply with expanding data privacy regulations;
- failure to maintain effective internal controls over financial reporting and disclosure;

- our indemnification of Huntsman and other commitments and contingencies;
- financial difficulties and related problems experienced by our customers, vendors, suppliers and other business partners;
- failure to enforce our intellectual property rights;
- our ability to effectively manage our labor force; and
- the effects of public health crises, such as the COVID-19 coronavirus, on the global economy, our business, employees, supply chain and customers
- conflicts, military actions, terrorist attacks, public health crises, including the occurrence of a contagious disease or illness, such as the COVID-19 coronavirus, cyber-attacks and general instability.

All forward-looking statements, including, without limitation, management's examination of historical operating trends, are based upon our current expectations and various assumptions. Our expectations, beliefs and projections are expressed in good faith and we believe there is a reasonable basis for them, but there can be no assurance that management's expectations, beliefs and projections will result or be achieved. All forward-looking statements apply only as of the date made. We undertake no obligation to publicly update or revise forward-looking statements whether because of new information, future events or otherwise, except as required by securities and other applicable law.

There are a number of risks and uncertainties that could cause our actual results to differ materially from the forward-looking statements contained in or contemplated by this report. Any forward-looking statements should be considered in light of the risks set forth in our annual report on Form 10-K filed on March 12, 2020.

SELECTED FINANCIAL DATA

The selected historical financial data set forth below presents our historical financial data as of and for the dates and periods indicated. You should read the selected financial data in conjunction with “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our consolidated and combined financial statements and accompanying notes.

(in millions, except per share amounts)	2019	2018	2017	2016	2015
Statements of Operations Data:					
Revenues	$ 2,130	$ 2,265	$ 2,209	$ 2,139	$ 2,162
(Loss) income from continuing operations	(170)	(157)	136	(85)	(362)
(Loss) income per share from continuing operations attributable to Venator ordinary shareholders	$ (1.64)	$ (1.53)	$ 1.19	$ (0.89)	$ (3.47)
Balance Sheet Data (at year end):					
Total assets	$ 2,265	$ 2,485	$ 2,847	$ 2,661	$ 3,413
Total long-term liabilities	1,104	1,087	1,083	1,309	1,477
Total assets from continuing operations(1)	2,265	2,485	2,847	2,535	3,205
Total long-term liabilities from continuing operations(2)	1,104	1,087	1,083	1,231	1,359

(1) Defined as total assets less current assets of discontinued operations and noncurrent assets of discontinued operations.
(2) Defined as total long-term liabilities less noncurrent liabilities of discontinued operations.

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

Recent Trends and Outlook

In 2020, we expect results in our Titanium Dioxide segment to reflect: (i) modest industry demand growth; (ii) TiO_2 pricing to reflect regional supply and demand balances and increased competition for certain products; (iii) a soft economic environment, primarily in China and Europe, including the direct and indirect effects of China-U.S. trade negotiations, COVID-19 coronavirus and Brexit; (iv) manageable raw material (primarily ore), energy and other cost increases; (v) volume trends to reflect historical seasonal patterns (vi) increased sales of new and recently introduced TiO_2 products; and (vii) additional benefit through cost and operational improvement actions as part of our 2019 Business Improvement Program and other cost and operational improvement actions. We are exploring ways to optimize the remaining transfer of our business from Pori, which may result in a lower total expected capital outlay and a lower associated EBITDA benefit than originally estimated.

In our Performance Additives segment, we expect business trends to be driven by: (i) a seasonal improvement in sales volumes compared to the fourth quarter of 2019; (ii) a soft economic environment, primarily in China and Europe, including the effects of China-U.S. trade negotiations, COVID-19 coronavirus and Brexit; (iii) challenging demand environment for certain products primarily in the automotive, plastic and construction end-use applications; (iv) raw material and cost increases; (v) benefits from portfolio optimization actions; (vi) additional benefit through cost and operational improvement actions including our 2019 Business Improvement Program.

In the fourth quarter of 2018, we commenced our 2019 Business Improvement Program and are underway with the implementation, having realized $20 million of savings in 2019. We continue to expect that when fully implemented, this cost and operational improvement program will provide approximately $40 million of annual adjusted EBITDA benefit compared to year-end 2018. We expect the program will be fully implemented in 2020, ending the year at the full run-rate level.

In 2020, we expect total capital expenditures to be $80 million to $90 million. This includes capital expenditures relating to the transfer of our specialty and differentiated technology from our Pori, Finland manufacturing site to other sites in our manufacturing network.

We expect our corporate and other costs will be approximately $55 million in 2020.

Results of Operations

The following table sets forth our consolidated and combined results of operations for the years ended December 31, 2019, 2018 and 2017.

	Year Ended December 31,			Percent Change Year Ended	
(Dollars in millions)	2019	2018	2017	2019 vs. 2018	2018 vs. 2017
Revenues	**$ 2,130**	**$ 2,265**	**$ 2,209**	**(6)%**	**3 %**
Cost of goods sold	1,892	1,550	1,744	22 %	(11)%
Operating expenses[4]	192	218	226	(12)%	(4)%
Restructuring, impairment and plant closing and transition costs	33	628	52	(95)%	1,108 %
Operating income (loss)	**13**	**(131)**	**187**	**NM**	**NM**
Interest expense, net	(41)	(40)	(40)	3 %	— %
Other income	8	6	39	33 %	(85)%
(Loss) income from continuing operations before income taxes	**(20)**	**(165)**	**186**	**(88)%**	**NM**
Income tax (expense) benefit from continuing operations	(150)	8	(50)	NM	NM
(Loss) income from continuing operations	**(170)**	**(157)**	**136**	**8 %**	**NM**
Income from discontinued operations, net of tax	—	—	8	NM	(100)%
Net (loss) income	**(170)**	**(157)**	**144**	**8 %**	**NM**
Reconciliation of net loss to adjusted EBITDA:					
Interest expense, net	41	40	40	3 %	— %
Income tax expense (benefit) from continuing operations	150	(8)	50	NM	NM
Depreciation and amortization	110	132	127	(17)%	4 %
Net income attributable to noncontrolling interests	(5)	(6)	(10)	(17)%	(40)%
Other adjustments:					
Business acquisition and integration (credits) expense	(1)	20	5		
Separation (gain) expense, net	(3)	2	7		
U.S. income tax reform	—	—	(34)		
Net income of discontinued operations, net of tax	—	—	(8)		
Loss on disposition of businesses/assets	1	2	—		
Certain legal settlements and related expenses	4	—	1		
Amortization of pension and postretirement actuarial losses	14	15	17		
Net plant incident costs (credits)	20	(232)	4		
Restructuring, impairment and plant closing and transition costs	33	628	52		
Adjusted EBITDA[1]	**$ 194**	**$ 436**	**$ 395**	**(56)%**	**10 %**
Net cash provided by operating activities from continuing operations	33	282	337	(88)%	(16)%
Net cash used in investing activities from continuing operations	(150)	(321)	(11)	(53)%	2,818 %
Net cash provided by (used in) financing activities from continuing operations	7	(18)	(123)	NM	(85)%
Capital expenditures	(152)	(326)	(197)	(53)%	65 %

(Dollars in millions)	Year Ended December 31, 2019	Year Ended December 31, 2018	Year Ended December 31, 2017
Reconciliation of net (loss) income to adjusted net income (loss) attributable to Venator Materials PLC ordinary shareholders:			
Net (loss) income	**$ (170)**	**$ (157)**	**$ 144**
Net income attributable to noncontrolling interests	(5)	(6)	(10)
Other adjustments:			
Business acquisition and integration (credits) expenses	(1)	20	5
Separation (gain) expense, net	(3)	2	7
U.S. income tax reform	—	—	(34)
Net income of discontinued operations	—	—	(11)
Loss on disposition of businesses/assets	1	2	—
Certain legal settlements and related expenses	4	—	1
Amortization of pension and postretirement actuarial losses	14	15	17
Net plant incident costs (credits)	20	(232)	4
Restructuring, impairment and plant closing and transition costs	33	628	52
Income tax adjustments[3]	133	(37)	11
Adjusted net income attributable to Venator Materials PLC ordinary shareholders[2]	**$ 26**	**$ 235**	**$ 186**
Weighted-average shares-basic	106.5	106.4	106.3
Weighted-average shares-diluted	106.5	106.7	106.7
Net loss attributable to Venator Materials PLC ordinary shareholders per share:			
Basic	$ (1.64)	$ (1.53)	$ 1.26
Diluted	$ (1.64)	$ (1.53)	$ 1.26
Other non-GAAP measures:			
Adjusted net income attributable to Venator Materials PLC ordinary shareholders per share:[2]			
Basic	$ 0.24	$ 2.21	$ 1.75
Diluted	$ 0.24	$ 2.20	$ 1.74

NM—Not meaningful

(1) Our management uses adjusted EBITDA to assess financial performance. Adjusted EBITDA is defined as net income/loss before interest income/expense, net, income tax expense/benefit, depreciation and amortization, and net income attributable to noncontrolling interests, as well as eliminating the following adjustments: (a) business acquisition and integration expenses/adjustments; (b) separation expense/gain, net; (c) U.S. income tax reform; (d) net income/loss of discontinued operations, net of tax; (e) loss/gain on disposition of business/assets; (f) certain legal settlements and related expenses/gains; (g) amortization of pension and postretirement actuarial losses/gains; (h) net plant incident costs/credits; and (i) restructuring, impairment, and plant closing and transition costs/credits. We believe that net income is the performance measure calculated and presented in accordance with U.S. GAAP that is most directly comparable to adjusted EBITDA.

We believe adjusted EBITDA is useful to investors in assessing our ongoing financial performance and provides improved comparability between periods through the exclusion of certain items that management believes are not indicative of our operational profitability and that may obscure underlying business results and trends. However, this measure should not be considered in isolation or viewed as a substitute for net income or other measures of performance determined in accordance with U.S. GAAP. Moreover, adjusted EBITDA as used herein is not necessarily comparable to other similarly titled measures of other companies due to potential inconsistencies in the methods of calculation. Our management believes this measure is useful to compare general operating performance from period to period and to make certain related management decisions. Adjusted EBITDA is also used by securities analysts, lenders and others in their evaluation of different companies because it excludes certain items that can vary widely across different industries or among companies within the same industry. For example, interest expense can be highly dependent on a company's capital structure, debt levels and

credit ratings. Therefore, the impact of interest expense on earnings can vary significantly among companies. In addition, the tax positions of companies can vary because of their differing abilities to take advantage of tax benefits and because of the tax policies of the various jurisdictions in which they operate. As a result, effective tax rates and tax expense can vary considerably among companies. Finally, companies employ productive assets of different ages and utilize different methods of acquiring and depreciating such assets. This can result in considerable variability in the relative costs of productive assets and the depreciation and amortization expense among companies.

Nevertheless, our management recognizes that there are limitations associated with the use of adjusted EBITDA in the evaluation of us as compared to net income. Our management compensates for the limitations of using adjusted EBITDA by using this measure to supplement U.S. GAAP results to provide a more complete understanding of the factors and trends affecting the business rather than U.S. GAAP results alone.

In addition to the limitations noted above, adjusted EBITDA excludes items that may be recurring in nature and should not be disregarded in the evaluation of performance. However, we believe it is useful to exclude such items to provide a supplemental analysis of current results and trends compared to other periods because certain excluded items can vary significantly depending on specific underlying transactions or events, and the variability of such items may not relate specifically to ongoing operating results or trends and certain excluded items, while potentially recurring in future periods, may not be indicative of future results. For example, while amortization of pension and postretirement actuarial losses is a recurring item, it is not indicative of ongoing operating results and trends or future results.

(2) Adjusted net income attributable to Venator Materials PLC ordinary shareholders is computed by eliminating the after-tax amounts related to the following from net income/loss attributable to Venator Materials PLC ordinary shareholders: (a) business acquisition and integration expenses/adjustments; (b) separation expense/gain, net; (c) U.S. income tax reform; (d) net income/loss of discontinued operations, net of tax; (e) loss/gain on disposition of business/assets; (f) certain legal settlements and related expenses/gains; (g) amortization of pension and postretirement actuarial losses/gains; (h) net plant incident costs/credits; and (i) restructuring, impairment, and plant closing and transition costs/credits. Basic adjusted net income per share excludes dilution and is computed by dividing adjusted net income by the weighted average number of shares outstanding during the period. Adjusted diluted net income per share reflects all potential dilutive ordinary shares outstanding during the period increased by the number of additional shares that would have been outstanding as dilutive securities.

Adjusted net income and adjusted net income per share amounts are presented solely as supplemental information. These measures exclude similar non-cash item as adjusted EBITDA in order to assist our investors in comparing our performance from period to period and as such, bear similar risks as adjusted EBITDA as documented in footnote (1) above. For that reason, adjusted net income and the related per share amounts, should not be considered in isolation and should be considered only to supplement analysis of U.S. GAAP results.

(3) Prior to the second quarter of 2019, the income tax impacts, if any, of each adjusting item represented a ratable allocation of the total difference between the unadjusted tax expense and the total adjusted tax expense, computed without consideration of any adjusting items using a with and without approach.

Beginning in the three and six-month periods ended June 30, 2019, income tax expense is adjusted by the amount of additional tax expense or benefit that we would accrue if we used non-GAAP results instead of GAAP results in the calculation of our tax liability, taking into consideration our tax structure. We use a normalized effective tax rate of 35%, which reflects the weighted average tax rate applicable under the various jurisdictions in which we operate. This non-GAAP tax rate eliminates the effects of non-recurring and period specific items which are often attributable to restructuring and acquisition decisions and can vary in size and frequency. This rate is subject to change over time for various reasons, including changes in the geographic business mix, valuation allowances, and changes in statutory tax rates.

We eliminate the effect of significant changes to income tax valuation allowances from our presentation of adjusted net income to allow investors to better compare our ongoing financial performance from period to period. We do not adjust for insignificant changes in tax valuation allowances because we do not believe it provides more meaningful information than is provided under GAAP. We believe that this approach enables a clearer understanding of the long term impact of our tax structure on post tax earnings.

(4) As presented within MD&A, operating expenses include selling, general and administrative expenses and other operating expense/income.

Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018

For the year ended December 31, 2019, net loss was $170 million on revenues of $2,130 million, compared with a net loss of $157 million on revenues of $2,265 million for the same period in 2018. The increase of $13 million in net loss was the result of the following items:

- Revenues for the year ended December 31, 2019 decreased by $135 million, or 6%, as compared with the same period in 2018. The decrease was due to a $52 million, or 3%, decrease in revenue in our Titanium Dioxide segment and an $83 million, or 14%, decrease in revenue in our Performance Additives segment. See "—Segment Analysis" below.
- Our operating expenses for the year ended December 31, 2019 decreased by $26 million, or 12%, as compared to the same period in 2018, primarily as a result lower overhead costs, lower depreciation expense, and a decrease in Pori related expenses, partially offset by the impact of $14 million of carbon credit sales in 2018 and the negative impact of foreign exchange.
- Restructuring, impairment and plant closing and transition costs for the year ended December 31, 2019 decreased to $33 million from $628 million for the same period in 2018. For more information concerning restructuring activities, see "Note 13. Restructuring, Impairment and Plant Closing and Transition Costs" to our consolidated and combined financial statements.
- Other income for the year ended December 31, 2019 increased by $2 million primarily as a result of the recognition of $4 million related to the change in the expected future payment to Huntsman pursuant to the tax matters agreement entered into as part of our separation partially offset by a net decrease in pension related expense.
- Income tax expense for the year ended December 31, 2019 was $150 million compared to $8 million of income tax benefit for the same period in 2018. Our income tax expense is significantly affected by the mix of income and losses in the tax jurisdictions in which we operate, as impacted by the presence of valuation allowances in certain tax jurisdictions. In 2019, we recorded a full valuation allowance against net deferred tax assets of $162 million. For further information concerning taxes, see "Note 20. Income Taxes" to our consolidated and combined financial statements.

Segment Analysis

(in millions)	Year Ended December 31, 2019	Year Ended December 31, 2018	Percent Change Favorable (Unfavorable)
Revenues			
Titanium Dioxide	$ 1,614	$ 1,666	(3)%
Performance Additives	516	599	(14)%
Total	**$ 2,130**	**$ 2,265**	**(6)%**
Adjusted EBITDA			
Titanium Dioxide	$ 197	$ 417	(53)%
Performance Additives	47	62	(24)%
	244	479	(49)%
Corporate and other	(50)	(43)	(16)%
Total	**$ 194**	**$ 436**	**(56)%**

	Year Ended December 31, 2019 vs. 2018			
	Average Selling Price[1]			
	Local Currency	Foreign Currency Translation Impact	Mix & Other	Sales Volumes[2]
Period-Over-Period Increase (Decrease)				
Titanium Dioxide	(7)%	(3)%	— %	7 %
Performance Additives	— %	(2)%	— %	(12)%

NM—Not meaningful

(1) Excludes revenues from tolling arrangements, by-products and raw materials.

(2) Excludes sales volumes of by-products and raw materials.

Titanium Dioxide

The Titanium Dioxide segment generated revenues of $1,614 million in the twelve months ended December 31, 2019, a decrease of $52 million, or 3%, compared to the same period in 2018. The decrease was primarily due to a 7% decline in the average TiO_2 selling price and a 3% unfavorable impact of foreign currency translation, partially offset by a 7% increase in sales volumes. The decline in the average TiO_2 selling price was primarily a result of lower functional TiO_2 prices in Europe and Asia and more stable prices in North America. The average specialty TiO_2 price was stable compared to the prior year. Sales volumes increased due to sales of new products, increased product availability and improved demand for our products.

Adjusted EBITDA for the Titanium Dioxide segment was $197 million, a decline of $220 million in the twelve months ended December 31, 2019 compared to the same period in 2018. This decrease is primarily a result of lower TiO_2 margins due to a lower average TiO_2 selling price, reduced contribution from specialty TiO_2, higher raw material costs, $14 million of carbon credits sold in the twelve months ended December 31, 2018 and $41 million of lost earnings attributable to our Pori, Finland TiO_2 manufacturing facility, which were reimbursed through insurance proceeds in the comparable period of 2018. This decrease was partially offset by higher sales volumes, a $13 million benefit from our 2019 Business Improvement Program and a $9 million benefit due to a change in plant utilization rates, which increased our overhead absorption and corresponding inventory valuation at certain facilities.

Performance Additives

The Performance Additives segment generated revenues of $516 million in the twelve months ended December 31, 2019, a decline of $83 million, or 14%, compared to the same period in 2018. This decrease was a result of a 12% decline in volumes and a 2% unfavorable impact of foreign currency translation. The average selling price was stable compared to the prior year. The decline in volumes was primarily attributable to soft demand in automotive coatings, plastics and electronics applications, lower sales into construction-related applications, including the effect of portfolio optimization and a discontinuation of sales of a product to a timber treatment customer.

Adjusted EBITDA in the Performance Additives segment was $47 million, a decrease of $15 million, or 24%, for the twelve months ended December 31, 2019 compared to the same period in 2018. This decrease was primarily a result of lower sales volumes and product mix, partially offset by lower raw material and selling, general and administrative costs, a $5 million benefit from our 2019 Business Improvement Program and a $2 million benefit due to a change in plant utilization which increased our overhead absorption rates at certain facilities.

Corporate and other

Corporate and other represents expenses which are not allocated to our segments. Losses from Corporate and other were $50 million, or $7 million higher for the twelve months ended December 31, 2019 than the same period in 2018 due to a $9 million unfavorable impact of foreign currency exchange rates partially offset by a $2 million benefit from our 2019 Business Improvement Program.

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

For the year ended December 31, 2018, net loss was $157 million on revenues of $2,265 million, compared with a net income of $144 million on revenues of $2,209 million for the same period in 2017. The decrease of $301 million in net income was the result of the following items:

- Revenues for the year ended December 31, 2018 increased by $56 million, or 3%, as compared with the same period in 2017. The increase was due to a $62 million, or 4%, increase in revenue in our Titanium Dioxide segment primarily due to an increase in average selling price, partially offset by a $6 million, or 1%, decrease in revenue in our Performance Additives segment due primarily to decreases in volumes. See "—Segment Analysis" below.
- Our operating expenses for the year ended December 31, 2018 decreased by $8 million, or 4%, as compared to the same period in 2017, primarily resulting from reduced overhead costs.
- Restructuring, impairment and plant closing and transition costs for the year ended December 31, 2018 increased to $628 million from $52 million for the same period in 2017. For more information concerning restructuring activities, see "Note 13. Restructuring, Impairment and Plant Closing and Transition Costs" to our consolidated and combined financial statements.
- Other income for the year ended December 31, 2018 decreased by $33 million primarily as a result of the recognition of income in 2017 related to the change in the future payment to Huntsman pursuant to the tax matters agreement entered into as part of our separation. The change in future expected payment was due to the 2017 Tax Act’s reduction of the U.S. federal corporate income tax rate from 35% to 21%.

- Our income tax benefit for the year ended December 31, 2018 was $8 million compared to $50 million of income tax expense for the same period in 2017. Our income tax expense is significantly affected by the mix of income and losses in the tax jurisdictions in which we operate, as impacted by the presence of valuation allowances in certain tax jurisdictions. For further information concerning taxes, see “Note 20. Income Taxes" to our consolidated and combined financial statements.

Segment Analysis

(in millions)	Year Ended December 31, 2018	Year Ended December 31, 2017	Percent Change Favorable (Unfavorable)
Revenues			
Titanium Dioxide	$ 1,666	$ 1,604	4 %
Performance Additives	599	605	(1)%
Total	**$ 2,265**	**$ 2,209**	**3 %**
Segment adjusted EBITDA			
Titanium Dioxide	$ 417	$ 387	8 %
Performance Additives	62	72	(14)%
	479	459	4 %
Corporate and other	(43)	(64)	33 %
Total	**$ 436**	**$ 395**	**10 %**

	Year Ended December 31, 2018 vs. 2017			
	Average Selling Price[(1)]			
	Local Currency	Foreign Currency Translation Impact	Mix & Other	Sales Volumes[(2)]
Period-Over-Period Increase (Decrease)				
Titanium Dioxide	13 %	3 %	1 %	(13)%
Performance Additives	3 %	2 %	(2)%	(4)%

NM—Not meaningful

(1) Excludes revenues from tolling arrangements, by-products and raw materials.

(2) Excludes sales volumes of by-products and raw materials.

Titanium Dioxide

The Titanium Dioxide segment generated revenues of $1,666 million in the twelve months ended December 31, 2018, an increase of $62 million, or 4%, compared to the same period in 2017. The increase was primarily due to a 13% increase in average selling price, a 3% favorable impact from foreign currency translation, and a 1% increase due to mix and other, offset by a 13% decrease in volumes. The increase in selling prices compared to the prior year reflects more favorable business conditions allowing for an increase in prices globally. Sales volumes decreased primarily due to customer destocking and lower availability of certain specialty product grades due, in part, to extended planned maintenance turnarounds, reduced operating rates at our Pori, Finland manufacturing facility and other plant closures as part of our restructuring programs. Excluding the impact of the fire at our Pori plant and the impact of plants closed as part of our restructuring programs, sales volumes decreased by 9% compared to the prior year.

Adjusted EBITDA for the Titanium Dioxide segment increased by $30 million for the year ended December 31, 2018 compared to the same period in 2017. This increase is primarily a result of improvements in pricing, $19 million of benefits as a result of our 2017 business improvement program, and the sale of $14 million of energy credits in 2018, offset by the impact of higher raw materials and energy costs and the impact of insurance proceeds received in 2017 to reimburse lost earnings from our Pori, Finland facility.

Performance Additives

The Performance Additives segment generated $599 million of revenue in the twelve months ended December 31, 2018, a decline of $6 million, or 1%, compared to the same period in 2017 resulting from a 4% decrease in volumes and a 2% decrease due to the unfavorable impact of sales mix and other partially offset by a 3% increase in pricing and a 2% improvement from the favorable impact of foreign currency translation. The decline in volumes was primarily as a result of customer destocking in Functional Additives, the discontinuation of sales of certain Timber Treatment products to a large customer, and plant shutdowns in the second quarter of 2018 as part of our restructuring plans, while the increase in selling prices is as a result of price increases for certain products within Functional Additives, Color Pigments and Timber Treatment to offset higher raw material and energy costs.

Adjusted EBITDA in the Performance Additives segment decreased by $10 million, or 14%, for the twelve months ended December 31, 2018 compared to the same period in 2017, primarily due to higher raw materials and energy costs, offset by higher average selling prices and $8 million of benefits from our 2017 business improvement program.

Corporate and other

Corporate and other represents expenses which are not allocated to our segments. Losses from Corporate and other were $43 million, or $21 million lower for the twelve months ended December 31, 2018 than the same period in 2017 as our costs to operate as a standalone company are lower than those costs historically allocated to us from Huntsman.

Liquidity and Capital Resources

We had cash and cash equivalents of $55 million and $165 million as of December 31, 2019 and 2018, respectively. We expect to have adequate liquidity to meet our obligations over the next 12 months. We believe our future obligations, including needs for capital expenditures will be met by available cash generated from operations and borrowings.

Our financing arrangements include $375 million of Senior Notes issued by our subsidiaries Venator Finance S.à r.l. and Venator Materials LLC (the "Issuers"), and borrowings of $375 million under the Term Loan Facility. We have a related-party note payable to Huntsman for a liability pursuant to the tax matters agreement entered into at the time of the separation which has been presented as Noncurrent payable to affiliate within the consolidated balance sheets.

In addition to the Senior Notes and the Term Loan Facility, we have an ABL Facility. Availability to borrow under the ABL Facility is subject to a borrowing base calculation comprising both accounts receivable and inventory in the U.S., Canada, the U.K. and Germany and only accounts receivable in France and Spain. Thus, the base calculation may fluctuate from time to time and may be further impacted by the lenders' discretionary ability to impose reserves and availability blocks that might otherwise incrementally increase borrowing availability. The borrowing base calculation as of December 31, 2019 is in excess of $273 million, of which $252 million is available to be drawn, as a result of $21 million of letters of credit issued and outstanding at December 31, 2019.

Items Impacting Short-Term and Long-Term Liquidity

Our liquidity can be significantly impacted by various factors. The following matters had, or are expected to have, a significant impact on our liquidity:

- Cash inflows from our accounts receivable and inventory, net of accounts payable, increased by $119 million for the year ended December 31, 2019 as reflected in our consolidated and combined statements of cash flows. For 2020, we expect to spend $80 million to $90 million on capital expenditures. Our future expenditures include certain EHS maintenance and upgrades; periodic maintenance and repairs applicable to major units of manufacturing facilities; certain cost reduction projects; and the cost to transfer our specialty and differentiated manufacturing from Pori, Finland to other sites within our manufacturing network. We expect to fund this spending with cash on hand as well as cash provided by operations and borrowings.

- During the year ended December 31, 2019, we made contributions to our pension and postretirement benefit plans of $40 million. During the first quarter of 2020, we expect to contribute an additional amount of approximately $7 million to these plans.

- We are involved in a number of cost reduction programs for which we have established restructuring accruals. As of December 31, 2019, we had $16 million of accrued restructuring costs of which $9 million is classified as current. We expect to incur approximately $19 million and pay approximately $30 million of restructuring and plant closing costs

during 2020. For further discussion of these plans and the costs involved, see "Note 13. Restructuring, Impairment and Plant Closing and Transition Costs" to our consolidated and combined financial statements.

- In the fourth quarter of 2018, we commenced our 2019 Business Improvement Program and are underway with the implementation, having realized $20 million of savings in 2019. We continue to expect that when fully implemented, this cost and operational improvement program will provide approximately $40 million of annual adjusted EBITDA benefit compared to year-end 2018. We expect the program will be fully implemented in 2020, ending the year at the full run-rate level.

- On January 30, 2017, our TiO_2 manufacturing facility in Pori, Finland, experienced fire damage. On September 12, 2018, following our review of the Pori facility and options within our manufacturing network, and as a result of unanticipated cost escalation and extended timeline associated with reconstruction, we announced that we intend to close our Pori, Finland, TiO_2 manufacturing facility and transfer certain specialty and differentiated products to other sites. We expect to continue to wind down the limited operations at the Pori facility through the transition period. We are exploring ways to optimize the remaining transfer of our business from Pori, which may result in a lower total expected capital outlay and a lower associated EBITDA benefit than originally estimated.

- In the first quarter of 2020, we initiated consultations with employee representatives on a proposal to restructure our manufacturing facility in Duisburg, Germany. Until the consultation process is concluded, the restructuring is not considered probable, and the total potential costs associated with this contemplated proposal, which are expected to be significant, cannot be determined. If the consultation process is successfully concluded, the Company would expect, at that time, to record charges related to the program including employee severance costs, accelerated depreciation and other costs associated with restructuring our manufacturing facility. The amount and timing of the recognition of these charges and the related cash expenditures will depend on a number of factors, including the timing of the completion of the consultation process and the negotiated elements of the associated plan.

- We have $732 million in aggregate principal outstanding, net of debt issuance costs of $14 million, under $371 million, 5.75% of Senior Notes due 2025, and a $361 million Term Loan Facility. As of December 31, 2019 and 2018, we had $13 million and $8 million, respectively, classified as current portion of debt. See further discussion under "Financing Arrangements."

As of December 31, 2019 and 2018, we had $16 million and $36 million, respectively, of cash and cash equivalents held outside of the U.S. and Europe. In the first quarter of 2019, a non-U.K. subsidiary distributed $12 million to a U.K. subsidiary subject to a 5% withholding tax. As of December 31, 2019, our non-U.K. subsidiaries have no plan to distribute earnings in a manner that would cause them to be subject to material U.K., U.S., or other local country taxation. For the years ended December 31, 2018 and 2017, our non-U.K. subsidiaries made no distribution of earnings that caused them to be subject to material U.K., U.S., or other local country taxation.

Cash Flows for the Year Ended December 31, 2019 Compared to the Year Ended December 31, 2018

Net cash provided by operating activities was $33 million for the twelve months ended December 31, 2019, compared to net cash provided by operating activities of $282 million for the twelve months ended December 31, 2018. The decrease in net cash provided by operating activities for the twelve months ended December 31, 2019 compared with the same period of 2018 was primarily attributable to changes in net income. The $13 million increase in net loss, as described in "—Results of Operations" above, was offset by changes in non-cash elements of net income comprised primarily of a $583 million decrease in non-cash restructuring and impairment charges and a $158 million increase in income tax expense primarily as the result of the recognition of a full valuation allowance against the deferred tax assets held at our German businesses. The increase in net loss, after giving effect to the non-cash restructuring and impairment charges and the increase in income tax expense, was partially offset by an increase in cash flows due to changes in assets and liabilities of approximately $205 million.

Net cash used in investing activities was $150 million for the twelve months ended December 31, 2019, compared to net cash used in investing activities of $321 million for the twelve months ended December 31, 2018. The decrease in net cash used in investing activities for the twelve months ended December 31, 2019 compared with the same period of 2018 was primarily attributable to a $174 million decrease in capital expenditures as a result of the unreimbursed Pori capital expenditures in 2018.

Net cash provided by financing activities was $7 million for the twelve months ended December 31, 2019, compared to net cash used in financing activities of $18 million for the twelve months ended December 31, 2018. The increase in net cash provided by financing activities for the twelve months ended December 31, 2019 compared with the same period of 2018 was

primarily attributable to $15 million in proceeds from the termination of cross-currency swap contracts in 2019 and $13 million favorable variance in net borrowings/repayments on notes payable.

Cash Flows for the Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Net cash provided by operating activities from continuing operations was $282 million for the twelve months ended December 31, 2018 while net cash provided by operating activities from continuing operations was $337 million for the twelve months ended December 31, 2017. The decrease in net cash provided by operating activities from continuing operations for the twelve months ended December 31, 2018 compared with the same period of 2017 was primarily attributable to the $301 million decrease in net income described in "—Results of Operations" above, a $263 million unfavorable variance in changes in assets and liabilities, and an unfavorable decrease in deferred income taxes of $38 million, partially offset by an increase in noncash restructuring and impairment charges of $584 million.

Net cash used in investing activities from continuing operations was $321 million for the twelve months ended December 31, 2018, compared to net cash used in investing activities from continuing operations of $11 million for the twelve months ended December 31, 2017. The increase in net cash used in investing activities from continuing operations for the twelve months ended December 31, 2018 compared with the same period of 2017 was primarily attributable to a $205 million increase in capital expenditures, net of insurance proceeds for recovery of property damage, and a decrease in net payments from affiliates of $121 million year over year, partially offset by a change of $10 million related to cash received and cash invested in unconsolidated affiliates.

Net cash used in financing activities from continuing operations was $18 million for the twelve months ended December 31, 2018, compared to net cash used in financing activities from continuing operations of $123 million for the twelve months ended December 31, 2017. The decrease in net cash used in financing activities from continuing operations for the twelve months ended December 31, 2018 compared with the same period of 2017 was primarily attributable to the $832 million final settlement and repayment of affiliate balances at separation reflected in our 2017 cash outflows from financing activities, offset by a decrease in proceeds received from the issuance of the Senior Notes and Senior Credit facilities net of the payment of debt issuance costs of $732 million in 2017.

Changes in Financial Condition

The following information summarizes our working capital as of December 31, 2019 and 2018:

(Dollars in millions)	December 31, 2019	December 31, 2018	Increase (Decrease)	Percent Change
Cash and cash equivalents	$ 55	$ 165	$ (110)	(67)%
Accounts and notes receivable, net	321	351	(30)	(9)%
Inventories	513	538	(25)	(5)%
Prepaid expenses	21	20	1	5 %
Other current assets	67	51	16	31 %
Total current assets	**977**	**1,125**	**(148)**	**(13)%**
Accounts payable	334	382	(48)	(13)%
Accounts payable to affiliates	17	18	(1)	(6)%
Accrued liabilities	116	135	(19)	(14)%
Current operating lease liability	8	—	8	NM
Current portion of debt	13	8	5	63 %
Total current liabilities	**488**	**543**	**(55)**	**(10)%**
Working capital	**$ 489**	**$ 582**	**$ (93)**	**(16)%**

NM—Not meaningful

Our working capital decreased by $93 million as a result of the net impact of the following significant changes:

- Cash and cash equivalents decreased by $110 million primarily due to cash outflows of $150 million from investing activities, partially offset by inflows of $33 million from operating activities and $7 million from financing activities.

- Accounts receivable decreased by $30 million primarily due to lower sales year over year.
- Inventories decreased by $25 million primarily due to lower levels of finished goods at December 31, 2019 as compared to the prior year as a result of seasonality and efforts across the organization to manage inventory levels partially offset by an $11 million increase in inventory due to a change in plant utilization rates which increased our overhead absorption and corresponding inventory valuation at certain facilities in 2019.
- Accrued liabilities decreased by $19 million primarily due to a reduction of $9 million of accrued restructuring costs and $7 million of current portion of ARO costs.

The following information summarizes our working capital as of December 31, 2018 and 2017:

(Dollars in millions)	December 31, 2018	December 31, 2017	Increase (Decrease)	Percent Change
Cash and cash equivalents	$ 165	$ 238	$ (73)	(31)%
Accounts and notes receivable, net	351	380	(29)	(8)%
Accounts receivable from affiliates	—	12	(12)	(100)%
Inventories	538	454	84	19 %
Prepaid expenses	20	19	1	5 %
Other current assets	51	66	(15)	(23)%
Total current assets from continuing operations	**1,125**	**1,169**	**(44)**	**(4)%**
Accounts payable	382	385	(3)	(1)%
Accounts payable to affiliates	18	16	2	13 %
Accrued liabilities	135	244	(109)	(45)%
Current portion of debt	8	14	(6)	(43)%
Total current liabilities from continuing operations	**543**	**659**	**(116)**	**(18)%**
Working capital	**$ 582**	**$ 510**	**$ 72**	**14 %**

Our working capital increased by $72 million as a result of the net impact of the following significant changes:

- Cash and cash equivalents decreased by $73 million primarily due to cash outflows of $321 million from investing activities from continuing operations and outflows of $18 million from financing activities from continuing operations partially offset by cash inflows of $282 million from operating activities from continuing operations.
- Accounts receivable decreased by $29 million primarily due to lower sales year over year.
- Inventories increased by $84 million primarily due to customer destocking during the year ended December 31, 2018.
- Accrued liabilities decreased by $109 million primarily due to the decreased capital accruals for the Pori, Finland plant rebuild.

Financing Arrangements

For a discussion of financing arrangements, see "Note 16. Debt" to our consolidated and combined financial statements.

Cross-Currency Swap

For a discussion of cross-currency swaps, see "Note 18. Derivative Instruments and Hedging Activities" to our consolidated and combined financial statements.

Contractual Obligations and Commercial Commitments

Our obligations under long-term debt (including the current portion), lease agreements and other contractual commitments from continuing operations as of December 31, 2019 are summarized below:

(Dollars in millions)	2020	2021-2022	2023-2024	After 2024	Total
Long-term debt, including current portion[1]	$ 4	$ 8	$ 355	$ 375	$ 742
Interest[2]	39	75	67	22	203
Finance leases	2	3	2	6	13
Operating leases	11	16	9	39	75
Purchase commitments[3]	100	183	22	38	343
Total[4][5]	**$ 156**	**$ 285**	**$ 455**	**$ 480**	**$ 1,376**

(1) For more information, see "—Financing Arrangements."
(2) Interest calculated using actual and forecasted interest rates as of December 31, 2019 and contractual maturity dates.
(3) We have various purchase commitments extending through 2029 for materials, supplies and services entered into in the ordinary course of business. Included in the purchase commitments table above are contracts which require minimum volume purchases that extend beyond one year or are renewable annually and have been renewed for 2019. Certain contracts allow for changes in minimum required purchase volumes in the event of a temporary or permanent shutdown of a facility. To the extent the contract requires a minimum notice period, such notice period has been included in the above table. The contractual purchase price for substantially all of these contracts is variable based upon market prices, subject to annual negotiations. We have estimated our contractual obligations by using the terms of our current pricing for each contract. We also have a limited number of contracts which require a minimum payment even if no volume is purchased. We believe that all of our purchase obligations will be utilized in our normal operations. For each of the years ended December 31, 2019, 2018 and 2017, we made minimum payments of $1 million, nil and $2 million, respectively, under such take or pay contracts without taking the product.
(4) Totals do not include commitments pertaining to our pension and other postretirement obligations. Our estimated future contributions to our pension and postretirement plans are as follows:

(Dollars in millions)	2020	2021-2022	2023-2024	Annual Average of Next 5 Years
Pension plans	$ 43	$ 80	$ 21	$ 5
Other postretirement obligations	—	—	—	—

(5) The above table does not reflect expected tax payments and unrecognized tax benefits due to the inability to make reasonably reliable estimates of the timing and amount of payments. For additional discussion on unrecognized tax benefits, see "Note 20. Income Taxes" to our consolidated and combined financial statements.

Off-Balance-Sheet Arrangements

We are required to provide standby letters of credit primarily to collateralize our obligation to third parties for pension liabilities and commercial obligations in the ordinary course of business. Although the letters of credit are off-balance sheet, the obligations to which they relate are reflected as liabilities on the consolidated balance sheets. For a discussion of letters of credit, see "Note 16. Debt" to our consolidated and combined financial statements.

Restructuring, Impairment and Plant Closing and Transition Costs

For further discussion of these and other restructuring plans and the costs involved, see "Note 13. Restructuring, Impairment and Plant Closing and Transition Costs" to our consolidated and combined financial statements.

Legal Proceedings

For a discussion of legal proceedings, see "Note 23. Commitments and Contingencies—Legal Matters" to our consolidated and combined financial statements.

Environmental, Health and Safety Matters

We are subject to extensive environmental regulations, which may impose significant additional costs on our operations in the future. While we do not expect any of these enactments or proposals to have a material adverse effect on us in the near term, we cannot predict the longer-term effect of any of these regulations or proposals on our future financial condition. For a discussion of EHS matters, see "Note 24. Environmental, Health and Safety Matters" to our consolidated and combined financial statements.

Recently Issued Accounting Pronouncements

For a discussion of recently issued accounting pronouncements, see "Note 2. Recently Issued Accounting Pronouncements" to our consolidated and combined financial statements.

Critical Accounting Estimates

The preparation of financial statements and related disclosures in conformity with U.S. GAAP requires management to make judgments, estimates and assumptions that affect the reported amounts in our consolidated and combined financial statements. Our significant accounting policies are summarized in "Note 1. Description Of Business, Recent Developments and Summary Of Significant Accounting Policies" to our consolidated and combined financial statements. Summarized below are our critical accounting policies:

Employee Benefit Programs

We sponsor several contributory and non-contributory defined benefit plans, covering employees primarily in the U.S., the U.K., Germany and Finland, but also covering employees in a number of other countries. We fund the material plans through trust arrangements (or local equivalents) where the assets are held separately from us. We also sponsor unfunded postretirement plans which provide medical and, in some cases, life insurance benefits covering certain employees in the U.S. and Canada. Amounts recorded in our consolidated and combined financial statements are recorded based upon actuarial valuations performed by various third-party actuaries. Inherent in these valuations are numerous assumptions regarding expected long-term rates of return on plan assets, discount rates, compensation increases, mortality rates and health care cost trends. We evaluate these assumptions at least annually.

The discount rate is used to determine the present value of future benefit payments at the end of the year. For our U.S. and non-U.S. plans, the discount rates were based on the results of matching expected plan benefit payments with cash flows from a hypothetical yield curve constructed with high-quality corporate bond yields.

The following weighted-average discount rate assumptions were used for the defined benefit and other postretirement plans for the year:

	December 31, 2019	December 31, 2018	December 31, 2017
Defined benefit plans			
Projected benefit obligation	1.60 %	2.38 %	2.21 %
Net periodic pension cost	2.38 %	2.21 %	1.86 %
Other postretirement benefit plans			
Projected benefit obligation	3.27 %	3.50 %	3.38 %
Net periodic pension cost	3.51 %	3.30 %	3.72 %

The expected return on plan assets is determined based on asset allocations, historical portfolio results, historical asset correlations and management's expected long-term return for each asset class. The expected rate of return on U.S. plan assets was 7.75% in 2019 and 2018, each, and the expected rate of return on non-U.S. plans was 5.18% and 5.21% for 2019 and 2018, respectively.

The expected increase in the compensation levels assumption reflects our long-term actual experience and future expectations.

Management, with the advice of actuaries, uses judgment to make assumptions on which our employee pension and postretirement benefit plan obligations and expenses are based. The effect of a 1% change in three key assumptions is summarized as follows (dollars in millions):

Assumptions	Statement of Operations[1]	Balance Sheet Impact[2]
Discount rate		
1% increase	$ (12)	$ (169)
1% decrease	18	200
Expected long-term rates of return on plan assets		
1% increase	(8)	—
1% decrease	8	—
Rate of compensation increase		
1% increase	2	12
1% decrease	(2)	(9)

(1) Estimated (decrease) increase on 2019 net periodic benefit cost

(2) Estimated (decrease) increase on December 31, 2019 pension and postretirement liabilities and accumulated other comprehensive loss

Income Taxes

We use the asset and liability method of accounting for income taxes. Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial and tax reporting purposes. We evaluate deferred tax assets to determine whether it is more likely than not that they will be realized. Valuation allowances are reviewed on a tax jurisdiction basis to analyze whether there is sufficient positive or negative evidence to support a change in judgment about the realizability of the related deferred tax assets for each jurisdiction. These conclusions require significant judgment. In evaluating the objective evidence that historical results provide, we consider the cyclicality of businesses and cumulative income or losses during the applicable period. Cumulative losses incurred over the period limit our ability to consider other subjective evidence such as our projections for the future. Changes in expected future income in applicable jurisdictions could affect the realization of deferred tax assets in those jurisdictions. As of December 31, 2019, we had total valuation allowances of $585 million. See "Note 20. Income Taxes" to our consolidated and combined financial statements for more information regarding our valuation allowances.

As of December 31, 2019, our non-U.K. subsidiaries have no plan to distribute earnings in a manner that would cause them to be subject to U.K., U.S., or other local country taxation.

Accounting for uncertainty in income taxes prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The application of income tax law is inherently complex. We are required to determine if an income tax position meets the criteria of more-likely-than-not to be realized based on the merits of the position under tax law, in order to recognize an income tax benefit. This requires us to make significant judgments regarding the merits of income tax positions and the application of income tax law. Additionally, if a tax position meets the recognition criteria of more-likely-than-not we are required to make judgments and apply assumptions in order to measure the amount of the tax benefits to recognize. These judgments are based on the probability of the amount of tax benefits that would be realized if the tax position was challenged by the taxing authorities. Interpretations and guidance surrounding income tax laws and regulations change over time. As a consequence, changes in assumptions and judgments can materially affect amounts recognized in our consolidated and combined financial statements.

Long-Lived Assets

The useful lives of our property, plant and equipment are estimated based upon our historical experience, engineering estimates and industry information and are reviewed when economic events indicate that we may not be able to recover the carrying value of the assets. The estimated lives of our property range from 3 to 50 years and depreciation is recorded on the straight-line method. Inherent in our estimates of useful lives is the assumption that periodic maintenance and an appropriate level of annual capital expenditures will be performed. Without on-going capital improvements and maintenance, the productivity and cost efficiency declines and the useful lives of our assets would be shorter.

Management uses judgment to estimate the useful lives of our long-lived assets. At December 31, 2019, if the estimated useful lives of our property, plant and equipment had either been one year greater or one year less than their recorded lives, then depreciation expense for 2019 would have been approximately $11 million less or $14 million greater, respectively.

We are required to evaluate the carrying value of our long-lived tangible and intangible assets whenever events indicate that such carrying value may not be recoverable in the future or when management's plans change regarding those assets, such as idling or closing a plant. We evaluate impairment by comparing undiscounted cash flows of the related asset groups that are largely independent of the cash flows of other asset groups to their carrying values. Key assumptions in determining the future cash flows include the useful life, technology, competitive pressures, raw material pricing and regulations. In connection with our asset evaluation policy, we reviewed all of our long-lived assets for indicators that the carrying value may not be recoverable.

Restructuring and Plant Closing and Transition Costs

We recorded restructuring charges in recent periods in connection with closing certain plant locations, workforce reductions and other cost savings programs in each of our business segments. These charges are recorded when management has committed to a plan and incurred a liability related to the plan. Estimates for plant closing costs include the write-off of the carrying value of the plant, any necessary environmental and/or regulatory costs, contract termination and demolition costs. Estimates for workforce reductions and other costs savings are recorded based upon estimates of the number of positions to be terminated, termination benefits to be provided and other information, as necessary. Management evaluates the estimates on a quarterly basis and will adjust the reserve when information indicates that the estimate is above or below the currently recorded estimate. For further discussion of our restructuring activities, see "Note 13. Restructuring, Impairment and Plant Closing and Transition Costs" to our consolidated and combined financial statements.

Contingent Loss Accruals

Environmental remediation costs for our facilities are accrued when it is probable that a liability has been incurred and the amount can be reasonably estimated. Estimates of environmental reserves require evaluating government regulation, available technology, site-specific information and remediation alternatives. We accrue an amount equal to our best estimate of the costs to remediate based upon the available information. The extent of environmental impacts may not be fully known and the processes and costs of remediation may change as new information is obtained or technology for remediation is improved. Our process for estimating the expected cost for remediation considers the information available, technology that can be utilized and estimates of the extent of environmental damage. Adjustments to our estimates are made periodically based upon additional information received as remediation progresses. As of December 31, 2019 and 2018, we had recognized a liability of $9 million and $12 million, respectively, related to these environmental matters. For further information, see "Note 24. Environmental, Health and Safety Matters" to our consolidated and combined financial statements.

We are subject to legal proceedings and claims arising out of our business operations. We routinely assess the likelihood of any adverse outcomes to these matters, as well as ranges of probable losses. A determination of the amount of the reserves required, if any, for these contingencies is made after analysis of each known claim. We have an active risk management program consisting of numerous insurance policies secured from many carriers. These policies often provide coverage that is intended to minimize the financial impact, if any, of the legal proceedings. The required reserves may change in the future due to new developments in each matter. For further information, see "Note 23. Commitments and Contingencies—Legal Proceedings" to our consolidated and combined financial statements.

Variable Interest Entities—Primary Beneficiary

We evaluate each of our variable interest entities on an on-going basis to determine whether we are the primary beneficiary. Management assesses, on an on-going basis, the nature of our relationship to the variable interest entity, including the amount of control that we exercise over the entity as well as the amount of risk that we bear and rewards we receive in regard to the entity, to determine if we are the primary beneficiary of that variable interest entity. Management judgment is required to assess whether these attributes are significant. The factors management considers when determining if we have the power to direct the activities that most significantly impact each of our variable interest entity's economic performance include supply arrangements, manufacturing arrangements, marketing arrangements and sales arrangements. We consolidate all variable interest entities for which we have concluded that we are the primary beneficiary. For the years ended December 31, 2019, 2018 and 2017, the percentage of revenues from our consolidated variable interest entities in relation to total revenues that will ultimately be attributable to Venator is 4.4%, 5.2% and 5.7%, respectively. For further information, see "Note 9. Variable Interest Entities" to our consolidated and combined financial statements.

QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

We are exposed to market risks, such as changes in interest rates and foreign exchange rates. We manage these risks through normal operating and financing activities and, when appropriate, through the use of derivative instruments. We do not invest in derivative instruments for speculative purposes.

Interest Rate Risk

We are exposed to interest rate risk through the structure of our debt portfolio which includes a mix of fixed and floating rates. Actions taken to reduce interest rate risk include managing the mix and rate characteristics of various interest-bearing liabilities.

The carrying value of our floating rate debt is $361 million at December 31, 2019. A hypothetical 1% increase in interest rates on our floating rate debt as of December 31, 2019 would increase our interest expense by approximately $4 million on an annualized basis.

Foreign Exchange Rate Risk

We are exposed to market risks associated with foreign exchange risk. Our cash flows and earnings are subject to fluctuations due to exchange rate variation. Our revenues and expenses are denominated in various foreign currencies. We enter into foreign currency derivative instruments to minimize the short-term impact of movements in foreign currency rates. Where practicable, we generally net multicurrency cash balances among our subsidiaries to help reduce exposure to foreign currency exchange rates. Certain other exposures may be managed from time to time through financial market transactions, principally through the purchase of spot or forward foreign exchange contracts (generally with maturities of three months or less). We do not hedge our foreign currency exposures in a manner that would eliminate the effect of changes in exchange rates on our cash flows and earnings. At December 31, 2019 and 2018 we had $75 million and $89 million notional amount (in U.S. dollar equivalents) outstanding in foreign currency contracts with a term of approximately one month.

In December 2017, we entered into three cross-currency swap agreements to convert a portion of our intercompany fixed-rate, U.S. Dollar denominated notes, including the semi-annual interest payments and the payment of remaining principle at maturity, to a fixed-rate, Euro denominated debt. The economic effect of the swap agreement was to eliminate the uncertainty of the cash flows in U.S. Dollars associated with the notes by exchanging a notional amount of $200 million at a fixed rate of 5.75% for €169 million with a fixed annual rate of 3.43%. These hedges were designated as cash flow hedges and the critical terms of the cross-currency swap agreements correspond to the underlying hedged item. These swaps had a maturity date of July 2022, which was the best estimate of the repayment date of the intercompany loans.

In August 2019, we terminated the three cross-currency swaps entered into in 2017, resulting in cash proceeds of $15 million. Concurrently, we entered into three new fixed to fixed cross-currency swaps which notionally exchanged $200 million at a fixed rate of 5.75% for €181 million on which a weighted average rate of 3.73% is payable. The cross-currency swaps have been designated as cash flow hedges of a fixed rate U.S. Dollar intercompany loan and the economic effect is to eliminate uncertainty on the U.S. Dollar cash flows. The cross-currency swaps are set to mature July 2024, which is the best estimate of the repayment date on the intercompany notes.

During 2019, the changes in accumulated other comprehensive loss associated with these cash flow hedging activities was a gain of $6 million.

During 2020, the amount of accumulated other comprehensive loss at December 31, 2019 related to hedging transactions that is expected to be reclassified to earnings is immaterial. The actual amount that will be reclassified to earnings over the next twelve months may vary from this amount due to changing market conditions.

Commodity Price Risk

A portion of our products and raw materials are commodities whose prices fluctuate as market supply and demand fundamentals change. Accordingly, product margins and the level of our profitability tend to fluctuate with the changes in the business cycle. We try to protect against such instability through various business strategies. These include provisions in sales contracts allowing us to pass on higher raw material costs through timely price increases and formula price contracts to transfer or share commodity price risk. We did not have any commodity derivative instruments in place as of December 31, 2019 and 2018.

CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

As required by rule 13-a 15(b) under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), we have evaluated, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of the end of the period covered by this annual report. Based on this evaluation, our principal executive officer and principal financial officer have concluded that, as of December 31, 2019, our disclosure controls and procedures were effective, in that they ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is (1) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and (2) accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control Over Financial Reporting

There were no changes to our internal control over financial reporting during the three months ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act).

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control framework and processes are designed to provide reasonable assurance to management and our Board of Directors regarding the reliability of financial reporting and the preparation of our consolidated financial statements in accordance with accounting principles generally accepted in the United States of America.

Our internal control over financial reporting includes those policies and procedures that:

- pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of our Company;
- provide reasonable assurance that transactions are recorded properly to allow for the preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of our Company are being made only in accordance with authorizations of management and our Board of Directors;
- provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our consolidated financial statements; and
- provide reasonable assurance as to the detection of fraud.

Because of its inherent limitations, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. Further, because of changing conditions, effectiveness of internal control over financial reporting may vary over time.

Our management assessed the effectiveness of our internal control over financial reporting and concluded that, as of December 31, 2019, such internal control is effective. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control-Integrated Framework (2013)* ("COSO").

Our independent registered public accountants, Deloitte LLP, with direct access to our Board of Directors through our Audit Committee, have audited our consolidated and combined financial statements and have issued an attestation report on internal control over financial reporting.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Venator Materials PLC.

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Venator Materials PLC and subsidiaries (the "Company") as of December 31, 2019, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control — Integrated Framework (2013) issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2019, of the Company and our report dated March 12, 2020 expressed an unqualified opinion on those financial statements.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, the Company has changed its method of accounting for leases in 2019 due to adoption of FASB ASC Topic 842, *Leases,* using the modified retrospective approach.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ Deloitte LLP
Leeds, United Kingdom

March 12, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Venator Materials PLC.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Venator Materials PLC and subsidiaries (the "Company") as of December 31, 2019 and 2018, the related consolidated and combined statements of operations, comprehensive (loss) income, equity, and cash flows, for each of the two years in the period ended December 31, 2019, and the related notes and the schedule listed in the Index at Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 12, 2020, expressed an unqualified opinion on the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the financial statements, the Company has changed its method of accounting for leases in 2019 due to adoption of FASB ASC Topic 842, *Leases,* using the modified retrospective approach.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 financial statements.

Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company’s internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company’s internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company’s assets that could have a material effect on the financial statements.

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

/s/ Deloitte LLP
Leeds, United Kingdom

March 12, 2020

We have served as the Company's auditor since 2018.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Venator Materials PLC

Opinion on the Financial Statements

We have audited the accompanying consolidated and combined statements of operations, comprehensive income, equity, and cash flows of Venator Materials PLC and subsidiaries (the "Company") for the year ended December 31, 2017, and the related notes listed in the Index for Item 8 and Schedule II – Valuation and Qualifying Accounts included in Item 15 (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the results of the Company's operations and its cash flows for the year ended December 31, 2017, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the 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 financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provide a reasonable basis for our opinion.

Emphasis of a Matter

As discussed in Note 1 to the financial statements, the financial statements include allocations of direct and indirect corporate expenses from Huntsman Corporation through the date of separation and are presented on a stand-alone basis as if Venator's operations had been conducted independently from Huntsman Corporation; however, prior to Separation, Venator did not operate as a separate, stand-alone entity for the period presented and, as such, the financial statements may not be fully indicative of Venator's results of operations and cash flows as an unaffiliated company from Huntsman Corporation.

/s/ DELOITTE & TOUCHE LLP

Houston, Texas
February 23, 2018

We began serving as the Company's auditor in 2016. In 2018, we became the predecessor auditor.

VENATOR MATERIALS PLC AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(In millions, except par value)	December 31, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents[a]	$ 55	$ 165
Accounts receivable (net of allowance for doubtful accounts of $4 and $5, respectively)	321	351
Inventories[a]	513	538
Prepaid expenses	21	20
Other current assets	67	51
Total current assets	**977**	**1,125**
Property, plant and equipment, net[a]	989	994
Operating lease right-of-use assets[a]	43	—
Intangible assets, net[a]	21	16
Investment in unconsolidated affiliates[a]	92	83
Deferred income taxes	33	178
Other noncurrent assets	110	89
Total assets	**$ 2,265**	**$ 2,485**
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable[a]	$ 334	$ 382
Accounts payable to affiliates	17	18
Accrued liabilities[a]	116	135
Current operating lease liability[a]	8	—
Current portion of debt[a]	13	8
Total current liabilities	**488**	**543**
Long-term debt	737	740
Operating lease liability[a]	37	—
Other noncurrent liabilities	300	313
Noncurrent payable to affiliates	30	34
Total liabilities	**1,592**	**1,630**
Commitments and contingencies (Notes 23 and 24)		
Equity		
Ordinary shares $0.001 par value, 200 shares authorized, each, 107 and 106 issued and outstanding, respectively	—	—
Additional paid-in capital	1,322	1,316
Retained deficit	(271)	(96)
Accumulated other comprehensive loss	(385)	(373)
Total Venator Materials PLC shareholders' equity	**666**	**847**
Noncontrolling interest in subsidiaries	7	8
Total equity	**673**	**855**
Total liabilities and equity	**$ 2,265**	**$ 2,485**

(a) At December 31, 2019 and December 31, 2018, the following amounts from consolidated variable interest entities are included in the respective balance sheet captions above: $2 and $5 of cash and cash equivalents; $4 and $5 of accounts receivable, net; $2 and $1 of inventories; $5 each of property, plant and equipment, net; $1 and nil of operating lease right-of-use assets; $11 and $14 of intangible assets, net; $1 each of accounts payable; $3 and $4 of accrued liabilities; $1 and nil of operating lease liabilities; and nil and $2 of current portion of debt. See "Note 9. Variable Interest Entities."

See notes to consolidated and combined financial statements.

VENATOR MATERIALS PLC AND SUBSIDIARIES
CONSOLIDATED AND COMBINED STATEMENTS OF OPERATIONS

(Dollars in millions, except per share amounts)	Year ended December 31, 2019	2018	2017
Trade sales, services and fees, net	**$ 2,130**	**$ 2,265**	**$ 2,209**
Cost of goods sold	**1,892**	**1,550**	**1,744**
Operating expenses:			
Selling, general and administrative (includes corporate allocations from Huntsman of nil, nil and $62, respectively)	182	212	216
Restructuring, impairment and plant closing and transition costs	33	628	52
Other operating expense, net	10	6	10
Total operating expenses	**225**	**846**	**278**
Operating income (loss)	**13**	**(131)**	**187**
Interest expense	(53)	(53)	(100)
Interest income	12	13	60
Other income, net	8	6	39
(Loss) income from continuing operations before income taxes	**(20)**	**(165)**	**186**
Income tax (expense) benefit	(150)	8	(50)
(Loss) income from continuing operations	**(170)**	**(157)**	**136**
Income from discontinued operations, net of tax	—	—	8
Net (loss) income	**(170)**	**(157)**	**144**
Net income attributable to noncontrolling interests	(5)	(6)	(10)
Net (loss) income attributable to Venator	**$ (175)**	**$ (163)**	**$ 134**
Basic (losses) earnings per share:			
(Loss) income from continuing operations attributable to Venator Materials PLC ordinary shareholders	$ (1.64)	$ (1.53)	$ 1.19
Income from discontinued operations attributable to Venator Materials PLC ordinary shareholders	—	—	0.07
Net (loss) income attributable to Venator Materials PLC ordinary shareholders	**$ (1.64)**	**$ (1.53)**	**$ 1.26**
Diluted (losses) earnings per share:			
(Loss) income from continuing operations attributable to Venator Materials PLC ordinary shareholders	$ (1.64)	$ (1.53)	$ 1.18
Income from discontinued operations attributable to Venator Materials PLC ordinary shareholders	—	—	0.08
Net (loss) income attributable to Venator Materials PLC ordinary shareholders	**$ (1.64)**	**$ (1.53)**	**$ 1.26**

See notes to consolidated and combined financial statements.

VENATOR MATERIALS PLC AND SUBSIDIARIES
CONSOLIDATED AND COMBINED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

(Dollars in millions)	Year ended December 31, 2019	2018	2017
Net (loss) income	**$ (170)**	**$ (157)**	**$ 144**
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustment	(1)	(90)	106
Pension and other postretirement benefits adjustments	(17)	(11)	39
Hedging instruments	6	11	(5)
Other comprehensive (loss) income, net of tax	**(12)**	**(90)**	**140**
Comprehensive (loss) income	**(182)**	**(247)**	**284**
Comprehensive income attributable to noncontrolling interest	(5)	(6)	(10)
Comprehensive (loss) income attributable to Venator	**$ (187)**	**$ (253)**	**$ 274**

See notes to consolidated and combined financial statements.

VENATOR MATERIALS PLC AND SUBSIDIARIES
CONSOLIDATED AND COMBINED STATEMENTS OF EQUITY

	Total Venator Materials PLC Equity							
	Ordinary Shares		Parent's Net Investment and Advances	Additional Paid-In Capital	Retained (Deficit) Earnings	Accumulated Other Comprehensive Loss	Noncontrolling Interest in Subsidiaries	Total
(Dollars in millions)	Shares	Amount						
Balance, January 1, 2017	**—**	**$ —**	**$ 588**	**$ —**	**$ —**	**$ (423)**	**$ 12**	**$ 177**
Net income	—	—	67	—	67	—	10	144
Net changes in other comprehensive loss	—	—	—	—	—	140	—	140
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(12)	(12)
Net changes in parent’s net investment and advances	—	—	653	—	—	—	—	653
Conversion of parent's net investment and advances to paid-in capital	106	—	(1,308)	1,308	—	—	—	—
Activity related to stock plans	—	—	—	3	—	—	—	3
Balance, December 31, 2017	**106**	**$ —**	**$ —**	**$ 1,311**	**$ 67**	**$ (283)**	**$ 10**	**$ 1,105**
Net (loss) income	—	—	—	—	(163)	—	6	(157)
Net changes in other comprehensive loss	—	—	—	—	—	(90)	—	(90)
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(8)	(8)
Activity related to stock plans	—	—	—	5	—	—	—	5
Balance, December 31, 2018	**106**	**$ —**	**$ —**	**$ 1,316**	**$ (96)**	**$ (373)**	**$ 8**	**$ 855**
Net (loss) income	—	—	—	—	(175)	—	5	(170)
Net changes in other comprehensive loss	—	—	—	—	—	(12)	—	(12)
Dividends paid to noncontrolling interests	—	—	—	—	—	—	(6)	(6)
Activity related to stock plans	1	—	—	6	—	—	—	6
Balance, December 31, 2019	**107**	**$ —**	**$ —**	**$ 1,322**	**$ (271)**	**$ (385)**	**$ 7**	**$ 673**

See notes to consolidated and combined financial statements.

VENATOR MATERIALS PLC AND SUBSIDIARIES
CONSOLIDATED AND COMBINED STATEMENTS OF CASH FLOWS

(Dollars in millions)	Year ended December 31, 2019	2018	2017
Operating Activities:			
Net (loss) income	$ (170)	$ (157)	$ 144
Income from discontinued operations, net of tax	—	—	(8)
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	110	132	127
Deferred income taxes	143	(19)	19
Loss on disposal of assets	—	—	1
Noncash restructuring and impairment charges	8	591	7
Insurance proceeds for business interruption, net of gain on recovery	—	—	21
Noncash interest	3	1	18
Noncash loss (gain) on foreign currency transactions	4	(6)	1
Other, net	2	9	13
Changes in assets and liabilities:			
Accounts receivable	22	25	(24)
Inventories	21	(103)	8
Prepaid expenses	(1)	(1)	(2)
Other current assets	(3)	(13)	(1)
Other noncurrent assets	(33)	(49)	9
Accounts payable	(29)	(27)	51
Accrued liabilities	(12)	(96)	13
Other noncurrent liabilities	(32)	(5)	(60)
Net cash provided by operating activities from continuing operations	**33**	**282**	**337**
Net cash provided by operating activities from discontinued operations	—	—	1
Net cash provided by operating activities	**33**	**282**	**338**
Investing Activities:			
Capital expenditures	(152)	(326)	(197)
Insurance proceeds for recovery of property damage	—	—	76
Cash received from unconsolidated affiliates	41	34	44
Investment in unconsolidated affiliates	(50)	(30)	(50)
Cash received from notes receivable	12	—	—
Repayment of government grant	—	—	(5)
Net payments from affiliates	—	—	121
Other, net	(1)	1	—
Net cash used in investing activities from continuing operations	**(150)**	**(321)**	**(11)**
Net cash used in investing activities from discontinued operations	—	—	(1)
Net cash used in investing activities	**(150)**	**(321)**	**(12)**
Financing Activities:			
(Payments on) proceeds from short-term debt	(2)	—	1
Net borrowing (repayments) on notes payable	7	(6)	—
Principal payments on long-term debt	(6)	(4)	(12)
Proceeds from issuance of long-term debt	—	—	750

Proceeds from the termination of cross-currency swap contracts	15	—	—
Dividends paid to noncontrolling interests	(6)	(8)	(12)
Net repayments from affiliate accounts payable	—	—	(100)
Final settlement of affiliate balances at separation	—	—	(732)
Debt issuance costs paid	(1)	—	(18)
Net cash provided by (used in) financing activities from continuing operations	**7**	**(18)**	**(123)**
Net cash used in financing activities from discontinued operations	—	—	—
Net cash provided by (used in) financing activities	**7**	**(18)**	**(123)**
Effect of exchange rate changes on cash	—	(16)	5
(Decrease) increase in cash and cash equivalents, including discontinued operations	(110)	(73)	208
Cash and cash equivalents at beginning of period, including discontinued operations	165	238	30
Cash and cash equivalents at end of period	**$ 55**	**$ 165**	**$ 238**
Supplemental cash flow information:			
Cash paid for interest	$ 41	$ 46	$ 28
Cash paid for income taxes	8	34	21
Noncash investing and financing activities:			
The amount of capital expenditures in accounts payable	$ 46	$ 70	$ 39
Received noncash settlements of notes receivable from affiliates	—	—	57
Settled noncash long-term debt to affiliates	—	—	792

See notes to consolidated and combined financial statements.

NOTE 1. DESCRIPTION OF BUSINESS, RECENT DEVELOPMENTS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Description of Business

For convenience in this report, the terms "our," "us," "we" or "Venator" may be used to refer to Venator Materials PLC and, unless the context otherwise requires, its subsidiaries.

Venator became an independent publicly traded company following our IPO and separation from Huntsman Corporation in August 2017. Venator operates in two segments: Titanium Dioxide and Performance Additives. The Titanium Dioxide segment primarily manufactures and sells TiO_2, and operates seven TiO_2 manufacturing facilities across the globe, excluding our plant in Pori, Finland, ongoing closure of which was announced in the third quarter of 2018. The Performance Additives segment manufactures and sells functional additives, color pigments, timber treatment and water treatment chemicals. This segment operates 16 manufacturing and processing facilities globally.

Basis of Presentation

Venator's consolidated and combined financial statements have been prepared in accordance with U.S. GAAP. The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Prior to our separation, Huntsman performed certain administrative and other services for Venator. These expenses were incurred by Huntsman and allocated to Venator based on either specific services provided or based on Venator's total revenues, total assets, and total employees in proportion to those of Huntsman. Management believes that such expense allocations were reasonable. Corporate allocations include allocated selling, general, and administrative expenses of $62 million for the year ended December 31, 2017.

In the notes to consolidated and combined financial statements, all dollar and share amounts in tabulations are in millions of dollars and shares, respectively, unless otherwise indicated.

Summary of Significant Accounting Policies

Asset Retirement Obligations

Venator accrues for asset retirement obligations, which consist primarily of asbestos abatement costs, demolition and removal costs, leasehold remediation costs and landfill closure costs, in the period in which the obligations are incurred. Asset retirement obligations are initially recorded at estimated fair value. When the related liability is initially recorded, Venator capitalizes the cost by increasing the carrying amount of the related long-lived asset. Over time, the liability is accreted to its estimated settlement value and the capitalized cost is depreciated over the useful life of the related asset. Upon settlement of the liability, Venator will recognize a gain or loss for any difference between the settlement amount and the liability recorded. See "Note 14. Asset Retirement Obligations."

Carrying Value of Long-Lived Assets

Venator reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of these assets may not be recoverable. Recoverability is based upon current and anticipated undiscounted cash flows, and Venator recognizes an impairment when such estimated cash flows are less than the carrying value of the asset. Measurement of the amount of impairment, if any, is based upon the difference between carrying value and fair value. Fair value is generally estimated by discounting estimated future cash flows using a discount rate commensurate with the risks involved.

Cash and Cash Equivalents

Venator considers cash in bank accounts and short-term highly liquid investments with remaining maturities of three months or less at the date of purchase to be cash and cash equivalents.

Prior to the separation, Venator participated in Huntsman International's cash pooling program. The cash pooling program was an intercompany borrowing arrangement designed to reduce Venator's dependence on external short-term borrowing. See "Note 16. Debt."

Cost of Goods Sold

Venator classifies the costs of manufacturing and distributing its products as cost of goods sold. Manufacturing costs include variable costs, primarily raw materials and energy, and fixed expenses directly associated with production. Manufacturing costs include, among other things, plant site operating costs and overhead costs (including depreciation), production planning and logistics costs, repair and maintenance costs, plant site purchasing costs, and engineering and technical support costs. Distribution, freight, and warehousing costs are also included in cost of goods sold.

Derivative Transactions and Hedging Activities

All derivatives are recorded on Venator's consolidated balance sheets at fair value. Gains and losses on derivative instruments designated as cash flow hedges are recorded in accumulated other comprehensive income (loss) and recognized in income (expense) when the hedged item impacts earnings. See "Note 18. Derivative Instruments and Hedging Activities."

Environmental Expenditures

Environmental-related restoration and remediation costs are recorded as liabilities when site restoration and environmental remediation and cleanup obligations are either known or considered probable and the related costs can be reasonably estimated. Other environmental expenditures that are principally maintenance or preventative in nature are recorded when expended and incurred and are expensed or capitalized as appropriate. See "Note 24. Environmental, Health and Safety Matters."

Financial Instruments

The carrying amounts reported in the balance sheets for cash and cash equivalents, accounts receivable, amounts receivable from affiliates, accounts payable, current portion of amounts payable to affiliates, and accrued liabilities approximate their fair value because of the immediate or short-term maturity of these financial instruments. The fair value of non-qualified employee benefit plan investments is estimated using prevailing market prices. The estimated fair values of Venator's long-term debt are based on quoted market prices for the identical liability when traded as an asset in an active market.

Foreign Currency Translation

Venator is domiciled in the U.K. which uses the British pound sterling, however, we report in U.S. dollars. The accounts of Venator's operating subsidiaries outside of the U.S. consider the functional currency to be the currency of the economic environment in which they operate. Accordingly, assets and liabilities are translated at rates prevailing at the balance sheet date. Revenues, expenses, gains and losses are translated at a weighted average rate for the period. Cumulative translation adjustments are recorded to equity as a component of accumulated other comprehensive loss.

Foreign currency transaction gains and losses are recorded in other expense (income), net in the consolidated and combined statements of operations and were net losses of $4 million, net gains of $6 million, and net losses of $1 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

Income Taxes

Venator uses the asset and liability method of accounting for income taxes. Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial and tax reporting purposes. Venator evaluates deferred tax assets to determine whether it is more likely than not that they will be realized. Valuation allowances are reviewed on a tax jurisdiction basis to analyze whether there is sufficient positive or negative evidence to support a change in judgment about the realizability of the related deferred tax assets for each jurisdiction. These conclusions require significant judgment. In evaluating the objective evidence that historical results provide, Venator considers the cyclicality of Venator and cumulative income or losses during the applicable period. Cumulative losses incurred over the period limits Venator's ability to consider other subjective evidence such as Venator's projections for the future. Changes in expected future income in applicable tax jurisdictions could affect the realization of deferred tax assets in those jurisdictions.

Venator is comprised of operations in various tax jurisdictions. Prior to the separation, Venator's operations were included in Huntsman's financial results in different legal forms, including but not limited to wholly-owned subsidiaries for

which Venator was the sole business, components of legal entities in which Venator operated in conjunction with other Huntsman businesses and variable interest entities in which Venator is the primary beneficiary.

The consolidated and combined financial statements have been prepared from Huntsman's historical accounting records through the separation and are presented on a stand-alone basis as if Venator's operations had been conducted separately from Huntsman; however, Venator did not operate as a separate, stand-alone entity for the periods presented prior to the separation and, as such, the tax results and attributes presented prior to the separation in these consolidated and combined financial statements would not be indicative of the income tax expense or benefit, income tax related assets and liabilities and cash taxes had Venator been a stand-alone company.

Prior to the separation, the consolidated and combined financial statements were prepared under the anticipated legal structure of Venator such that the historical results of legal entities are presented as follows: The historical tax results of legal entities which file separate tax returns in their respective tax jurisdictions and which need no restructuring before being contributed are included without adjustment, including the inclusion of any currently held subsidiaries. The historical tax results of legal entities in which Venator operated in conjunction with other Huntsman businesses for which new legal entities were formed for Venator operations are presented on a stand-alone basis as if their operations had been conducted separately from Huntsman and any adjustments to current taxes payable have been treated as adjustments to parent's net investment and advances. The historical tax results of legal entities in which Venator operated in conjunction with other Huntsman businesses for which the Huntsman business were transferred out have been presented without adjustment, including the historical results of the Huntsman businesses which are unrelated to Venator operating businesses.

Prior to the separation, pursuant to tax-sharing agreements, subsidiaries of Huntsman were charged or credited, in general, with an amount of income taxes as if they filed separate income tax returns. Adjustments to current income taxes payable by Venator have been treated as adjustments to parent's net investment and advances.

Prior to the separation, Venator included the U.S. Titanium Dioxide and Performance Additives subsidiaries of Huntsman International which were treated for U.S. tax purposes as divisions of Huntsman International. Huntsman International was included in the U.S. consolidated tax return of its parent, Huntsman. The U.S. tax expense, deferred tax assets, and deferred tax liabilities in these financial statements do not necessarily reflect the tax expense, deferred tax assets, or deferred tax liabilities that would have resulted had Venator not been operated as a U.S. income tax branch structure in combination with Huntsman. A 2% U.S. state income tax rate (net of federal benefit) was estimated for Venator based upon the estimated apportionment factors and actual income tax rates in state tax jurisdictions where it had nexus. U.S. foreign tax credits relating to taxes paid by non-U.S. business entities were generated and utilized by Huntsman. On a separate entity basis, these foreign tax credits would not have been generated or utilized, therefore, no additional allocation of Huntsman foreign tax credits was necessary. Additionally, Huntsman had no U.S. net operating loss carryforward amounts ("NOLs") or similar attributes to allocate. Venator believes this methodology is reasonable and complies with Staff Accounting Bulletin Topic 1B, *Allocation of Expenses and Related Disclosure in Financial Statements of Subsidiaries, Divisions or Lesser Business Components of Another Entity*.

Accounting for uncertainty in income taxes prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The application of income tax law is inherently complex. Venator is required to determine if an income tax position meets the criteria of more-likely-than-not to be realized based on the merits of the position under tax law, in order to recognize an income tax benefit. This requires Venator to make significant judgments regarding the merits of income tax positions and the application of income tax law. Additionally, if a tax position meets the recognition criteria of more-likely-than-not, Venator is required to make judgments and apply assumptions in order to measure the amount of the tax benefits to recognize. The judgments are based on the probability of the amount of tax benefits that would be realized if the tax position was challenged by the taxing authorities. Interpretations and guidance surrounding income tax laws and regulations change over time. As a consequence, changes in assumptions and judgments can materially affect amounts recognized in the consolidated and combined financial statements. See "Note 20. Income Taxes."

Intangible Assets

Intangible assets are stated at cost (fair value at the time of acquisition) and are amortized using the straight-line method over the estimated useful lives or the life of the related agreement as follows:

Patents, trademarks and technology	5 - 30 years
Other intangibles	5 - 15 years

Inventories

Inventories are stated at the lower of cost or market, with cost determined using the first-in, first-out and average costs methods for different components of inventory.

Legal Costs

Venator expenses legal costs, including those legal costs incurred in connection with a loss contingency, as incurred.

Property, Plant and Equipment

Property, plant and equipment is stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives or lease term as follows:

Buildings and leasehold improvements	5 - 50 years
Plant and equipment	3 - 30 years

Normal maintenance and repairs of plant and equipment are charged to expense as incurred. Renewals, betterments, and major repairs that significantly extend the useful life of the assets are capitalized and the assets replaced, if any, are retired.

Research and Development

Research and development costs are expensed as incurred and recorded in selling, general and administrative expense. Research and development costs charged to expense were $15 million, $17 million and $16 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

Revenue Recognition

Venator generates substantially all of its revenues through sales of inventory in the open market and via long-term supply agreements. Revenue is recognized when the performance obligations under the terms of our contracts are satisfied, at which point the control of the goods transfers to the customer, there is a present right to payment and legal title, and the risks and rewards of ownership have transferred to the customer. Revenues is measured as the amount of consideration we expect to receive in exchange for transferred goods.

Share-based Compensation

We measure the cost of employee services received in exchange for an award of equity instruments based on the grant-date fair value of the award. That cost will be recognized over the period during which the employee is required to provide services in exchange for the award.

Reclassification

Certain amounts in the consolidated and combined financial statements for 2017 have been reclassified to conform with the current presentation. These reclassifications were to record results of operations of other businesses of Huntsman to discontinued operations. See "Note 17. Discontinued Operations."

Earnings (Losses) Per Share

Basic earnings (losses) per share excludes dilution and is computed by dividing net income (loss) attributable to Venator Materials PLC ordinary shareholders by the weighted average number of shares outstanding during the period. Diluted earnings (losses) per share reflects all potential dilutive ordinary shares outstanding during the period and is computed by dividing net income (loss) attributable to Venator Materials PLC ordinary shareholders by the weighted average number of shares outstanding during the period increased by the number of additional shares that would have been outstanding as dilutive securities.

NOTE 2. RECENTLY ISSUED ACCOUNTING PRONOUNCEMENTS

Accounting Pronouncements Adopted During the Period

Effective January 1, 2019, we adopted Accounting Standards Update ("ASU") No. 2016-02, *Leases (Topic 842)* using the modified retrospective approach which applies the provisions of the standard at the effective date without adjusting the comparative periods presented. The adoption of this ASU did not result in a cumulative effect adjustment to the opening balance of retained earnings. This ASU requires substantially all leases to be recognized on the balance sheet as right-of-use assets ("ROU assets") and lease obligations. Additional qualitative and quantitative disclosures are also required. Adoption of the new standard resulted in the recording of an operating lease ROU asset of $47 million and a lease liability of $49 million. The adoption of this ASU did not have a material impact on our consolidated and combined statements of operations or cash flows. Our accounting for finance leases remained substantially unchanged.

We elected the following optional practical expedients allowed under the ASU: (i) we applied the package of practical expedients permitting entities not to reassess under the new standard our prior conclusions about lease identification, classification or initial direct costs for any leases existing prior to the effective date; (ii) we elected to account for lease and associated non-lease components as a single lease component for all asset classes with the exception of buildings and (iii) we do not recognize ROU assets and related lease obligations with lease terms of 12 months or less from the commencement date.

In February 2018, the Financial Accounting Standards Board ("FASB") issued ASU No. 2018-02, *Income Statement—Reporting Comprehensive Income (Topic 220)*. This standard provides an option to reclassify stranded tax effects within accumulated other comprehensive income (loss) to retained earnings due to the U.S. federal corporate income tax rate change in the Tax Cuts and Jobs Act of 2017 (the "Tax Act"). This standard is effective for interim and annual reporting periods beginning after December 15, 2018. The adoption of this ASU did not have a material impact on our consolidated and combined statements of comprehensive income.

Accounting Pronouncements Pending Adoption in Future Periods

In June 2016, the FASB issued ASU No. 2016-13, *Financial Instruments - Credit Losses (Topic 326), Measurement of Credit Losses on Financial Instruments.* The amendments in this ASU replace the incurred loss impairment methodology with a methodology that reflects expected credit losses. This update is intended to provide financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. The new standard is effective for fiscal years beginning after December 15, 2019, with early adoption permitted for fiscal years beginning after December 15, 2018. We have completed our assessment and we do not anticipate this will have a material impact on our consolidated and combined financial statements.

In August 2018, the FASB issued ASU No. 2018-14, *Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20)*. The amendments in this ASU add, remove, and clarify disclosure requirements related to defined benefit pension and other postretirement plans. This ASU eliminates the requirement to disclose the amounts in accumulated other comprehensive income expected to be recognized as part of net periodic benefit cost over the next year. The ASU also removes the disclosure requirements for the effects of a one-percentage-point change on the assumed health care costs and the effect of this change in rates on service cost, interest cost and the benefit obligation for postretirement health care benefits. This standard is effective for fiscal years ending after December 15, 2020, and must be applied on a retrospective basis. Since the ASU is related to disclosure requirements only, this adoption will not have a material impact on our consolidated and combined financial statements.

NOTE 3. LEASES

We have leases for warehouses, office space, land, office equipment, production equipment and automobiles. ROU assets and lease obligations are recognized at the lease commencement date based on the present value of lease payments over the lease term. We have elected to account for lease and associated non-lease components as a single lease component for all asset classes with the exception of buildings and we do not recognize ROU assets and related lease obligations with lease terms of 12 months or less from the commencement date. Operating lease ROU assets and liabilities are included in operating lease right-of-use assets, current operating lease liabilities, and operating lease liabilities on our consolidated balance sheet. Finance leases ROU assets are included in property, plant and equipment, net, while finance lease liabilities are included in long-term debt. As the implicit rate is not readily determinable in most of our lease arrangements, we use our incremental borrowing rate based on information available at the commencement date in order to determine the net present value of lease payments. We give consideration to our recent debt issuances as well as publicly available data for instruments with similar characteristics when calculating our incremental borrowing rates. We have lease agreements that contain lease and non-lease components.

We determine if an arrangement is a lease or contains a lease at inception. Certain leases contain renewal options that can extend the term of the lease for one year or more. Our leases have remaining lease terms of up to 92 years, some of which include options to extend the lease term for up to 20 years. Options are recognized as part of our ROU assets and lease liabilities when it is reasonably certain that we will extend that option. Sublease arrangements and leases with residual value guarantees, sale leaseback terms or material restrictive covenants, are immaterial. Lease payments include fixed and variable lease components. Variable components are derived from usage or market-based indices, such as the consumer price index.

The components of lease expense were as follows:

Lease Cost		**Year Ended December 31, 2019**
Operating lease cost	$	12
Finance lease cost:		
Amortization of right-of-use assets		1
Interest on lease liabilities		1
Short-term lease cost		1

Supplemental balance sheet information related to leases was as follows:

Leases		**As of December 31, 2019**
Assets		
Operating Lease Right-of-Use Assets	**$**	**43**
Finance Lease Right-of-Use Assets, at cost	$	14
Accumulated Depreciation		(5)
Finance Lease Right-of-Use Assets, net	**$**	**9**
Liabilities		
Operating Lease Obligation		
Current	$	8
Non-Current		37
Total Operating Lease Liabilities	**$**	**45**
Finance Lease Obligation		
Current	$	2
Non-Current		8
Total Finance Lease Liabilities	**$**	**10**

Cash paid for amounts included in the present value of operating lease liabilities were as follows:

Cash Flow Information		**Year Ended December 31, 2019**
Operating cash flows from operating leases	$	12
Operating cash flows from finance leases		1
Financing cash flows from finance leases		1

Lease Term and Discount Rate	As of December 31, 2019
Weighted average remaining lease term (years)	
Operating leases	14.0
Finance leases	5.9
Weighted average discount rate	
Operating leases	7.2 %
Financing leases	5.2 %

Maturities of lease liabilities were as follows:

December 31,	Operating Leases	Finance Leases	Total
2020	$ 11	$ 2	$ 13
2021	9	2	11
2022	7	1	8
2023	5	1	6
2024	4	1	5
After 2024	39	6	45
Total lease payments	$ 75	$ 13	$ 88
Less: Interest	30	3	33
Present value of lease liabilities	**$ 45**	**$ 10**	**$ 55**

Disclosures related to periods prior to adoption of the New Lease Standard

The total expense recorded under operating lease agreements in the consolidated and combined statements of operations was $16 million for the year ended December 31, 2018. Future minimum lease payments under noncancelable operating and capital leases as of December 31, 2018 were as follows:

December 31,	Operating Leases	Capital Leases
2019	$ 13	$ 1
2020	11	2
2021	9	1
2022	6	1
2023	4	1
Thereafter	40	7
Total	**$ 83**	**$ 13**
Less: Amounts representing interest		3
Present value of minimum lease payments		**$ 10**
Less: Current portion of capital leases		1
Long-term portion of capital leases		**$ 9**

NOTE 4. REVENUE

We account for revenues from contracts with customers under ASC 606, *Revenue from Contracts with Customers*, which became effective January 1, 2018. As part of the adoption of ASC 606, we applied the new standard on a modified retrospective basis analyzing open contracts as of January 1, 2018. However, no cumulative effect adjustment to retained earnings was necessary as no revenue recognition differences were identified when comparing the revenue recognition criteria under ASC 606 to previous requirements.

We generate substantially all of our revenues through sales of inventory in the open market and via long-term supply agreements. At contract inception, we assess the goods promised in our contracts and identify a performance obligation for each

promise to transfer to the customer a good that is distinct. In substantially all cases, a contract has a single performance obligation to deliver a promised good to the customer. Revenue is recognized when the performance obligations under the terms of our contracts are satisfied. Generally, this occurs at the time of shipping, at which point the control of the goods transfers to the customer. Further, in determining whether control has transferred, we consider if there is a present right to payment and legal title, along with risks and rewards of ownership having transferred to the customer. Revenue is measured as the amount of consideration we expect to receive in exchange for transferred goods. Sales, value-added, and other taxes we collect concurrent with revenue-producing activities are excluded from revenue. Incidental items that are immaterial in the context of the contract are recognized as expense. We have elected to account for all shipping and handling activities as fulfillment costs. We recognize these costs for shipping and handling when control over products have transferred to the customer as an expense in cost of goods sold. We have also elected to expense commissions when incurred as the amortization period of the commission asset that we would have otherwise recognized is less than one year.

The following table disaggregates our revenue by major geographical region for the years ended December 31, 2019, 2018 and 2017:

	2019			2018			2017		
	Titanium Dioxide	Performance Additives	Total	Titanium Dioxide	Performance Additives	Total	Titanium Dioxide	Performance Additives	Total
Europe	$ 786	$ 182	$ 968	$ 828	$ 206	$ 1,034	$ 794	$ 194	$ 988
North America	320	226	546	296	277	573	281	301	582
Asia	343	87	430	368	98	466	349	97	446
Other	165	21	186	174	18	192	180	13	193
Total	**$ 1,614**	**$ 516**	**$ 2,130**	**$ 1,666**	**$ 599**	**$ 2,265**	**$ 1,604**	**$ 605**	**$ 2,209**

The following table disaggregates our revenue by major product line for the years ended December 31, 2019, 2018 and 2017:

	2019			2018			2017		
	Titanium Dioxide	Performance Additives	Total	Titanium Dioxide	Performance Additives	Total	Titanium Dioxide	Performance Additives	Total
TiO_2	$ 1,614	$ —	$ 1,614	$ 1,666	$ —	$ 1,666	$ 1,604	$ —	$ 1,604
Color Pigments	—	258	258	—	294	294	—	302	302
Functional	—	118	118	—	140	140	—	130	130
Timber Treatment	—	118	118	—	142	142	—	151	151
Water Treatment	—	22	22	—	23	23	—	22	22
Total Revenues	**$ 1,614**	**$ 516**	**$ 2,130**	**$ 1,666**	**$ 599**	**$ 2,265**	**$ 1,604**	**$ 605**	**$ 2,209**

The amount of consideration we receive and revenue we recognize is based upon the terms stated in the sales contract, which may contain variable consideration such as discounts or rebates. We also give our customers a limited right to return products that have been damaged, do not satisfy their specifications, or other specific reasons. Payment terms on product sales to our customers typically range from 30 days to 90 days. Although certain exceptions exist where standard payment terms are exceeded, these instances are infrequent and do not exceed one year. Discounts are allowed for some customers for early payment or if a certain volume is met. As our standard payment terms are less than one year, we have elected to not assess whether a contract has a significant financing component. In order to estimate the applicable variable consideration at the time of revenue recognition, we use historical and current trend information to estimate the amount of discounts, rebates, or returns to which customers are likely to be entitled. Historically, actual discount or rebate adjustments relative to those estimated and accrued at the point of which revenue is recognized have not materially differed.

NOTE 5. EARNINGS (LOSSES) PER SHARE

Basic earnings (losses) per share excludes dilution and is computed by dividing net (loss) income attributable to Venator ordinary shareholders by the weighted average number of shares outstanding during the period. Diluted earnings (losses) per share reflects all potential dilutive ordinary shares outstanding during the period and is computed by dividing net income (loss) available to Venator ordinary shareholders by the weighted average number of shares outstanding during the period increased by the number of additional shares that would have been outstanding as dilutive securities. For the periods prior to our IPO, the average number of ordinary shares outstanding used to calculate basic and diluted earnings (losses) per share was based on the ordinary shares that were outstanding at the time of our IPO.

Basic and diluted earnings (losses) per share is determined using the following information:

	For the years ended December 31,		
	2019	2018	2017
Numerator:			
Basic and diluted (loss) income from continuing operations:			
(Loss) income from continuing operations attributable to Venator Materials PLC ordinary shareholders	$ (175)	$ (163)	$ 126
Basic and diluted income from discontinued operations:			
Income from discontinued operations attributable to Venator Materials PLC ordinary shareholders	$ —	$ —	$ 8
Basic and diluted net (loss) income:			
Net (loss) income attributable to Venator Materials PLC ordinary shareholders	$ (175)	$ (163)	$ 134
Denominator:			
Weighted average shares outstanding	106.5	106.4	106.3
Dilutive share-based awards	—	0.3	0.4
Total weighted average shares outstanding, including dilutive shares	106.5	106.7	106.7

The number of anti-dilutive employee share-based awards excluded from the computation of diluted EPS was 2 million for the year ended December 31, 2019, 1 million for the year ended December 31, 2018 and not significant for the year ended December 31, 2017.

NOTE 6. INVENTORIES

Inventories are stated at the lower of cost or market, with cost determined using first-in, first-out and average cost methods for different components of inventory. Inventories at December 31, 2019 and December 31, 2018 consisted of the following:

	December 31,	
	2019	2018
Raw materials and supplies	$ 166	$ 165
Work in process	49	56
Finished goods	298	317
Total	**$ 513**	**$ 538**

NOTE 7. PROPERTY, PLANT AND EQUIPMENT

The cost and accumulated depreciation of property, plant and equipment at December 31, 2019 and December 31, 2018 were as follows:

	December 31,	
	2019	2018
Land and land improvements	$ 97	$ 98
Buildings	241	236
Plant and equipment	1,974	1,926
Construction in progress	180	144
Total	**2,492**	**2,404**
Less accumulated depreciation	(1,503)	(1,410)
Property, plant, and equipment—net	**$ 989**	**$ 994**

Depreciation expense for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 was $106 million, $129 million and $124 million, respectively.

NOTE 8. INVESTMENT IN UNCONSOLIDATED AFFILIATES

Investments in companies in which we exercise significant influence, but do not control, are accounted for using the equity method.

Tioxide Americas Inc., a wholly-owned subsidiary of Venator, has a 50% interest in LPC. Located in Lake Charles, Louisiana, LPC is a joint venture that produces TiO_2 for the exclusive benefit of each of the joint venture partners. In accordance with the joint venture agreement, this plant operates on a break-even basis. This investment is accounted for using the equity method and totaled $92 million and $83 million at December 31, 2019 and December 31, 2018, respectively.

NOTE 9. VARIABLE INTEREST ENTITIES

We evaluate our investments and transactions to identify variable interest entities for which we are the primary beneficiary. We hold a variable interest in the following joint ventures for which we are the primary beneficiary:

- Pacific Iron Products Sdn Bhd is our 50%-owned joint venture with Coogee Chemicals that manufactures products for Venator. It was determined that the activities that most significantly impact its economic performance are raw material supply, manufacturing and sales. In this joint venture we supply all the raw materials through a fixed cost supply contract, operate the manufacturing facility and market the products of the joint venture to customers. Through a fixed price raw materials supply contract with the joint venture we are exposed to the risk related to the fluctuation of raw material pricing. As a result, we concluded that we are the primary beneficiary.
- Viance is our 50%-owned joint venture with DuPont. Viance markets timber treatment products for Venator. Our joint venture interest in Viance was acquired as part of the Rockwood acquisition. It was determined that the activity that most significantly impacts its economic performance is manufacturing. The joint venture sources all of its products through a contract manufacturing arrangement at our Harrisburg, North Carolina facility and we bear a disproportionate amount of working capital risk of loss due to the supply arrangement whereby we control manufacturing on Viance's behalf. As a result, we concluded that we are the primary beneficiary and began consolidating Viance upon the Rockwood acquisition on October 1, 2014.

Creditors of these entities have no recourse to Venator's general credit. As the primary beneficiary of these variable interest entities at December 31, 2019, the joint ventures' assets, liabilities and results of operations are included in Venator's consolidated and combined financial statements.

The revenues, income from continuing operations before income taxes and net cash provided by operating activities for our variable interest entities are as follows:

	Year ended December 31,		
	2019	2018	2017
Revenues	$ 93	$ 117	$ 127
Income from continuing operations before income taxes	10	13	21
Net cash provided by operating activities	12	16	25

NOTE 10. INTANGIBLE ASSETS

The cost and accumulated amortization of intangible assets at December 31, 2019 and December 31, 2018 were as follows:

	December 31, 2019			December 31, 2018		
	Carrying Amount	Accumulated Amortization	Net	Carrying Amount	Accumulated Amortization	Net
Patents, trademarks and technology	$ 27	$ 10	$ 17	$ 18	$ 9	$ 9
Other intangibles	14	10	4	14	7	7
Total	**$ 41**	**$ 20**	**$ 21**	**$ 32**	**$ 16**	**$ 16**

Amortization expense was $4 million, $3 million and $3 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

Our estimated future amortization expense for intangible assets over the next five years is as follows:

Year ending December 31,	Amount
2020	$ 4
2021	5
2022	4
2023	4
2024	1

NOTE 11. OTHER NONCURRENT ASSETS

Other noncurrent assets at December 31, 2019 and December 31, 2018 consisted of the following:

	December 31,	
	2019	2018
Pension assets	79	46
Spare parts inventory	$ 27	$ 25
Debt issuance costs	4	4
Notes receivable	—	10
Other	—	4
Total	**$ 110**	**$ 89**

NOTE 12. ACCRUED LIABILITIES

Accrued liabilities at December 31, 2019 and December 31, 2018 consisted of the following:

	December 31,	
	2019	2018
Payroll and benefits	$ 49	$ 49
Rebate accrual	19	19
Restructuring and plant closing costs	9	18
Asset retirement obligation	3	10
Pension liabilities	1	1
Taxes other than income taxes	—	2
Other miscellaneous accruals	35	36
Total	**$ 116**	**$ 135**

NOTE 13. RESTRUCTURING, IMPAIRMENT AND PLANT CLOSING AND TRANSITION COSTS

Venator has initiated various restructuring programs in an effort to reduce operating costs and maximize operating efficiency.

Restructuring Activities

Company-wide Restructuring

In January 2019, we implemented a plan to reduce costs and improve efficiency of certain company-wide functions. As part of the program, we recorded restructuring expense of $5 million for the year ended December 31, 2019, all of which related to workforce reductions. We expect that additional costs related to this plan will be immaterial.

Titanium Dioxide Segment

In July 2016, we implemented a plan to close our Umbogintwini, South Africa Titanium Dioxide manufacturing facility. As part of the program, we recorded restructuring expense of $1 million, $3 million and $4 million for the years ended December 31, 2019, 2018 and 2017, respectively, all of which related to plant shutdown costs. We expect further charges as part of this program to be immaterial.

In March 2017, we implemented a plan to close the white end finishing and packaging operation of our Titanium Dioxide manufacturing facility at our Calais, France site. The announced plan follows the 2015 closure of the black end manufacturing operations and would result in the closure of the entire facility. As part of the program, we recorded restructuring expense of $8 million, $15 million and $34 million for the years ended December 31, 2019, 2018 and 2017, respectively, all of which related to plant shutdown costs. We expect to incur additional plant shutdown costs of approximately $13 million through 2023.

In September 2018, we implemented a plan to close our Pori, Finland Titanium Dioxide manufacturing facility. As part of the program, we recorded restructuring expense of $17 million for the year ended December 31, 2019, of which $20 million of accelerated depreciation, $6 million related to plant shutdown costs, and $5 million related to employee benefits was partly offset by a gain of $14 million related to early settlement of contractual obligations. This restructuring expense consists of $11 million of cash expense and a net noncash expense of $6 million. We expect to incur additional charges of approximately $101 million through the end of 2024, of which $15 million relates to accelerated depreciation, $82 million relates to plant shut down costs, $2 million relates to other employee costs and $2 million related to the write off of other assets. Future charges consist of $17 million of noncash costs and $84 million of cash costs.

We recorded restructuring expense of $465 million for the year ended December 31, 2018, of which $417 million was related to accelerated depreciation, $39 million was related to employee benefits, and $9 million was related to the write-off of other assets. This restructuring expense consisted of $39 million of cash and $426 million related of noncash charges.

Performance Additives Segment

In September 2017, we implemented a plan to close our Performance Additives manufacturing facilities in St. Louis, Missouri and Easton, Pennsylvania. As part of the program, we recorded restructuring expense of nil, $16 million and $7 million for the years ended December 31, 2019, 2018 and 2017, respectively. We do not expect to incur any additional charges as part of this program.

In May 2018, we implemented a plan to close portions of our Performance Additives manufacturing facility in Augusta, Georgia. As part of the program, we recorded restructuring expense of nil and $129 million for the years ended December 31, 2019 and 2018, respectively. We do not expect to incur any additional charges as part of this program.

In August 2018, we implemented a plan to close our Performance Additives manufacturing site in Beltsville, Maryland. As part of the program, we recorded restructuring expense of $2 million and nil for the year ended December 31, 2019 and 2018, respectively, all of which related to accelerated depreciation. We do not expect to incur any additional charges as part of this program.

Accrued Restructuring and Plant Closing and Transition Costs

As of December 31, 2019, December 31, 2018 and December 31, 2017, accrued restructuring and plant closing costs by type of cost and initiative consisted of the following:

	Workforce reductions[1]	Other restructuring costs	Total[2]
Accrued liabilities as of January 1, 2017	**$ 21**	**$ —**	**$ 21**
2017 charges for 2016 and prior initiatives	—	8	8
2017 charges for 2017 initiatives	33	4	37
Reversal of reserves no longer required	(1)	—	(1)
2017 payments for 2016 and prior initiatives	(12)	(8)	(20)
2017 payments for 2017 initiatives	(8)	(4)	(12)
Foreign currency effect on liability balance	1	—	1
Accrued liabilities as of December 31, 2017	**$ 34**	**$ —**	**$ 34**
2018 charges for 2017 and prior initiatives	2	16	18
2018 charges for 2018 initiatives	17	2	19
Reversal of reserves no longer required	—	—	—
2018 payments for 2017 and prior initiatives	(17)	(16)	(33)
2018 payments for 2018 initiatives	(2)	(2)	(4)
Foreign currency effect on liability balance	(2)	—	(2)
Accrued liabilities as of December 31, 2018	**$ 32**	**$ —**	**$ 32**
2019 charges for 2018 and prior initiatives	7	13	20
2019 charges for 2019 initiatives	5	—	5
2019 payments for 2018 and prior initiatives	(24)	(12)	(36)
2019 payments for 2019 initiatives	(5)	—	(5)
Accrued liabilities as of December 31, 2019	**$ 15**	**$ 1**	**$ 16**

(1) The total workforce reduction reserves of $15 million relate to the termination of 315 positions, of which 134 positions had been terminated but not yet paid as of December 31, 2019.

(2) Accrued liabilities remaining at December 31, 2019, December 31, 2018 and December 31, 2017 by year of initiatives were as follows:

	December 31,		
	2019	2018	2017
2017 initiatives and prior	$ 7	$ 18	$ 34
2018 initiatives	9	14	—
2019 initiatives	—	—	—
Total	**$ 16**	**$ 32**	**$ 34**

Details with respect to our reserves for restructuring, impairment and plant closing and transition costs are provided below by segment and initiative:

	Titanium Dioxide	Performance Additives	Total
Accrued liabilities as of January 1, 2017	**$ 12**	**$ 9**	**$ 21**
2017 charges for 2016 and prior initiatives	4	4	8
2017 charges for 2017 initiatives	34	3	37
Reversal of reserves no longer required	(1)	—	(1)
2017 payments for 2016 and prior initiatives	(9)	(11)	(20)
2017 payments for 2017 initiatives	(10)	(2)	(12)
Foreign currency effect on liability balance	—	1	1
Accrued liabilities as of December 31, 2017	**$ 30**	**$ 4**	**$ 34**
2018 charges for 2017 and prior initiatives	18	—	18
2018 charges for 2018 initiative	15	4	19
Reversal of reserves no longer required	—	—	—
2018 payments for 2017 and prior initiatives	(28)	(5)	(33)
2018 payments for 2018 initiatives	(1)	(3)	(4)
Foreign currency effect on liability balance	(2)	—	(2)
Accrued liabilities as of December 31, 2018	**$ 32**	**$ —**	**$ 32**
2019 charges for 2018 and prior initiatives	20	—	20
2019 charges for 2019 initiative	5	—	5
2019 payments for 2018 and prior initiatives	(36)	—	(36)
2019 payments for 2019 initiatives	(5)	—	(5)
Accrued liabilities as of December 31, 2019	**$ 16**	**$ —**	**$ 16**
Current portion of restructuring reserves	**$ 9**	**$ —**	**$ 9**
Long-term portion of restructuring reserve	**$ 7**	**$ —**	**$ 7**

Restructuring, Impairment and Plant Closing and Transition Costs

Details with respect to cash and noncash restructuring charges for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 are provided below:

Cash charges	$ 25
Early Settlement of contractual obligations	(14)
Accelerated depreciation	22
Total 2019 Restructuring, Impairment of Plant Closing and Transition Costs	**$ 33**
Cash charges	$ 37
Pension-related charges	25
Accelerated depreciation	556
Other non-cash charges	10
Total 2018 Restructuring, Impairment of Plant Closing and Transition Costs	**$ 628**
Cash charges	$ 45
Accelerated depreciation	3
Impairment of assets	3
Other non-cash charges	1
Total 2017 Restructuring, Impairment and Plant Closing and Transition Costs	**$ 52**

NOTE 14. ASSET RETIREMENT OBLIGATIONS

Asset retirement obligations consist primarily of asbestos abatement costs, demolition and removal costs, leasehold remediation costs and landfill closure costs. Venator is legally required to perform capping and closure and post-closure care on the landfills and asbestos abatement on certain of its premises. For each asset retirement obligation, Venator recognized the estimated fair value of a liability and capitalized the cost as part of the cost basis of the related asset.

The following table describes changes to Venator's asset retirement obligation liabilities:

	December 31,	
	2019	2018
Asset retirement obligations at beginning of year	**$ 37**	**$ 45**
Accretion expense	1	2
Liabilities incurred	1	—
Liabilities settled	(7)	(8)
Foreign currency effect on reserve balance	—	(2)
Asset retirement obligations at end of year	**$ 32**	**$ 37**

NOTE 15. OTHER NONCURRENT LIABILITIES

Other noncurrent liabilities at December 31, 2019 and December 31, 2018 consisted of the following:

	December 31,	
	2019	2018
Pension liabilities	$ 244	$ 253
Asset retirement obligations	29	27
Environmental reserves	8	11
Restructuring and plant closing costs	7	14
Employee benefit accrual	3	4
Other postretirement benefits	3	3
Other	6	1
Total	**$ 300**	**$ 313**

NOTE 16. DEBT

Outstanding debt, excluding finance leases and net of issuance costs of $14 million and $13 million as of December 31, 2019 and December 31, 2018, respectively, consisted of the following:

	December 31,	
	2019	2018
Senior notes	$ 371	$ 370
Term loan facility	361	365
Other	8	3
Total debt	**$ 740**	**$ 738**
Less: short-term debt and current portion of long-term debt	11	7
Total long-term debt	**$ 729**	**$ 731**

The estimated fair value of the Senior Notes was $346 million and $300 million as of December 31, 2019 and December 31, 2018, respectively. The estimated fair value of the Term Loan Facility was $365 million and $355 million as of December 31, 2019 and December 31, 2018, respectively. The estimated fair values of the Senior Notes and the Term Loan Facility are based upon quoted market prices (Level 1).

The weighted average interest rate on our outstanding balances under the Senior Notes, Term Loan Facility and cross-currency swaps as of December 31, 2019 is approximately 5%.

Senior Notes

The Senior Notes are general unsecured senior obligations of the Issuers and are guaranteed on a general unsecured senior basis by Venator and certain of Venator's subsidiaries. The indenture related to the Senior Notes imposes certain limitations on the ability of Venator and certain of its subsidiaries to, among other things, incur additional indebtedness secured by any principal properties, incur indebtedness of non-guarantor subsidiaries, enter into sale and leaseback transactions with respect to any principal properties and consolidate or merge with or into any other person or lease, sell or transfer all or substantially all of its properties and assets. The Senior Notes bear interest of 5.75% per year payable semi-annually and will mature on July 15, 2025. The Issuers may redeem the Senior Notes in whole or in part at any time prior to July 15, 2020 at a price equal to 100% of the principal amount thereof plus accrued and unpaid interest, if any, and an early redemption premium, calculated on an agreed percentage of the outstanding principal amount, providing compensation on a portion of foregone future interest payables. The Senior Notes will be redeemable in whole or in part at any time on or after July 15, 2020 at the redemption prices set forth in the indenture, plus accrued and unpaid interest, if any, up to, but not including, the redemption date. In addition, at any time prior to July 15, 2020, the Issuers may redeem up to 40% of the aggregate principal amount of the Senior Notes with an amount not greater than the net cash proceeds of certain equity offerings or contributions to Venator's equity at 105.75% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the redemption date. Upon the occurrence of certain change of control events (other than the separation), holders of the Senior Notes will have the right to require that the Issuers purchase all or a portion of such holder's Senior Notes in cash at a purchase price equal to 101% of the principal amount thereof plus accrued and unpaid interest, if any, to the date of repurchase.

Senior Credit Facilities

On August 8, 2017, we entered into the Senior Credit Facilities that provide for first lien senior secured financing of up to $675 million, consisting of:

- the Term Loan Facility in an aggregate principal amount of $375 million, with a maturity of seven years; and
- the ABL Facility in an aggregate principal amount of up to $300 million, with a maturity of five years.

The Term Loan Facility amortizes in aggregate annual amounts equal to 1% of the original principal amount of the Term Loan Facility, and is paid quarterly.

On June 20, 2019 the ABL facility was increased to an aggregate principal amount of up to $350 million, with no change to the maturity dates.

Availability to borrow under the $350 million of commitments under the ABL Facility is subject to a borrowing base calculation comprised of accounts receivable and inventory in U.S., Canada, the U.K., Germany and accounts receivable in France and Spain, that fluctuate from time to time and may be further impacted by the lenders' discretionary ability to impose reserves and availability blocks that might otherwise incrementally increase borrowing availability. As a result, the aggregate amount available for extensions of credit under the ABL Facility at any time is the lesser of $350 million and the borrowing base calculated according to the formula described above minus the aggregate amount of extensions of credit outstanding under the ABL Facility at such time. The borrowing base calculation as of December 31, 2019 is in excess of $273 million, of which $252 million is available to be drawn, as a result of $21 million of letters of credit issued and outstanding at December 31, 2019.

Borrowings under the Term Loan Facility bear interest at a rate equal to, at Venator's option, either (a) a London Interbank Offering Rate ("LIBOR") based rate determined by reference to the costs of funds for Eurodollar deposits for the interest period relevant to such borrowing, adjusted for certain additional costs subject to an interest rate floor to be agreed or (b) a base rate determined by reference to the highest of (i) the rate of interest per annum determined from time to time by JPMorgan Chase Bank, N.A. as its prime rate in effect at its principal office in New York City, (ii) the federal funds rate plus 0.50% per annum and (iii) the one-month adjusted LIBOR plus 1.00% per annum, in each case plus an applicable margin to be agreed upon. Borrowings under the ABL Facility bear interest at a variable rate equal to an applicable margin based on the applicable quarterly average excess availability under the ABL Facility plus either a LIBOR or a base rate. The applicable margin percentage is calculated and established once every three calendar months and varies from 150 to 200 basis points for LIBOR loans depending on the quarterly average excess availability under the ABL Facility for the immediately preceding three-month period.

Guarantees

All obligations under the Senior Credit Facilities are guaranteed by Venator and substantially all of our subsidiaries (the "Guarantors"), and are secured by substantially all of the assets of Venator and the Guarantors, in each case subject to certain exceptions. Lien priority as between the Term Loan Facility and the ABL Facility with respect to the collateral will be governed by an intercreditor agreement.

Letters of Credit

As of December 31, 2019 we had $70 million issued and outstanding letters of credit and bank guarantees to third parties. Of this amount, $49 million were issued by various banks on an unsecured basis with the remaining $21 million issued from our secured ABL facility.

Cash Pooling Program

Prior to the separation, Venator addressed cash flow needs by participating in a cash pooling program with Huntsman. Cash pooling transactions were recorded as either amounts receivable from affiliates or amounts payable to affiliates and are presented as "Net advances to affiliates" and "Net borrowings on affiliate accounts payable" in the investing and financing sections, respectively, in the consolidated and combined statements of cash flows. Interest income was earned if an affiliate was a net lender to the cash pool and paid if an affiliate was a net borrower from the cash pool based on a variable interest rate determined historically by Huntsman. Venator exited the cash pooling program prior to the separation and all receivables and payables generated through the cash pooling program were settled in connection with the separation.

Notes Receivable and Payable of Venator to Subsidiaries of Huntsman International

Substantially all Huntsman receivables or payable were eliminated in connection with the separation, other than a payable to Huntsman for a liability pursuant to the tax matters agreement entered into at the time of the separation, which has been presented as "Noncurrent payable to affiliates" on our consolidated balance sheets. See "Note 20. Income Taxes" for further discussion.

Maturities

The scheduled maturities of our debt (excluding debt to affiliates) by year as of December 31, 2019 are as follows:

Year ended December 31,	Amount
2020	$ 4
2021	4
2022	4
2023	4
2024	351
Thereafter	375
Total	**$ 742**

NOTE 17. DISCONTINUED OPERATIONS

The Titanium Dioxide, Performance Additives and other businesses were included in Huntsman's financial results in different legal forms, including, but not limited to: (1) wholly-owned subsidiaries for which the Titanium Dioxide and Performance Additives businesses were the sole businesses; (2) legal entities that are comprised of other businesses and include the Titanium Dioxide and/or Performance Additives businesses; and (3) variable interest entities in which the Titanium Dioxide, Performance Additives and other businesses are the primary beneficiaries. Because the historical consolidated and combined financial information for the periods indicated reflect the combination of these legal entities under common control, the historical consolidated and combined financial information includes the results of operations of other Huntsman businesses that are not a part of our operations after the separation. The legal entity structure of Huntsman was reorganized during the fourth quarter of 2016 and the second quarter of 2017 such that the other businesses would not be included in Venator's legal entity structure and as such, the discontinued operations presented below reflect financial results of the other businesses through the date of such reorganization.

The following table summarizes the operations data for discontinued operations:

	Year ended December 31, 2017
Revenues:	
Trade sales, services and fees, net	$ 15
Related party sales	17
Total revenues	**32**
Cost of goods sold	**26**
Operating expenses:	
Selling, general, and administrative (includes corporate allocations from Huntsman of $1)	(7)
Restructuring, impairment and plant closing costs	1
Other income, net	1
Total operating expenses	**(5)**
Income from discontinued operations before tax	**11**
Income tax expense	(3)
Net income from discontinued operations	**$ 8**

NOTE 18. DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

To reduce cash flow volatility from foreign currency fluctuations, we enter into forward and swap contracts to hedge portions of cash flows of certain foreign currency transactions. We do not use derivative financial instruments for trading or speculative purposes.

Cross-Currency Swaps

In December 2017, we entered into three cross-currency swap agreements to convert a portion of our intercompany fixed-rate, U.S. Dollar denominated notes, including the semi-annual interest payments and the payment of remaining principal at maturity, to a fixed-rate, Euro denominated debt. The economic effect of the swap agreement was to eliminate the uncertainty of the cash flows in U.S. Dollars associated with the notes by exchanging a notional amount of $200 million at a fixed rate of 5.75% for €169 million with a fixed annual rate of 3.43%. These hedges were designated as cash flow hedges and the critical terms of the cross-currency swap agreements correspond to the underlying hedged item. These swaps mature in July 2022, which was the best estimate of the repayment date of the intercompany loans.

In August 2019, we terminated the three cross-currency interest rate swaps entered into in 2017, resulting in cash proceeds of $15 million. Concurrently, we entered into three new cross-currency interest rate swaps which notionally exchanged $200 million at a fixed rate of 5.75% for €181 million on which a weighted average rate of 3.73% is payable. The cross-currency swaps have been designated as cash flow hedges of a fixed rate U.S. Dollar intercompany loan and the economic effect is to eliminate uncertainty on the U.S. Dollar cash flows. The cross-currency swaps are set to mature in July 2024, which is the best estimate of the repayment date on the intercompany loan.

We formally assessed the hedging relationship at the inception of the hedge in order to determine whether the derivatives that are used in the hedging transactions are highly effective in offsetting cash flows of the hedged item and we will continue to assess the relationship on an ongoing basis. We use the hypothetical derivative method in conjunction with regression analysis to measure effectiveness of our cross-currency swap agreement.

The changes in the fair value of the swaps are deferred in other comprehensive loss and subsequently recognized in other income in the audited consolidated and combined statements of operations when the hedged item impacts earnings. Cash flows related to our cross-currency swap that relate to our periodic interest settlement will be classified as operating activities and the cash flows that relates to principal balances will be designated as financing activities. The fair value of these hedges was a liability of $3 million and an asset of $6 million at December 31, 2019 and December 31, 2018, respectively, and was recorded as other long-term liabilities and other long-term assets on our consolidated balance sheets, respectively. We estimate the fair values of our cross-currency swaps by taking into consideration valuations obtained from a third-party valuation service that utilizes an income-based industry standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include foreign currency exchange rates, credit default swap rates and cross-currency basis swap spreads. The cross-currency swap has been classified as Level 2 because the fair value is based upon observable market-based inputs or unobservable inputs that are corroborated by market data.

During 2019 and 2018 the changes in accumulated other comprehensive loss associated with these cash flow hedging activities was a gain of $6 million and $11 million, respectively. As of December 31, 2019, accumulated other comprehensive loss of nil is expected to be reclassified to earnings during the next twelve months. The actual amount that will be reclassified to earnings over the next twelve months may vary from this amount due to changing market conditions.

We would be exposed to credit losses in the event of nonperformance by a counterparty to our derivative financial instruments. We continually monitor our position and the credit rating of our counterparties, and we do not anticipate nonperformance by the counterparties.

Forward Currency Contracts Not Designated as Hedges

We transact business in various foreign currencies and we enter into currency forward contracts to offset the risk associated with the risks of foreign currency exposure. At December 31, 2019 and December 31, 2018 we had $75 million and $89 million, respectively, notional amount (in U.S. dollar equivalents) outstanding in foreign currency contracts with a term of approximately one month. The contracts are valued using observable market rates (Level 2).

NOTE 19. SHARE-BASED COMPENSATION PLAN

On August 1, 2017, our compensation committee and board of directors adopted the Venator Materials 2017 Stock Incentive Plan (the "LTIP") to provide for the granting of non-qualified stock options, incentive stock options, stock appreciation rights, restricted stock, phantom shares, performance awards and other stock-based awards to our employees, directors and consultants and to employees and consultants of our subsidiaries, provided that incentive stock options may be granted solely to employees. The terms of the grants are fixed at the grant date. As of December 31, 2019, we were authorized to grant up to 12.8 million shares under the LTIP. As of December 31, 2019, we had 9.5 million shares remaining under the LTIP available for grant. Stock option awards have a maximum contractual term of 10 years and generally must have an exercise price at least equal to the market price of Venator's ordinary shares on the date the stock option award is granted. Share-based awards generally vest over a three-year period; certain performance awards vest over a two-year period and awards to Venator's directors vest on the grant date.

Awards granted by Huntsman prior to the separation (referred to as "Huntsman awards"), which consisted of stock options, restricted stock, performance awards and phantom shares, were generally treated as follows in connection with the separation:

- All vested Huntsman awards remained as Huntsman awards.
- After the separation, unvested Huntsman awards were converted to Venator awards. Huntsman stock options were converted to Venator stock options and Huntsman restricted stock, performance awards and phantom shares were converted to Venator restricted stock units.
- 39 employees were affected by the conversion.
- Each Huntsman award was converted to approximately 1.33 Venator awards.
- The converted awards are generally subject to the same vesting, expiration and other terms and conditions as applied to the underlying Huntsman awards immediately prior to the separation.

The compensation cost from continuing operations under the Huntsman Stock Incentive Plan ("Huntsman Plan") allocated to Venator was nil, nil and $2 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively. The allocation was determined annually based upon the outstanding number of shares of each type of award granted to individuals employed by Venator. After the separation, we incurred $7 million, $6 million and $3 million in compensation cost related to the converted awards and new awards granted under the LTIP for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively. The total income tax benefit recognized in the consolidated and combined statement of operations for stock-based compensation arrangements was $1 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, each.

Stock Options

Huntsman Plan

Under the Huntsman Plan, the fair value of each stock option award was estimated on the date of grant using the Black-Scholes valuation model that uses the assumptions noted in the following table. Expected volatilities were based on the historical volatility of Huntsman's common stock through the grant date. The expected term of stock options granted was estimated based on the contractual term of the instruments and employees' expected exercise and post-vesting employment

termination behavior. The risk-free rate for periods within the contractual life of the option was based on the U.S. Treasury yield curve in effect at the time of grant. The assumptions noted below represent the weighted averages of the assumptions utilized for all stock options granted during the year until the separation.

	Year ended December 31,	
	2017	2016
Dividend yield	2.4 %	5.6 %
Expected volatility	56.9 %	57.9 %
Risk-free interest rate	2.0 %	1.4 %
Expected life of stock options granted during the period	5.9 years	5.9 years

Converted Awards

After the separation, the unvested Huntsman stock option awards were converted to Venator stock option awards. On the date of conversion, the fair value of the stock option awards was revalued using the Black-Scholes valuation model that uses the assumptions noted in the following table. Expected volatilities were based on the historical volatility of Huntsman's common stock through the conversion date. The expected term of stock options converted was estimated based on the safe harbor approach calculated as the vesting period plus remaining contractual term divided by two. The risk-free rate for periods within the expected life of the option was based on the U.S. Treasury yield curve in effect at the time of conversion. The assumptions noted below represent the weighted averages of assumptions utilized for all unvested stock options that were converted after the separation.

	Year ended December 31,	
	2017	2016
Dividend yield	—	—
Expected volatility	39.6 %	39.2 %
Risk-free interest rate	1.9 %	1.8 %
Expected life of stock options granted during the period	5.5 years	4.7 years

New Grants

After the separation, stock option awards were granted under the LTIP. The fair value of the stock option awards were estimated using the Black-Scholes valuation model that uses the assumptions noted in the following table. Expected volatilities were based on the historical volatility of Huntsman's common stock through the grant date. The expected term of stock options granted was estimated on the safe harbor approach calculated as the vesting period plus remaining contractual term divided by two. The risk-free rate for the periods within the expected life of the option was based on the U.S. Treasury yield curve in effect at the time of grant. The assumptions noted below represent the weighted average of assumptions utilized for stock options granted during 2019, 2018 and 2017 under the LTIP.

	Year ended December 31,		
	2019	2018	2017
Dividend yield	—	—	—
Expected volatility	41.8 %	38.8 %	41.0 %
Risk-free interest rate	2.6 %	2.8 %	2.0 %
Expected life of stock options granted during the period	6.0 years	6.0 years	6.0 years

The table below presents the changes in stock option awards for our ordinary shares from December 31, 2018 through December 31, 2019.

	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term	Aggregate Intrinsic Value
	(in thousands)		(in years)	(in millions)
Outstanding at December 31, 2018	**1,003**	**$ 16.10**		
Granted	980	5.75		
Exercised	—	—		
Forfeited	(57)	15.46		
Expired	(95)	11.30		
Outstanding at December 31, 2019	**1,831**	**10.83**	**8.5**	**$ —**
Exercisable at December 31, 2019	**554**	**13.91**	**7.8**	**—**

Intrinsic value is the difference between the market value of our common stock and the exercise price of each stock option multiplied by the number of stock options outstanding for those stock options where the market value exceeds their exercise price. During the years ended December 31, 2019, December 31, 2018 and December 31, 2017, the total intrinsic value of stock options exercised was nil, each.

The weighted-average grant-date fair value of stock options granted during December 31, 2019, December 31, 2018 and December 31, 2017 was $2.52, $9.12 and $7.68 per option, respectively. As of December 31, 2019, there was $3 million of total unrecognized compensation cost related to nonvested stock option arrangements granted under the LTIP and Huntsman Plans. That cost is expected to be recognized over a weighted-average period of 1.7 years.

Restricted Stock Units

Huntsman Plan

Nonvested shares granted under the Huntsman Plan consisted of restricted stock and performance shares, which are accounted for as equity awards, and phantom stock, which is accounted for as a liability award because it can be settled in either stock or cash.

The fair value of each performance share unit award was estimated using a Monte Carlo simulation model that uses various assumptions, including an expected volatility rate and a risk-free interest rate. For the year ended December 31, 2016, the weighted-average expected volatility rate was 39.3% and the weighted average risk-free interest rate was 0.9%. For the performance awards granted during the year ended December 31, 2016, the number of shares earned varies based upon Huntsman achieving certain performance criteria over two-year and three-year performance periods. The performance criteria are total stockholder return of Huntsman's common stock relative to the total stockholder return of a specified industry peer-group for the two-year and three-year performance periods.

Converted Awards

After the separation, the unvested Huntsman restricted stock, performance awards and phantom shares were converted to Venator restricted stock units. On the date of conversion, the fair value of the restricted stock and phantom share awards was revalued based on Venator's closing share price, and the performance awards were revalued using the Monte Carlo valuation.

New Grants

After the separation, restricted stock and performance unit awards were granted under the LTIP. The fair value of the restricted stock is based on the closing share price on the date of grant. The fair value of each performance unit award was estimated using a Monte Carlo simulation model that uses various assumptions, including an expected volatility rate and a risk-free interest rate. For the year ended December 31, 2019, the weighted-average expected volatility rate was 42.5% and the weighted-average risk-free interest rate was 2.5%. For the performance unit awards granted during the year ended December 31, 2019, the number of shares earned varies based on the Company achieving certain performance criteria over a three-year performance period. The performance criteria are total stockholder return of our common stock relative to the total stockholder

return of a specified industry peer-group for the three-year performance period. No performance unit awards were granted during the year ended December 31, 2018.

The table below presents the changes in nonvested awards for our ordinary shares from December 31, 2018 through December 31, 2019.

	Shares	Weighted Average Grant-Date Fair Value
	(in thousands)	
Nonvested at December 31, 2018	**448**	**$ 18.71**
Granted	968	6.48
Vested[(1)]	(216)	16.15
Forfeited	(27)	16.03
Nonvested at December 31, 2019	**1,173**	**9.16**

(1) As of December 31, 2019, a total of 158,129 restricted stock units were vested but not yet issued. These shares have not been reflected as vested shares in the table because, in accordance with the restricted stock unit agreements, these shares are not issued for vested restricted stock until termination of employment.

As of December 31, 2019, there was $6 million of total unrecognized compensation cost related to nonvested share compensation arrangements granted under the LTIP and the Huntsman Plan. That cost is expected to be recognized over a weighted-average period of 1.8 years.

NOTE 20. INCOME TAXES

Our income tax basis of presentation is summarized in "Note 1. Description Of Business, Recent Developments and Summary Of Significant Accounting Policies."

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

	Year ended December 31,		
	2019	2018	2017
U.K.	$ (1)	$ 80	$ 76
Non-U.K.	(19)	(245)	110
Total	**$ (20)**	**$ (165)**	**$ 186**

A summary of the provisions for current and deferred income taxes is as follows:

	Year ended December 31,		
	2019	2018	2017
Income tax expense (benefit):			
U.K.			
Current	$ —	$ 2	$ —
Deferred	—	—	—
Non-U.K.			
Current	7	9	30
Deferred	143	(19)	20
Total	**$ 150**	**$ (8)**	**$ 50**

The reconciliation of the differences between the U.K. income taxes at the U.K. statutory rate to Venator's provision for income taxes is as follows:

	Year ended December 31,		
	2019	2018	2017
(Loss) income from continuing operations before income taxes	**$ (20)**	**$ (165)**	**$ 186**
Expected tax (benefit) expense at U.K. statutory rate of 19%, 19% and 20%, respectively	**$ (4)**	**$ (31)**	**$ 35**
Change resulting from:			
Non-U.K. tax rate differentials	(4)	(7)	(1)
Other non-U.K. tax effects, including nondeductible expenses, tax effect of rate changes and transfer pricing adjustments	—	(5)	—
Unrealized currency exchange gains and losses	—	—	7
Tax authority audits and dispute resolutions	—	—	1
Change in valuation allowance	158	39	3
Effects of U.S. tax reform	—	—	3
Other, net	—	(4)	2
Total income tax expense (benefit)	**$ 150**	**$ (8)**	**$ 50**

Venator operates in over 20 non-U.K. tax jurisdictions with no specific country earning a predominant amount of its off-shore earnings. Some of these countries have income tax rates that are approximately the same as the U.K. statutory rate, while other countries have rates that are higher or lower than the U.K. statutory rate. Losses earned in countries with higher average statutory rates than the U.K., resulted in higher tax benefit of $4 million and $7 million, respectively, for the years ended December 31, 2019 and 2018. Income earned in countries with lower average statutory rates than the U.K., resulted in lower tax expense of $1 million, for the year ended December 31, 2017, reflected in the reconciliation above.

Components of deferred income tax assets and liabilities at December 31, 2019 and December 31, 2018 were as follows:

	December 31,	
	2019	2018
Deferred income tax assets:		
Net operating loss carryforwards	$ 519	$ 313
Pension and other employee compensation	53	48
Property, plant and equipment	34	28
Other, net	77	49
Total	**$ 683**	**$ 438**
Total deferred income tax liabilities:		
Property, plant and equipment	$ (35)	$ (32)
Pension and other employee compensation	(13)	(4)
Lease liability	(13)	—
Other, net	(4)	(4)
Total	**$ (65)**	**$ (40)**
Net deferred tax assets before valuation allowance	$ 618	$ 398
Valuation allowance	(585)	(220)
Net deferred tax assets	**$ 33**	**$ 178**
Non-current deferred tax assets	33	178
Non-current deferred tax liabilities	—	—
Net deferred tax assets	**$ 33**	**$ 178**

Venator has NOLs of $2,107 million in various jurisdictions, principally located in Finland, France, Germany, Italy, Luxembourg, Spain, South Africa, U.S. and the U.K., all of which have no expiration dates except for $226 million which expires on December 31, 2028 and is subject to a valuation allowance.

Included in the $2,107 million of gross NOLs is $864 million attributable to our Luxembourg entity. As of December 31, 2019, due to the uncertainty surrounding the realization of the benefits of these losses, there is a full valuation allowance of $197 million against these net tax effected NOLs.

Venator has total net deferred tax assets, before valuation allowance, of $618 million, including $519 million of tax-effected NOLs. After taking into account deferred tax liabilities, Venator has recognized valuation allowance on net deferred tax assets of $585 million, including valuation allowances in the following countries: Finland, France, Germany, Hong Kong, Italy, Luxembourg (as discussed above), South Africa, Spain and the U.K. Venator also has net deferred tax assets of $33 million, not subject to valuation allowances, primarily in Malaysia, and the U.S.

Valuation allowances are reviewed each period on a tax jurisdiction by jurisdiction basis to analyze whether there is sufficient positive or negative evidence to support a change in judgment about the realizability of the related deferred tax assets. These conclusions require significant judgment. In evaluating the objective evidence that historical results provide, we consider the cyclicality of businesses and cumulative income or losses during the applicable period. Uncertainties regarding expected future income in certain jurisdictions could affect the realization of deferred tax assets in those jurisdictions and result in additional valuation allowances in future periods.

Based on management's ongoing analysis of positive and negative evidence within our German business we have concluded at December 31, 2019 there is insufficient positive evidence to overcome a history of losses. As a result, we believe it is more likely than not that deferred tax assets will not be realized and we have recognized a full valuation allowance against net deferred tax assets of $162 million. In future periods we will continue to evaluate whether sufficient objective positive evidence of future taxable income exists, which would provide a basis for the recognition of deferred tax assets without a valuation allowance.

The following is a reconciliation of the unrecognized tax benefits:

	2019	2018	2017
Unrecognized tax benefits as of January 1,	**$ 17**	**$ 23**	**$ 20**
Gross increases and decreases- tax positions taken during prior period	1	2	—
Gross increases and decreases—tax positions taken during the current	—	—	1
Decreases related to settlements of amounts due to tax authorities	—	—	—
Reductions resulting from the lapse of statutes of limitation	(2)	(7)	—
Foreign currency movements	—	(1)	2
Unrecognized tax benefits as of December 31,	**$ 16**	**$ 17**	**$ 23**

As of December 31, 2019, December 31, 2018 and December 31, 2017, the amount of unrecognized tax benefits that, if recognized, would affect the effective tax rate is $1 million, $14 million and $13 million, respectively.

In accordance with Venator's accounting policy, it recognizes interest and penalties accrued related to unrecognized tax benefits in income tax expense, which were insignificant for each of the years ended December 31, 2019, 2018 and 2017.

Venator conducts business globally and, as a result, files income tax returns in the U.S. federal, various U.S. state and various non-U.S. jurisdictions. The following table summarizes the tax years that remain subject to examination by major tax jurisdictions:

Tax Jurisdiction	Open Tax Years
France	2016 and later
Germany	2011 and later
Italy	2014 and later
Malaysia	2014 and later
Spain	2015 and later
United Kingdom	2015 and later
United States federal	2016 and later

Certain of Venator's U.S. and non-U.S. income tax returns are currently under various stages of audit by applicable tax authorities and the amounts ultimately agreed upon in resolution of the issues raised may differ materially from the amounts accrued.

Venator estimates that it is reasonably possible that no change of its unrecognized tax benefits could occur within 12 months of the reporting date.

For U.S. federal income tax purposes Huntsman recognized a gain as a result of the IPO and the separation to the extent the fair market value of the assets associated with our U.S. businesses exceeded the basis of such assets for U.S. federal income tax purposes at the time of the separation. As a result of such gain recognized, the basis of the assets associated with our U.S. businesses was increased. This basis step-up gave rise to a deferred tax asset of $77 million that we recognized for the quarter ended September 30, 2017. Due to the 2017 Tax Act's reduction of the U.S. federal corporate income tax rate from 35% to 21%, the deferred tax asset associated with the basis step-up was reduced to $36 million as of the date of enactment, reflected as part of the $3 million Effects of U.S. tax reform in the effective tax rate reconciliation above. Pursuant to the tax matters agreement entered into at the time of the separation, we are required to make a future payment to Huntsman for any actual U.S. federal income tax savings we recognize as a result of any such basis increase for tax years through December 31, 2028. For the quarter ended September 30, 2017 we estimated (based on a value of our U.S. businesses derived from the IPO price of our ordinary shares and current tax rates) that the aggregate future payments required by this provision were expected to be approximately $73 million. Due to the 2017 Tax Act's reduction of the U.S. federal corporate income tax rate, we estimated that the aggregate future payments required by this provision were expected to be approximately $34 million and we recognized a noncurrent liability for this amount as of December 31, 2017 and 2018. During 2019 we reduced the liability to $30 million due to a decrease in the expectation of future payments. Any subsequent adjustment asserted by U.S. taxing authorities could increase the amount of gain recognized and the corresponding basis increase, and could result in a higher liability for us under the tax matters agreement.

In the first quarter of 2019 a non-U.K. subsidiary distributed $12 million to a U.K. subsidiary subject to 5% withholding tax. As of December 31, 2019, our non-U.K. subsidiaries have no plan to distribute earnings in a manner that would cause them to be subject to material U.K., U.S., or other local country taxation.

NOTE 21. EMPLOYEE BENEFIT PLANS

Defined Benefit and Other Postretirement Benefit Plans

Venator sponsors defined benefit plans in a number of countries outside of the U.S. in which employees of Venator participate. The availability of these plans and their specific design provisions are consistent with local competitive practices and regulations.

The disclosures for the defined benefit and other postretirement benefit plans within the U.S. are combined with the disclosures of the plans outside of the U.S. Of the total projected benefit obligations for Venator as of December 31, 2019 and December 31, 2018, the amount related to the U.S. benefit plans was $11 million and $10 million, respectively, or 1% each. Of the total fair value of plan assets for Venator, the amount related to the U.S. benefit plans for December 31, 2019 and December 31, 2018 was $8 million and $7 million, respectively, or 1% each.

The following table sets forth the funded status of the plans for Venator and the amounts recognized in the consolidated balance sheets at December 31, 2019 and December 31, 2018:

	Defined Benefit Plans		Other Postretirement Benefit Plans	
	2019	2018	2019	2018
Change in benefit obligation				
Benefit obligation at beginning of year	**$ 1,021**	**$ 1,136**	**$ 3**	**$ 3**
Service cost	3	5	—	—
Interest cost	24	25	—	—
Actuarial loss (gain)	108	(60)	1	—
Gross benefits paid	(52)	(58)	(1)	—
Plan amendments	—	6	—	—
Exchange rates	17	(56)	—	—
Curtailments	(21)	23	—	—
Benefit obligation at end of year	**$ 1,100**	**$ 1,021**	**$ 3**	**$ 3**
Accumulated benefit obligation at end of year	**1,076**	**983**		
Change in plan assets				
Fair value of plan assets at beginning of year	**$ 813**	**$ 906**	**$ —**	**$ —**
Actual return on plan assets	108	(34)	—	—
Employer contribution	40	47	—	—
Gross benefits paid	(52)	(58)	—	—
Exchange rates	24	(48)	—	—
Other	1	—	—	—
Fair value of plan assets at end of year	**$ 934**	**$ 813**	**$ —**	**$ —**
Funded status				
Fair value of plan assets	$ 934	$ 813	$ —	$ —
Benefit obligation	(1,100)	(1,021)	(3)	(3)
Accrued benefit cost	**$ (166)**	**$ (208)**	**$ (3)**	**$ (3)**
Amounts recognized in balance sheet:				
Noncurrent asset	$ 79	$ 46	$ —	$ —
Current liability	(1)	(1)	—	—
Noncurrent liability	(244)	(253)	(3)	(3)
Total	**$ (166)**	**$ (208)**	**$ (3)**	**$ (3)**
Amounts recognized in accumulated other comprehensive loss:				
Net actuarial loss (gain)	$ 321	$ 302	$ (3)	$ (4)
Prior service cost (credit)	5	11	—	(1)
Total	**$ 326**	**$ 313**	**$ (3)**	**$ (5)**

The amounts in accumulated other comprehensive loss that are expected to be recognized as components of net periodic benefit cost during the next fiscal year are as follows:

	Defined Benefit Plans	Other Postretirement Benefit Plans
Actuarial loss	$ 13	$ —
Prior service cost	1	—
Total	**$ 14**	**$ —**

Components of net periodic benefit costs for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 were as follows:

	Defined Benefit Plans		
	2019	2018	2017
Service cost	$ 3	$ 5	$ 5
Interest cost	24	25	25
Expected return on plan assets	(42)	(47)	(43)
Amortization of actuarial loss	14	15	16
Amortization of prior service cost	1	3	1
Curtailments	(9)	23	(4)
Net periodic benefit cost	**$ (9)**	**$ 24**	**$ —**

	Other Postretirement Benefit Plans		
	2019	2018	2017
Amortization of actuarial loss	$ —	$ —	$ 1
Amortization of prior service credit	—	—	(3)
Curtailments	(1)	—	—
Net periodic benefit cost	**$ (1)**	**$ —**	**$ (2)**

The amounts recognized in net periodic benefit cost and other comprehensive loss for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 were as follows:

	Defined Benefit Plans		
	2019	2018	2017
Current year actuarial gain (loss)	$ 21	$ 45	$ (24)
Amortization of actuarial loss	(14)	(15)	(16)
Current year prior service cost	—	5	—
Amortization of prior service cost	(1)	(3)	(1)
Curtailments	9	(23)	4
Other	—	—	(3)
Total recognized in other comprehensive loss	**15**	**9**	**(40)**
Net periodic benefit cost	(9)	24	—
Total recognized in net periodic benefit cost and other comprehensive loss	**$ 6**	**$ 33**	**$ (40)**

	Other Postretirement Benefit Plans		
	2019	2018	2017
Current year actuarial loss	$ 1	$ —	$ (1)
Amortization of actuarial loss	—	—	(1)
Amortization of prior service credit	—	—	3
Curtailments	1	—	—
Total recognized in other comprehensive loss	**2**	**—**	**1**
Net periodic benefit cost	(1)	—	(2)
Total recognized in net periodic benefit cost and other comprehensive loss	**$ 1**	**$ —**	**$ (1)**

The following weighted-average assumptions were used to determine the projected benefit obligation at the measurement date and the net periodic pension cost for the year:

	Defined Benefit Plans		
	2019	2018	2017
Projected benefit obligation:			
Discount rate	1.60 %	2.38 %	2.21 %
Rate of compensation increase	2.56 %	3.69 %	3.74 %
Net periodic pension cost:			
Discount rate	2.38 %	2.21 %	1.86 %
Rate of compensation increase	3.69 %	3.74 %	3.53 %
Expected return on plan assets	5.23 %	5.23 %	5.71 %

	Other Postretirement Benefit Plans		
	2019	2018	2017
Projected benefit obligation:			
Discount rate	3.27 %	3.50 %	3.38 %
Net periodic pension cost:			
Discount rate	3.51 %	3.30 %	3.72 %
Rate of compensation increase	4.35 %	— %	— %

At December 31, 2019 and December 31, 2018, the health care trend rate used to measure the expected increase in the cost of benefits was assumed to be 5.80% and 4.90%, respectively, decreasing to 4.53% after 2030. Assumed health care cost trend rates can have a significant effect on the amounts reported for the postretirement benefit plans. A one-percent point change in assumed health care cost trend rates would not have a significant effect.

The projected benefit obligation and fair value of plan assets for the defined benefit plans with projected benefit obligations in excess of plan assets as were as follows:

	December 31,	
	2019	2018
Projected benefit obligation	$ 407	$ 385
Fair value of plan assets	162	131

The projected benefit obligation, accumulated benefit obligation and fair value of plan assets for the defined benefit plans with an accumulated benefit obligation in excess of plan assets as of December 31, 2019 and December 31, 2018 were as follows:

	December 31,	
	2019	2018
Projected benefit obligation	$ 386	$ 385
Accumulated benefit obligation	383	375
Fair value of plan assets	142	131

Expected future contributions and benefit payments are as follows:

	Defined Benefit Plans	Other Postretirement Benefit Plans
2020 expected employer contributions:		
To plan trusts	$ 43	$ —
Expected benefit payments:		
2020	54	—
2021	43	—
2022	44	—
2023	47	—
2024	48	—
2025 - 2029	241	1

Our investment strategy with respect to pension assets is to pursue an investment plan that, over the long term, is expected to protect the funded status of the plan, enhance the real purchasing power of plan assets and not threaten the plan's ability to meet currently committed obligations. Additionally, our investment strategy is to achieve returns on plan assets, subject to a prudent level of portfolio risk. Plan assets are invested in a broad range of investments. These investments are diversified in terms of domestic and international equities, both growth and value funds, including small, mid and large capitalization equities; short-term and long-term debt securities; real estate; and cash and cash equivalents. The investments are further diversified within each asset category. The portfolio diversification provides protection against a single investment or asset category having a disproportionate impact on the aggregate performance of the plan assets.

Our pension plan assets are managed by outside investment managers. The investment managers value our plan assets using quoted market prices, other observable inputs or unobservable inputs. For certain assets, the investment managers obtain third-party appraisals at least annually, which use valuation techniques and inputs specific to the applicable property, market or geographic location. We have established target allocations for each asset category. Venator's pension plan assets are periodically rebalanced based upon our target allocations.

The fair value of plan assets for the pension plans was $934 million and $813 million at December 31, 2019 and December 31, 2018, respectively. The following plan assets are measured at fair value on a recurring basis:

Asset Category	December 31, 2019	Fair Value Amounts Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Pension plans:				
Equities	$ 196	$ 179	$ 17	$ —
Fixed income	692	42	643	7
Real estate/other	40	—	14	26
Cash and cash equivalents	6	6	—	—
Total pension plan assets	**$ 934**	**$ 227**	**$ 674**	**$ 33**

Asset Category	December 31, 2018	Fair Value Amounts Using Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Pension plans:				
Equities	$ 213	$ 202	$ 11	$ —
Fixed income	547	39	501	7
Real estate/other	34	—	6	28
Cash and cash equivalents	19	19	—	—
Total pension plan assets	**$ 813**	**$ 260**	**$ 518**	**$ 35**

Fair Value Measurements of Plan Assets Using Significant Unobservable Inputs (Level 3)	Real Estate/Other Year ended December 31, 2019	Real Estate/Other Year ended December 31, 2018
Balance at the beginning of the period	$ 28	$ 30
Return on pension plan assets	(1)	(1)
Purchases, sales and settlements	(1)	(1)
Transfers (out of) into Level 3	—	—
Disposals	—	—
Balance at the end of the period	$ 26	$ 28

Fair Value Measurements of Plan Assets Using Significant Unobservable Inputs (Level 3)	Fixed Income Year ended December 31, 2019	Fixed Income Year ended December 31, 2018
Balance at the beginning of the period	$ 7	$ 7
Return on pension plan assets	—	—
Purchases, sales and settlements	—	—
Transfers (out of) into Level 3	—	—
Balance at the end of the period	$ 7	$ 7

Based upon historical returns, the expectations of our investment committee and outside advisors, the expected long-term rate of return on the pension assets is estimated to be between 5.71% and 5.23%. The asset allocation for our pension plans at December 31, 2019 and December 31, 2018 and the target allocation for 2019, by asset category, are as follows:

Asset category	Target allocation 2020	Allocated at December 31, 2019	Allocated at December 31, 2018
Pension plans:			
Equities	20 %	19 %	26 %
Fixed income	72 %	73 %	64 %
Real estate/other	1 %	1 %	1 %
Cash	7 %	7 %	9 %
Total pension plans	**100 %**	**100 %**	**100 %**

Equity securities in Venator's pension plans did not include any equity securities of Huntsman Corporation or Venator and its affiliates at the end of 2019.

U.S. Benefit Plans

Venator's U.S. employees participated in a trusteed, non-contributory defined benefit pension plan (the "Plan") that covered substantially all of Huntsman International's full-time U.S. employees. In July 2004, the Plan formula for employees not covered by a collective bargaining agreement was converted to a cash balance design. For represented employees, participation in the cash balance design was subject to the terms of negotiated contracts. For participating employees, benefits accrued under the prior formula were converted to opening cash balance accounts. The new cash balance benefit formula provides annual pay credits from 4% to 12% of eligible pay, depending on age and service, plus accrued interest. Participants in the plan as of July 1, 2004 were eligible for additional annual pay credits from 1% to 8%, depending on their age and service as of that date, for up to 5 years. Beginning July 1, 2014, the Huntsman Defined Benefit Pension Plan was closed to new, non-union entrants and as of April 1, 2015, it was closed to new union entrants. After closure, new hires were provided with a defined contribution plan with a non-discretionary employer contribution of 6% of pay and a company match of up to 4% of

pay, for a total company contribution of up to 10% of pay. In connection with the separation, Venator adopted a non-contributory defined benefit pension plan for union entrants prior to April 2015.

Our eligible employees (who were employed by Huntsman prior to August 1, 2015) also participate in an unfunded postretirement benefit plan, which provides medical and life insurance benefits. This plan is sponsored by Venator.

Our U.S. employees participate in a postretirement benefit plan that provides a fully insured Medicare Part D plan including prescription drug benefits affected by the Medicare Prescription Drug, Improvement and Modernization Act of 2003 (the "Act"). Venator has not determined whether the medical benefits provided by these postretirement benefit plans are actuarially equivalent to those provided by the Act. Venator does not collect a subsidy, and our net periodic postretirement benefits cost, and related benefit obligation, do not reflect an amount associated with the subsidy.

Non-U.S. Defined Contribution Plans

We have defined contribution plans in a variety of non-U.S. locations. Venator’s combined expense for these defined contribution plans for the years ended December 31, 2019, December 31, 2018 and December 31, 2017 was $9 million, $8 million and $8 million, respectively, primarily related to the U.K. Pension Plan.

All U.K. associates are eligible to participate in the Huntsman U.K. Pension Plan, a contract-based arrangement with a third party. Company contributions vary by business during a 5 year transition period. Plan participants elect to make voluntary contributions to this plan up to a specified amount of their compensation. We contribute a matching amount not to exceed 12% of the participant’s salary for new hires and 15% of the participant’s salary for all other participants.

U.S. Defined Contribution Plans

Huntsman provided a money purchase pension plan covering substantially all of its domestic employees who were hired prior to January 1, 2004. Employer contributions were made based on a percentage of employees’ earnings (ranging up to 8%). During 2014, Huntsman closed this plan to non-union participants and in 2015 Huntsman closed this plan to union associates. We continue to provide equivalent benefits to those who were covered under this plan into their salary deferral accounts.

We also have a salary deferral plan covering substantially all U.S. employees. Plan participants may elect to make voluntary contributions to this plan up to a specified amount of their compensation. New hires are provided a defined contribution plan with a non-discretionary employer contribution of 6% of pay and a company match of up to 4% of pay, for a total company contribution of up to 10% of pay.

Along with the introduction of the cash balance formula within the defined benefit pension plan, the money purchase pension plan was closed to new hires. At the same time, the employer match in the salary deferral plan was increased, for new hires, to a 100% match, not to exceed 4% of the participant’s compensation.

Our total combined expense for the above defined contribution plans was $2 million, $3 million and $3 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

NOTE 22. RELATED PARTY TRANSACTIONS

Transactions with Huntsman

We are party to a variety of transactions and agreements with Huntsman, our former parent and largest shareholder.

Prior to the separation, Huntsman’s executive, information technology, EHS and certain other corporate departments performed certain administrative and other services for Venator. Additionally, Huntsman performed certain site services for Venator. Expenses incurred by Huntsman and allocated to Venator were determined based on specific services provided or were allocated based on our total revenues, total assets, and total employees in proportion to those of Huntsman. Management believes that such expense allocations are reasonable. Corporate allocations include allocated selling, general, and administrative expenses of nil, nil and $62 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively.

On August 11, 2017, we entered into a separation agreement with Huntsman to effect the separation and to provide a framework for the relationship with Huntsman. This agreement governs the relationship between Venator and Huntsman subsequent to the completion of the separation and provides for the allocation between Venator and Huntsman of assets,

liabilities and obligations attributable to periods prior to the separation. Because these agreements were entered into in the context of a related party transaction, the terms may not be comparable to terms that would be obtained in a transaction between unaffiliated parties.

See description of our financing arrangements with Huntsman before and after the separation in "Note 16. Debt" and "Note 18. Derivative Instruments and Hedging Activities." See description of our arrangement with Huntsman as part of the separation in "Note 20. Income Taxes."

Other Related Party Transactions

We also conduct transactions in the normal course of business with parties under common ownership. Sales of raw materials to LPC as part of a sourcing arrangement were $87 million, $65 million and $64 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively. Proceeds from this arrangement are recorded as a reduction of cost of goods sold in Venator’s consolidated and combined statements of operations. Related to this same arrangement, purchases of finished goods from LPC were $177 million, $167 million and $158 million for the years ended December 31, 2019, December 31, 2018 and December 31, 2017, respectively. The related accounts receivable from affiliates and accounts payable to affiliates as of December 31, 2019 and December 31, 2018 are recognized in the consolidated balance sheets.

NOTE 23. COMMITMENTS AND CONTINGENCIES

Purchase Commitments

We have various purchase commitments extending through 2029 for materials, supplies and services entered into in the ordinary course of business. Included in the purchase commitments table below are contracts which require minimum volume purchases that extend beyond one year or are renewable annually and have been renewed for 2020. Certain contracts allow for changes in minimum required purchase volumes in the event of a temporary or permanent shutdown of a facility. To the extent the contract requires a minimum notice period; such notice period has been included in the table below. The contractual purchase prices for substantially all of these contracts are variable based upon market prices, subject to annual negotiations. We have estimated our contractual obligations by using the terms of our current pricing for each contract. We also have a limited number of contracts which require a minimum payment even if no volume is purchased. We believe that all of our purchase obligations will be utilized in our normal operations. For the years ended December 31, 2019, December 31, 2018 and December 31, 2017, we made minimum payments under such take or pay contracts without taking the product of $1 million, nil and $2 million, respectively. Total purchase commitments as of December 31, 2019 were as follows:

Year ended December 31,	Amount
2020	$ 100
2021	98
2022	85
2023	11
2024	11
Thereafter	38

Legal Proceedings

Shareholder Litigation

On February 8, 2019 we, certain of our executive officers, Huntsman and certain banks who acted as underwriters in connection with our IPO and secondary offering were named as defendants in a proposed class action civil suit filed in the District Court for the State of Texas, Dallas County (the "Dallas District Court"), by an alleged purchaser of our ordinary shares in connection with our IPO on August 3, 2017 and our secondary offering on November 30, 2017. The plaintiff, Macomb County Employees’ Retirement System, alleges that inaccurate and misleading statements were made regarding the impact to our operations, and prospects for restoration thereof, resulting from the fire that occurred at our Pori, Finland manufacturing facility, among other allegations. Additional complaints making substantially the same allegations were filed in the Dallas District Court by the Firemen's Retirement System of St. Louis on March 4, 2019 and by Oscar Gonzalez on March 13, 2019, with the third case naming two of our directors as additional defendants. A fourth case was filed in the U.S. District Court for the Southern District of New York by the City of Miami General Employees' & Sanitation Employees' Retirement Trust on July 31, 2019, making substantially the same allegations, adding claims under sections 10(b) and 20(a) of the U.S. Exchange Act,

and naming all of our directors as additional defendants. A fifth case, filed by Bonnie Yoon Bishop in the U.S. District Court for the Southern District of New York, was voluntarily dismissed without prejudice on October 7, 2019. A sixth case was filed in the U.S. District Court for the Southern District of Texas by the Cambria County Employees Retirement System on September 13, 2019, making substantially the same allegations as those made by the plaintiff in the case pending in the Southern District of New York.

The plaintiffs in these cases seek to determine that the proceedings should be certified as class actions and to obtain alleged compensatory damages, costs, rescission and equitable relief.

The cases filed in the Dallas District Court have been consolidated into a single action, *In re Venator Materials PLC Securities Litigation*. On October 29, 2019, the U.S. District Court for the Southern District of New York entered an order transferring the case brought by the city of Miami General Employees' & Sanitation Employees' Retirement Trust to the U.S. District Court for the Southern District of Texas, where it was consolidated into a single action with the case brought by the Cambria County Employees' Retirement Trust and is now known as *In re: Venator Materials PLC Securities Litigation*. On January 17, 2020, plaintiffs in the consolidated action filed a consolidated class action complaint.

On May 8, 2019, we filed a "special appearance" in the Dallas District Court action contesting the court’s jurisdiction over the Company and a motion to transfer venue to Montgomery County, Texas and on June 7, 2019 we and certain defendants filed motions to dismiss. On July 9, 2019, a hearing was held on certain of these motions, which were subsequently denied. On October 3, 2019, a hearing was held on our motion to dismiss under the Texas Citizens Participation Act, which was subsequently denied. On October 22, 2019, we and other defendants filed a Petition for Writ of Mandamus in the Court of Appeals for the Fifth District of Texas seeking relief from the Dallas District Court’s denial of defendants’ Rule 91a motions to dismiss. On November 22, 2019, we also filed a notice of appeal regarding the denial of our motion to dismiss under the Texas Citizens Participation Act. On January 21, 2020, the Court of Appeals for the Fifth District of Texas reversed the Dallas District Court’s order that denied the special appearances of Venator and certain other defendants, and rendered judgment dismissing the claims against Venator and those other defendants for lack of jurisdiction. The Court of Appeals also remanded the case for the Dallas District Court to enter an order transferring the claims against Huntsman to the Montgomery County District Court.

We may be required to indemnify our executive officers and directors, Huntsman, and the banks who acted as underwriters in our IPO and secondary offerings, for losses incurred by them in connection with these matters pursuant to our agreements with such parties. Because of the early stage of this litigation, we are unable to reasonably estimate any possible loss or range of loss and we have not accrued for a loss contingency with regard to these matters.

Tronox Litigation

On April 26, 2019, we acquired intangible assets related to the European paper laminates product line from Tronox. A separate agreement with Tronox entered into on July 14, 2018 requires that Tronox promptly pay us a "break fee" of $75 million upon the consummation of Tronox’s merger with Cristal once the sale of the European paper laminates business to us was consummated, if the sale of Cristal’s Ashtabula manufacturing complex to us was not completed. The deadline for such payment was May 13, 2019. On April 26, 2019, Tronox publicly stated that it believes it is not obligated to pay the break fee.

On May 14, 2019, we commenced a lawsuit in the Delaware Superior Court against Tronox arising from Tronox's breach of its obligation to pay the break fee. We are seeking a judgment for $75 million, plus pre- and post-judgment interest, and reasonable attorneys' fees and costs. On June 17, 2019, Tronox filed an answer denying that it is obligated to pay the break fee and asserting affirmative defenses and counterclaims of approximately $400 million, alleging that we failed to negotiate the purchase of the Ashtabula complex in good faith. Discovery is ongoing in this matter. Because of the early stage of this litigation, we are unable to reasonably estimate any possible gain, loss or range of gain or loss and we have not made any accrual with regard to this matter.

Neste Engineering Services Matter

We are party to an arbitration proceeding initiated by Neste Engineering Services Oy ("NES") on December 19, 2018 for payment of invoices allegedly due of approximately €14 million in connection with the delivery of services by NES to the Company in respect of the Pori site rebuild project. We are contesting the validity of these invoices and filed counterclaims against NES on March 8, 2019. The timetable for arbitration has been provisionally set with a hearing date to occur in early fourth quarter 2021. On July 2, 2019, NES separately instigated a lawsuit in Finland for €1.6 million of unpaid invoices. We are contesting the Finnish lawsuit and filed our defense on October 31, 2019. A hearing is anticipated in the fourth quarter of 2020. We are fully accrued for these invoices and they are reflected in our consolidated balance sheets as of December 31, 2019.

Calais Pipeline Matter

The Region Hauts-de-France (the "Region") has issued two duplicate title perception demands against us requiring repayment of €12 million. This sum was previously paid to us by the Region under a settlement agreement, pursuant to which we were required to move an effluent pipeline at our Calais site. We filed claims with the Administrative Court in Lille, France on February 14, 2018 and April 12, 2018, requesting orders that the demands be set aside, which suspended enforcement of the demands. On July 12, 2018, the court set aside the first demand. The second demand remains suspended, but in dispute. The parties have lodged various arguments and responses regarding the second demand with the court. The court has set a hearing date on the matter for March 17, 2020. We do not believe a loss is probable and have not made an accrual with respect to this matter.

Other Proceedings

We are a party to various other proceedings instituted by private plaintiffs, governmental authorities and others arising under provisions of applicable laws, including various environmental, products liability and other laws. Except as otherwise disclosed in these consolidated and combined financial statements, we do not believe that the outcome of any of these matters will have a material effect on our financial condition, results of operations or liquidity.

NOTE 24. ENVIRONMENTAL, HEALTH AND SAFETY MATTERS

Environmental, Health and Safety Capital Expenditures

We may incur future costs for capital improvements and general compliance under EHS laws, including costs to acquire, maintain and repair pollution control equipment. For the years ended December 31, 2019, December 31, 2018 and December 31, 2017, our capital expenditures for EHS matters totaled $35 million, $9 million and $10 million, respectively. Because capital expenditures for these matters are subject to evolving regulatory requirements and depend, in part, on the timing, promulgation and enforcement of specific requirements, our capital expenditures for EHS matters have varied significantly from year to year and we cannot provide assurance that our recent expenditures are indicative of future amounts we may spend related to EHS and other applicable laws.

Environmental Reserves

We accrue liabilities relating to anticipated environmental cleanup obligations, site reclamation and closure costs, and known penalties. Liabilities are recorded when potential liabilities are either known or considered probable and can be reasonably estimated. Our liability estimates are calculated using present value techniques as appropriate and are based upon requirements placed upon us by regulators, available facts, existing technology, and past experience. The environmental liabilities do not include amounts recorded as asset retirement obligations. As of December 31, 2019 and December 31, 2018, we had environmental reserves of $9 million and $12 million, respectively. We may incur additional losses for environmental remediation.

Environmental Matters

We have incurred, and we may in the future incur, liabilities to investigate and clean up waste or contamination at our current or former facilities or facilities operated by third parties at which we may have disposed of waste or other materials. Similarly, we may incur costs for the cleanup of waste that was disposed of prior to the purchase of our businesses. Under some circumstances, the scope of our liability may extend to damages to natural resources.

In the EU, the Environmental Liability Directive (Directive 2004/35/EC) has established a framework based on the "polluter pays" principle for the prevention and remediation of environmental damage, which establishes measures to prevent and remedy environmental damage. The directive defines "environmental damage" as damage to protected species and natural habitats, damage to water and damage to soil. Operators carrying out dangerous activities listed in the Directive are strictly liable for remediation, even if they are not at fault or negligent.

Under EU Directive 2010/75/EU on industrial emissions, permitted facility operators may be liable for significant pollution of soil and groundwater over the lifetime of the activity concerned. We are in the process of plant closures at facilities in the EU and liability to investigate and clean up waste or contamination may arise during the surrender of operators' permits at these locations under the directive and associated legislation such as the Water Framework Directive (Directive 2000/60/EC) and the Groundwater Directive (Directive 2006/118/EC).

Under CERCLA and similar state laws, a current or former owner or operator of real property in the U.S. may be liable for remediation costs regardless of whether the release or disposal of hazardous substances was in compliance with law at the time it occurred, and a current owner or operator may be liable regardless of whether it owned or operated the facility at the time of the release. Outside the U.S., analogous contaminated property laws, such as those in effect in the EU, can hold past owners and/or operators liable for remediation at former facilities. We have not been notified by third parties of claims against us for cleanup liabilities at former facilities or third-party sites, including, but not limited to, sites listed under CERCLA.

Under the Resource Conservation and Recovery Act in the U.S. and similar state laws, we may be required to remediate contamination originating from our properties as a condition to our hazardous waste permit. Some of our manufacturing sites have an extended history of industrial chemical manufacturing and use, including on-site waste disposal and we have made accruals for related remediation activity. We are aware of soil, groundwater or surface contamination from past operations at some of our sites and have made accruals for related remediation activity, and we may find contamination at other sites in the future. Similar laws exist in a number of locations in which we currently operate, or previously operated, manufacturing facilities, such as France and Italy.

Pori Remediation

In connection with our previously announced intention to close our TiO_2 manufacturing facility in Pori, Finland, we expect to incur environmental costs related to the cleanup of the facility upon its eventual closure, including remediation and closure costs. While we do not currently have enough information to be able to estimate the range of potential costs for the closure of this facility, the environmental assessment and related discussions with the Finnish environmental authorities are ongoing, and these costs could be material to our consolidated and combined financial statements.

NOTE 25. OTHER COMPREHENSIVE LOSS

Other comprehensive loss consisted of the following:

	Foreign currency translation adjustment[1]	Pension and other postretirement benefits adjustments, net of tax[2]	Other comprehensive income of unconsolidated affiliates	Hedging instruments	Total	Amounts attributable to noncontrolling interests	Amounts attributable to Venator
Beginning balance, January 1, 2018	**(6)**	**(267)**	**(5)**	**(5)**	**(283)**	**—**	**(283)**
Tax expense	—	—	—	—	—	—	—
Other comprehensive (loss) income before reclassifications	(90)	(27)	—	11	(106)	—	(106)
Tax expense	—	(2)	—	—	(2)	—	(2)
Amounts reclassified from accumulated other comprehensive loss, gross[3]	—	18	—	—	18	—	18
Tax expense	—	—	—	—	—	—	—
Net current-period other comprehensive (loss) income	**(90)**	**(11)**	**—**	**11**	**(90)**	**—**	**(90)**
Ending balance, December 31, 2018	**(96)**	**(278)**	**(5)**	**6**	**(373)**	**—**	**(373)**
Tax expense	—	—	—	—	—	—	—
Other comprehensive (loss) income before reclassifications	(1)	(32)	—	6	(27)	—	(27)
Tax expense	—	—	—	—	—	—	—
Amounts reclassified from accumulated other comprehensive loss, gross[3]	—	15	—	—	15	—	15
Tax expense	—	—	—	—	—	—	—
Net current-period other comprehensive (loss) income	**(1)**	**(17)**	**—**	**6**	**(12)**	**—**	**(12)**
Ending balance, December 31, 2019	**$ (97)**	**$ (295)**	**$ (5)**	**$ 12**	**$ (385)**	**$ —**	**$ (385)**

(1) Amounts are net of tax of nil each as of January 1, 2018, December 31, 2018 and December 31, 2019.

(2) Amounts are net of tax of $52 million, $50 million and $50 million as of January 1, 2018, December 31, 2018 and December 31, 2019, respectively.

(3) See table below for details about the amounts reclassified from accumulated other comprehensive loss.

	Year ended December 31,		Affected line item in the statement where net income is presented
	2019	2018	
Details about Accumulated Other Comprehensive Loss Components:			
Amortization of pension and other postretirement benefits:			
Actuarial loss	$ 14	$ 15	(a)
Prior service cost	1	3	(a)
Total before tax	15	18	
Income tax expense	—	—	Income tax (expense) benefit
Total reclassifications for the period, net of tax	**$ 15**	**$ 18**	

(a) These accumulated other comprehensive loss components are included in the computation of net periodic pension costs. See "Note 21. Employee Benefit Plans."

NOTE 26. OPERATING SEGMENT INFORMATION

We derive our revenues, earnings and cash flows from the manufacture and sale of a wide variety of commodity chemical products. We have reported our operations through our two segments, Titanium Dioxide and Performance Additives, and organized our business and derived our operating segments around differences in product lines. We have historically conducted other business within components of legal entities we operated in conjunction with Huntsman businesses, and such businesses are included within the corporate and other line item below.

The major product groups of each reportable operating segment are as follows:

Segment	Product Group
Titanium Dioxide	titanium dioxide
Performance Additives	functional additives, color pigments, timber treatment and water treatment chemicals

Sales between segments are generally recognized at external market prices and are eliminated in consolidation. Adjusted EBITDA is presented as a measure of the financial performance of our global business units and for reporting the results of our operating segments. The revenues and adjusted EBITDA for each of the two reportable operating segments are as follows:

	Year ended December 31,		
	2019	2018	2017
Revenues:			
Titanium Dioxide	$ 1,614	$ 1,666	$ 1,604
Performance Additives	516	599	605
Total	**$ 2,130**	**$ 2,265**	**$ 2,209**
Adjusted EBITDA[1]:			
Titanium Dioxide	$ 197	$ 417	$ 387
Performance Additives	47	62	72
	244	479	459
Corporate and other	(50)	(43)	(64)
Total	**$ 194**	**$ 436**	**$ 395**
Reconciliation of adjusted EBITDA to net (loss) income:			
Interest expense	(53)	(53)	(100)
Interest income	12	13	60
Income tax (expense) benefit—continuing operations	(150)	8	(50)
Depreciation and amortization	(110)	(132)	(127)
Net income attributable to noncontrolling interests	5	6	10
Other adjustments:			
Business acquisition and integration expenses	1	(20)	(5)
Separation gain (expense), net	3	(2)	(7)
U.S. income tax reform	—	—	34
Net income of discontinued operations, net of tax	—	—	8
(Loss) gain on disposition of business/assets	(1)	(2)	—
Certain legal settlements and related expenses	(4)	—	(1)
Amortization of pension and postretirement actuarial losses	(14)	(15)	(17)
Net plant incident (costs) credits	(20)	232	(4)
Restructuring, impairment and plant closing and transition costs	(33)	(628)	(52)
Net (loss) income	**$ (170)**	**$ (157)**	**$ 144**
Depreciation and Amortization:			
Titanium Dioxide	$ 79	$ 93	$ 85
Performance Additives	27	27	36
Corporate and other	4	12	6
Total	**$ 110**	**$ 132**	**$ 127**

	Year ended December 31,		
	2019	2018	2017
Capital Expenditures:			
Titanium Dioxide	$ 133	$ 301	$ 178
Performance Additives	18	24	17
Corporate and other	1	1	2
Total	**$ 152**	**$ 326**	**$ 197**
Total Assets:			
Titanium Dioxide	$ 1,670	$ 1,631	
Performance Additives	540	592	
Corporate and other	55	262	
Total	**$ 2,265**	**$ 2,485**	

(1) Adjusted EBITDA is defined as net (loss) income before interest expense, interest income, income tax expense/benefit,, depreciation and amortization and net income attributable to noncontrolling interests, as well as eliminating the following adjustments: (a) business acquisition and integration expenses/adjustments; (b) separation expense/gain, net; (c) U.S. income tax reform; (d) net income of discontinued operation, net of tax; (e) loss/gain on disposition of business/assets; (f) certain legal settlements and related expenses/gains; (g) amortization of pension and postretirement actuarial losses/gains; (h) net plant incident costs/credits; and (i) restructuring, impairment, and plant closing and transition costs/credits.

	Year ended December 31,		
By Geographic Area	2019	2018	2017
Revenues[(1)]:			
United States	$ 500	$ 518	$ 526
Germany	234	257	230
China	126	131	112
Italy	111	126	126
United Kingdom	110	116	114
Spain	92	96	86
France	78	89	94
India	62	65	63
Other nations	817	867	858
Total	**$ 2,130**	**$ 2,265**	**$ 2,209**
Long Lived Assets:			
Germany	$ 279	$ 263	
United Kingdom	189	180	
Italy	163	164	
United States	104	111	
Finland	46	69	
Other nations	208	207	
Total	**$ 989**	**$ 994**	

(1) Geographic information for revenues is based upon countries into which product is sold.

NOTE 27. SELECTED UNAUDITED QUARTERLY FINANCIAL DATA

2019	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Revenue	$ 562	$ 578	$ 526	$ 464
Cost of goods sold	486	511	464	431
Restructuring, impairment and plant closing and transition costs	12	—	12	9
Net (loss) income	(2)	22	(17)	(173)
Net (loss) income attributable to Venator	(3)	21	(19)	(174)
Basic income (loss) per share:				
Net (loss) income attributable to Venator Materials PLC ordinary shareholders	(0.03)	0.20	(0.18)	(1.63)
Diluted income (loss) per share:				
Net (loss) income per share attributable to Venator Materials PLC ordinary shareholders	(0.03)	0.20	(0.18)	(1.63)
2018				
Revenue	622	626	533	484
Cost of goods sold	454	193	463	440
Restructuring, impairment and plant closing and transition costs	9	136	428	55
Income (loss) from continuing operations	80	198	(366)	(69)
Net income (loss)	80	198	(366)	(69)
Net income (loss) attributable to Venator	78	196	(368)	(69)
Basic (loss) income per share:				
Net income (loss) per share attributable to Venator Materials PLC ordinary shareholders	0.73	1.84	(3.46)	(0.65)
Diluted (loss) income per share:				
Net income (loss) per share attributable to Venator Materials PLC ordinary shareholders	0.73	1.84	(3.46)	(0.65)

FREE CASH FLOW RECONCILIATION

	Year ended December 31,	
	2019	2018
Free cash flow[a]:		
Net cash provided by operating activities	$ 33	$ 282
Capital expenditures	(152)	(326)
Other investing activities	2	4
Non-recurring separation costs[b]	—	2
Total free cash flow	**$ (117)**	**$ (38)**
Adjusted EBITDA	$ 194	$ 436
Capital expenditures excluding cash paid for Pori rebuild	(115)	(114)
Cash paid for interest	(41)	(46)
Cash paid for income taxes	(8)	(34)
Primary working capital change	14	(105)
Restructuring	(26)	(37)
Maintenance & other	(71)	(78)
Net cash flows associated with Pori	(64)	(60)
Total free cash flow[a]	**$ (117)**	**$ (38)**

(a) Management internally uses a free cash flow measure: (a) to evaluate the Company's liquidity, (b) to evaluate strategic investments, (c) to evaluate the Company's ability to incur and service debt. Free cash flow is not a defined term under U.S. GAAP, and it should not be inferred that the entire free cash flow amount is available for discretionary expenditures. The Company defines free cash flow as cash flows provided by (used in) operating activities from continuing operations and used in investing activities. Free cash flow is typically derived directly from the Company's consolidated and combined statement of cash flows; however, it may be adjusted for items that affect comparability between periods. Free cash flow is presented as supplemental information.

(b) Represents payments associated with our separation from Huntsman

MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED SHAREHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Information and Holders

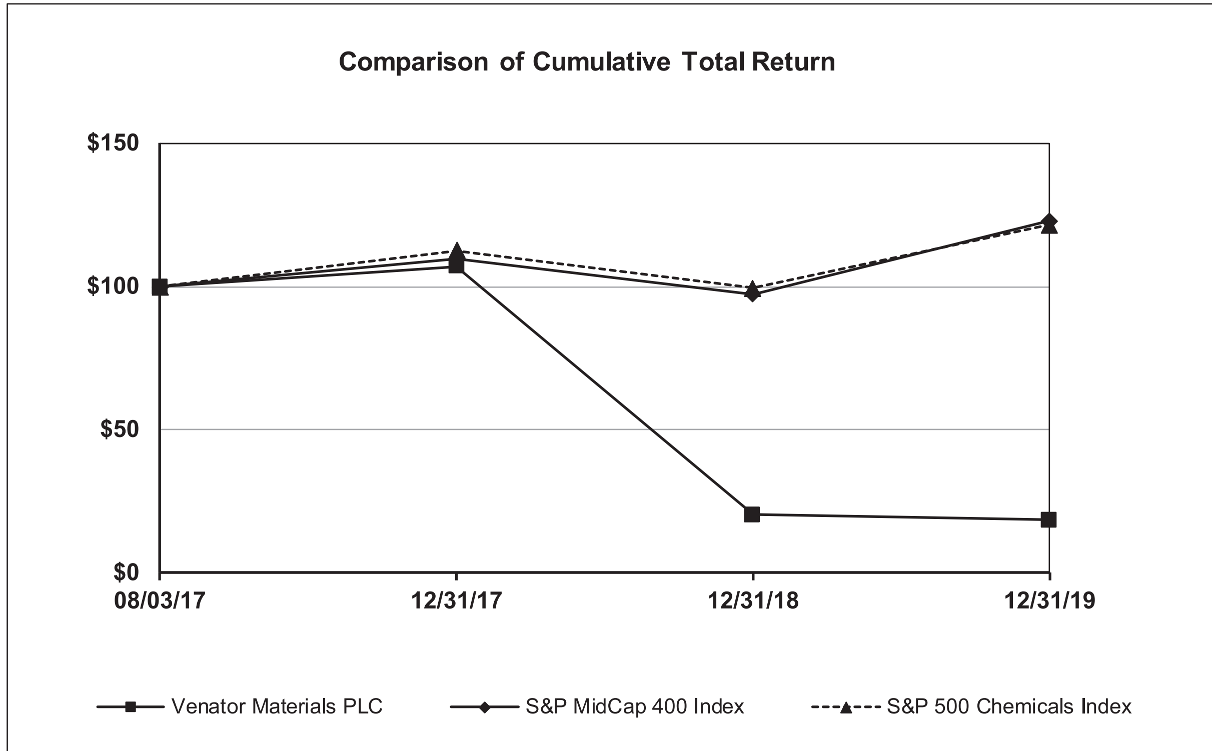
Our ordinary shares, $0.001 par value per share, are listed on the NYSE under the symbol "VNTR." As of March 10, 2020, there were three shareholders of record and the closing price of our ordinary shares on the New York Stock Exchange was $2.38 per share.

Dividend Policy

For the foreseeable future, we do not expect to pay dividends. However, we anticipate that our board of directors will consider the payment of dividends from time to time to return a portion of our profits to our shareholders when we experience adequate levels of profitability and associated reduced debt leverage. If our board of directors determines to pay any dividend in the future, there can be no assurance that we will continue to pay such dividends or the amount of such dividends.

STOCK PERFORMANCE GRAPH

The following graph presents the cumulative total shareholder return for Venator common stock compared with the Standard & Poor's (S&P) 500 Chemicals index and the S&P MidCap 400 index since August 3, 2017, the effective date that Venator's common stock began trading on the New York Stock Exchange.



The graph assumes that the values of Venator's common stock, the S&P 500 Chemicals index and the S&P MidCap 400 index were each $100 on August 3, 2017, and that all dividends were reinvested.

Board of Directors

Peter R. Huntsman
Chairman

Sir Robert J. Margetts
Vice Chairman and Lead Independent Director

Simon Turner
President and Chief Executive Officer

Douglas D. Anderson
Independent Director

Daniele Ferrari
Independent Director

Kathy Patrick
Independent Director

Management Team

Simon Turner
President and Chief Executive Officer

Mahomed Maiter
Executive Vice President, Business Operations

Kurt Ogden
Executive Vice President and Chief Financial Officer

Russ Stolle
Executive Vice President, General Counsel and Chief Compliance Officer

Dr Rob Portsmouth
Senior Vice President EHS, Innovation and Technology

Investor Information

Global Headquarters
Titanium House, Hanzard Drive
Wynyard Park, Stockton-on-Tees
TS22 5FD, United Kingdom

Independent Registered Public Accounting Firm
Deloitte LLP

Stockholder Inquiries
Inquiries from stockholders and other interested parties regarding our company are always welcome. Please direct your request to Investor Relations at our Global Headquarters address listed above, or use the contact details below:

Jeffrey Schnell
Director, Investor Relations
Tel: +1 832-663-4656
Email: ir@venatorcorp.com

Stock Transfer Agent

By Regular Mail:

Computershare
P.O. Box 43078
Providence, RI 02940

By overnight delivery:

Computershare
250 Royall Street
Canton, MA 02021

Telephone inquiries:

TFN: 1-866-644-4127 (US, Canada, Puerto Rico)

TN: 1-781-575-2906 (non-US)

TTY—Hearing Impaired Toll Free: 1-800-952-9245

TTY—Hearing Impaired International: +1-781-575-4592

Website: www.computershare.com/investor

Stock Listing
Our common stock is listed on the New York Stock Exchange under the symbol VNTR.

Annual General Meeting
The 2020 Annual General Meeting of shareholders will take place on Thursday, June 18, 2020 at 15:00 local time. Due to the COVID-19 pandemic, shareholder attendance may not be permitted.

Website
www.venatorcorp.com

www.venatorcorp.com