PPG INDUSTRIES INC
Form 10-Q
July 20, 2018

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

FORM 10-Q

QUARTERLY REPORT UNDER SECTION 13 or 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934
For Quarter Ended June 30, 2018
Commission File Number 1-1687

PPG INDUSTRIES, INC.
(Exact name of registrant as specified in its charter)

Pennsylvania	25-0730780
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One PPG Place, Pittsburgh, Pennsylvania	15272
(Address of principal executive offices)	(Zip Code)

(412) 434-3131
(Registrant’s telephone number, including area code)

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) has been subject to such filing requirements for the past 90 days. Yes ý No ¨
Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý No ¨
Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of “large accelerated filer,” “accelerated filer,” “smaller reporting company,” and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ý	Accelerated filer o
Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o
	Emerging growth company o

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ¨
Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ¨ No ý
As of June 30, 2018, 242,018,104 shares of the Registrant’s common stock, par value $1.66 2/3 per share, were outstanding.

EXPLANATORY NOTE

As described in additional detail in the Explanatory Note to its amended Annual Report on Form 10-K/A for the year ended December 31, 2017 (the “2017 Form 10-K/A”), PPG Industries, Inc. (together with its subsidiaries, the "Company" or "PPG") restated its audited consolidated financial statements for the years ended December 31, 2017 and 2016 and certain unaudited quarterly results related to the quarters ended December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017, including the six months ended June 30, 2017, in its 2017 Form 10-K/A as a result of certain misstatements identified by the Company. The impact of the restatement on the Company's condensed consolidated financial statements included herein is further described in Note 2, "Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements."

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PART I. FINANCIAL INFORMATION
Item 1. Financial Statements

PPG INDUSTRIES, INC. AND SUBSIDIARIES
Condensed Consolidated Statement of Income (Unaudited)
($ in millions, except per share amounts)

	Three Months Ended June 30		Six Months Ended June 30	
	2018	2017 As Restated	2018	2017 As Restated
Net sales	$4,131	$3,804	$7,912	$7,290
Cost of sales, exclusive of depreciation and amortization	2,379	2,083	4,560	3,985
Selling, general and administrative	945	876	1,851	1,751
Depreciation	91	81	178	160
Amortization	34	32	70	63
Research and development, net	114	112	226	221
Interest expense	31	26	57	51
Interest income	(7)	(4)	(12)	(8)
Pension settlement charge	—	—	—	22
Business restructuring	83	—	83	—
Other charges	6	8	47	33
Other income	(24)	(69)	(48)	(93)
Income from continuing operations before income taxes	$479	$659	$900	$1,105
Income tax expense	104	157	191	267
Income from continuing operations	$375	$502	$709	$838
(Loss)/Income from discontinued operations, net of tax	—	(1)	6	5
Net income attributable to controlling and noncontrolling interests	$375	$501	$715	$843
Less: Net income attributable to noncontrolling interests	(4)	(5)	(10)	(10)
Net income (attributable to PPG)	$371	$496	$705	$833
Amounts attributable to PPG:				
Income from continuing operations, net of tax	$371	$497	$699	$828
(Loss)/Income from discontinued operations, net of tax	—	(1)	6	5
Net income (attributable to PPG)	$371	$496	$705	$833
Earnings per common share:				
Income from continuing operations, net of tax	$1.51	$1.93	$2.83	$3.22
Income from discontinued operations, net of tax	—	—	0.02	0.02
Net income (attributable to PPG)	$1.51	$1.93	$2.85	$3.24
Earnings per common share – assuming dilution:				
Income from continuing operations, net of tax	$1.51	$1.92	$2.81	$3.19
Income from discontinued operations, net of tax	—	—	0.02	0.02
Net income (attributable to PPG)	$1.51	$1.92	$2.83	$3.21
Dividends per common share	$0.45	$0.40	$0.90	$0.80

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

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PPG INDUSTRIES, INC. AND SUBSIDIARIES
Condensed Consolidated Statement of Comprehensive Income (Unaudited)
($ in millions)

	Three Months Ended June 30		Six Months Ended June 30	
	2018	2017 As Restated	2018	2017 As Restated
Net income attributable to the controlling and noncontrolling interests	$375	$501	$715	$843
Other comprehensive (loss) income, net of tax:				
Defined benefit pension and other postretirement benefits	15	(55)	(52)	(34)
Unrealized foreign currency translation adjustments	(297)	82	(174)	361
Derivative financial instruments	2	(4)	—	(17)
Other comprehensive (loss) income, net of tax	($280)	$23	($226)	$310
Total comprehensive income	$95	$524	$489	$1,153
Less: amounts attributable to noncontrolling interests:				
Net income	(4)	(5)	(10)	(10)
Unrealized foreign currency translation adjustments	10	(6)	8	(13)
Comprehensive income attributable to PPG	$101	$513	$487	$1,130

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

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PPG INDUSTRIES, INC. AND SUBSIDIARIES
Condensed Consolidated Balance Sheet (Unaudited)
($ in millions)

	June 30, 2018	December 31, 2017
Assets		
Current assets:		
Cash and cash equivalents	$1,020	$1,436
Short-term investments	63	55
Receivables (less allowance for doubtful accounts of $23 and $25)	3,438	2,903
Inventories	1,956	1,730
Other	402	353
Total current assets	$6,879	$6,477
Property, plant and equipment (net of accumulated depreciation of $3,848 and $3,770)	2,738	2,824
Goodwill	3,920	3,942
Identifiable intangible assets, net	1,986	2,045
Deferred income taxes	290	305
Investments	258	268
Other assets	723	677
Total	$16,794	$16,538
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$3,893	$3,781
Restructuring reserves	132	102
Short-term debt and current portion of long-term debt	22	12
Total current liabilities	$4,047	$3,895
Long-term debt	5,048	4,134
Accrued pensions	674	729
Other postretirement benefits	688	699
Deferred income taxes	425	442
Other liabilities	929	967
Total liabilities	$11,811	$10,866
Commitments and contingent liabilities (Note 17)		
Shareholders' equity:		
Common stock	969	969
Additional paid-in capital	769	756
Retained earnings	17,725	17,140
Treasury stock, at cost	(12,304)	(11,251)
Accumulated other comprehensive loss	(2,275)	(2,057)
Total PPG shareholders' equity	$4,884	$5,557
Noncontrolling interests	99	115
Total shareholders' equity	$4,983	$5,672
Total	$16,794	$16,538

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

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PPG INDUSTRIES, INC. AND SUBSIDIARIES
Condensed Consolidated Statement of Cash Flows (Unaudited)

($ in millions)	Six Months Ended June 30 2018	2017 As Restated
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$715	$843
Less: Income from discontinued operations	(6)	(5)
Income from continuing operations	$709	$838
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	248	223
Pension expense	20	34
Pension settlement charge	—	22
Environmental remediation charges	34	—
Business restructuring charge	83	—
Impairment of a non-manufacturing asset	9	—
Stock-based compensation expense	18	17
Gain from the sale of a business	—	(25)
Equity affiliate loss, net of dividends	6	3
Deferred income tax benefit	(13)	(40)
Cash contributions to pension plans	(35)	(37)
Cash used for restructuring actions	(34)	(20)
Change in certain asset and liability accounts:		
Receivables	(626)	(406)
Inventories	(270)	(185)
Other current assets	(5)	(49)
Accounts payable and accrued liabilities	198	147
Taxes and interest payable	(130)	(128)
Noncurrent assets and liabilities, net	(30)	(14)
Other	(51)	52
Cash from operating activities - continuing operations	$131	$432
Cash from operating activities - discontinued operations	—	14
Cash from operating activities	$131	$446
Investing activities:		
Capital expenditures	(118)	(135)
Business acquisitions, net of cash balances acquired	(98)	(62)
Payments for acquisition of equity investment	—	(100)
Proceeds from the disposition of a business	—	52
Payments for the settlement of cross currency swap contracts	(17)	(34)
Proceeds from the settlement of cross currency swap and foreign currency contracts	3	19
Other	13	2
Cash used for investing activities - continuing operations	($217)	($258)
Cash used for investing activities - discontinued operations	—	(3)
Cash used for investing activities	($217)	($261)
Financing activities:		
Net change in borrowing with maturities of three months or less	11	(3)

Net payments on commercial paper and short-term debt	(1)	(61)
Proceeds from the issuance of debt, net of discounts and fees	992	—
Repayment of long-term debt	(3)	(8)
Purchase of treasury stock	(1,063)	(163)
Issuance of treasury stock	10	20
Dividends paid	(222)	(205)
Payments related to tax withholding on stock-based compensation awards	(13)	(20)
Other	(16)	(50)
Cash used for financing activities	($305)	($490)
Effect of currency exchange rate changes on cash and cash equivalents	(25)	54
Net decrease in cash and cash equivalents	($416)	($251)
Cash and cash equivalents, beginning of period	1,436	1,820
Cash and cash equivalents, end of period	$1,020	$1,569
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$53	$52
Taxes paid, net of refunds	$234	$326

The accompanying notes to the condensed consolidated financial statements are an integral part of this condensed consolidated statement.

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PPG INDUSTRIES, INC. AND SUBSIDIARIES
Notes to Condensed Consolidated Financial Statements (Unaudited)

1. Basis of Presentation
The condensed consolidated financial statements included herein are unaudited and have been prepared following the requirements of the Securities and Exchange Committee (the "SEC") and accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim reporting. Under these rules, certain footnotes and other financial information that are normally required for annual financial statements can be condensed or omitted. These statements include all adjustments, consisting only of normal, recurring adjustments, necessary for a fair presentation of the financial position of PPG as of June 30, 2018, and the results of its operations and cash flows for the three and six months ended June 30, 2018 and 2017. All intercompany balances and transactions have been eliminated. Material subsequent events are evaluated through the report issuance date and disclosed where applicable. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and notes included in PPG's 2017 Form 10-K/A .

Net sales, expenses, assets and liabilities can vary during each quarter of the year. Accordingly, the results of operations for the three and six months ended June 30, 2018 and the trends in these unaudited condensed consolidated financial statements may not necessarily be indicative of the results to be expected for the full year.

Certain prior period amounts have been reclassified to conform to the current period presentation and reflect the adoption of certain accounting standard updates, including the information presented for our reportable segments. These reclassifications had no impact on our previously reported net income, total assets, cash flows or shareholders' equity.

2. Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements
As described in additional detail in the Explanatory Note to its 2017 Form 10-K/A, the Company restated its audited consolidated financial statements for the years ended December 31, 2017 and 2016 and certain unaudited quarterly results related to the quarters ended December 31, 2016, March 31, 2017, June 30, 2017, September 30, 2017 and December 31, 2017, including the six months ended June 30, 2017.

On April 16, 2018, PPG received a report through the Company's internal reporting system alleging violations of the Company's accounting policies and procedures regarding the failure to accrue certain specified expenses in the first quarter of 2018. Based on the Company's initial review at that time, the Company identified approximately $1.4 million of expenses (including legal fees, property taxes and performance-based compensation) that should have been accrued in the first quarter of 2018 and that were then reflected in PPG's earnings for the quarter ended March 31, 2018, released on April 19, 2018. In addition, the report alleged that there may have been other unspecified expenses, potentially up to $5 million in the aggregate, that were improperly not accrued in the first quarter.

The Audit Committee of the Board of Directors (the "Audit Committee") oversaw an investigation of the matters set forth in the internal report, with the assistance of outside counsel and forensic accountants. The investigation identified the following items with respect to the quarter ended March 31, 2018, in addition to the approximately $1.4 million of expenses described above: (1) failure to record amortization expense in the amount of $1.4 million to correct for amortization of an intangible asset that was inadvertently not recorded over a three-year period and discovered in March 2018; (2) understatement of a health insurance accrued liability in the amount of $0.5 million; and (3) failure to record an adjustment increasing the value of inventory in PPG's Europe, Middle East and Africa region in the amount of $2.2 million due to inflation of raw materials costs which, when corrected, had a positive effect on income in the first quarter of 2018. These three items resulted in a net increase to income from continuing operations before income taxes of approximately $0.3 million.

The investigation also identified certain inadvertent errors with respect to the quarter ended March 31, 2018. Correction of such inadvertent errors, together with the matters discussed in the immediately preceding paragraph, resulted in a net decrease in income from continuing operations before income taxes of $5.7 million for the quarter ended March 31, 2018.

The investigation identified the following items with respect to the year ended December 31, 2017: (1) improper reclassifications of gains from income from discontinued operations to income from continuing operations in total pre-tax amounts of $2.5 million in the quarter ended June 30, 2017 and $4.7 million in the quarter ended December 31, 2017; (2) improper shifting of pre-tax expenses between quarterly periods in 2017, including a total of $3.5 million in compensation expense recorded in the third and fourth quarters of 2017 that should have been recorded in the quarter ended June 30, 2017; an additional expense accrual for health care claims in the amount of $3.5 million recorded in the third quarter of 2017 that should have been recorded in the quarter ended June 30, 2017; and additional expense for paid vacation in the amount of $2.2 million recorded in the quarter ended December 31, 2017 that should have been recorded in the second and third quarters of 2017.

The investigation also identified an improper reduction in the payout assumption for certain performance-based restricted stock units that had the impact of recognizing a $6.8 million reduction in stock based compensation expense in the fourth quarter of 2016. In the first quarter of 2017, the payout assumption for these same performance-based restricted stock units was increased, resulting in $6.8 million of stock-based compensation expense in the first quarter of 2017 that would not have been recorded if the payout assumption had not been reduced in the fourth quarter of 2016.

On May 10, 2018, management, in consultation with the Audit Committee and the Company’s independent registered public accounting firm, PricewaterhouseCoopers LLP ("PwC"), concluded that the Company’s consolidated financial statements for the year ended December 31, 2017 included in the Company's originally filed 2017 Annual Report on Form 10-K and the related report of PwC, and for the quarterly and year-to-date periods in 2017, should no longer be relied upon because of certain misstatements contained in those financial statements.

On June 27, 2018, the Audit Committee determined that its investigation was complete, and authorized the filing of our restated audited consolidated financial statements for the years ended December 31, 2017 and 2016 and certain quarterly periods within those fiscal years in order to correct our previously issued financial statements.

Impact of the Restatement

As a result of the restatement, reported net income from continuing operations and earnings per diluted share from continuing operations was adjusted for the interim period ended June 30, 2017 as follows:

- For the quarter ended June 30, 2017, net income from continuing operations decreased $7 million, or $0.03 per diluted share, and income from discontinued operations, net of tax, increased by $2 million, or $0.01 per diluted share.
- For the six months ended June 30, 2017, net income from continuing operations decreased $4 million, or $0.02 per diluted share, and income from discontinued operations, net of tax, increased by $2 million, or$0.01 per diluted share.

The categories of misstatements and their impact on previously reported condensed consolidated financial statements are described below:

(a) Customer Rebates

The Company did not properly recognize expense associated with certain customer rebates, resulting in a misstatement of Net sales in the first and second quarters of 2017. The misstatements overstated previously reported Income from continuing operations before income taxes by $1.4 million and $1.8 million for the three and six months ended June 30, 2017, respectively.

(b) Employee Vacation Pay

The Company did not properly recognize expense associated with a change in the Company’s vacation policy in the second and third quarters of 2017. Rather, the entire amount of expense associated with this change was recognized in the fourth quarter of 2017, resulting in a misstatement of expense in the second, third and fourth quarters of 2017. The misstatements overstated previously reported Income from continuing operations before income taxes by $0.9 million for the three and six months ended June 30, 2017.

(c) Compensation Expense

The Company did not properly record compensation expense related to a payment made to an employee upon his separation from the Company in the second quarter of 2017. Rather, the expense associated with this payment was recognized in the second, third and fourth quarters of 2017 resulting in a misstatement of expense in each of these periods. The misstatements overstated previously reported Income from continuing operations before income taxes by $3.5 million for the three and six months ended June 30, 2017.

(d) Health Care Claims

The Company did not properly recognize expense associated with the Company’s liability for employee health care claims in the second quarter of 2017. Rather, this expense was recognized in the third quarter of 2017, resulting in a misstatement of expense in the second and third quarters of 2017. The misstatements overstated previously reported Income from continuing operations before income taxes by $3.5 million for the three and six months ended June 30, 2017.

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(e) Classification of Continuing Operations and Discontinued Operations

Certain items of income related to PPG's former Glass segment were inappropriately recorded in continuing operations rather than in discontinued operations. The misstatements overstated previously reported Income from continuing operations before income taxes by $2.5 million for the three and six months ended June 30, 2017. The misstatements understated previously recorded Income from discontinued operations, net of tax, by $1.5 million for the three and six months ended June 30, 2017.

(f) Stock-Based Compensation

In the fourth quarter of 2016, the Company improperly reduced the payout assumption for the 2015 grant of performance-based restricted stock units from 150% to 100%, which had the effect of reducing stock-based compensation expense in that period by $6.8 million. In the first quarter of 2017, the Company increased the payout assumption for these same restricted stock units from 100% back to 150%. These improper changes to the payout assumption for these restricted stock units resulted in a misstatement of stock-based compensation expense in the first quarter of 2017. The misstatements understated previously reported Income from continuing operations before income taxes by $6.8 million for the six months ended June 30, 2017.

(g) Environmental Reserve

In the first quarter of 2017, the Company failed to appropriately update the discount rate used to calculate a long-term environmental remediation reserve, which had the effect of understating Other expense by $0.5 million in the quarter. The misstatement overstated previously reported Income from continuing operations before taxes by $0.5 million for the six months ended June 30, 2017.

(h) Income Taxes

Adjustments related to the income tax effects of other restatement adjustments noted above.

The financial statements included in this Form 10-Q have been restated to reflect the adjustments described above. The tables below summarizes the effects of the restatement on the Condensed Consolidated Statements of Income for the three and six months ended June 30, 2017.

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Condensed Consolidated Statement of Income (unaudited) - Summary of Restatement

	Three Months Ended June 30, 2017			
	As Previously Reported	Restatement Adjustment	Reference	As Restated
Net sales	$3,806	($2)	(a)	$3,804
Selling, general and administrative	865	7	(b),(c),(d)	872
Other income	(72)	3	(e)	(69)
Income from continuing operations before income taxes	$671	($12)		$659
Income tax expense	162	(5)	(h)	157
Income from continuing operations	$509	($7)		$502
Loss from discontinued operations, net of tax	(3)	2	(e)	(1)
Net income attributable to the controlling and noncontrolling interests	$506	($5)		$501
Less: Net income attributable to noncontrolling interests	(5)	—		(5)
Net income (attributable to PPG)	$501	($5)		$496
Amounts attributable to PPG:				
Income from continuing operations, net of tax	$504	($7)		$497
Loss from discontinued operations, net of tax	(3)	2		(1)
Net income (attributable to PPG)	$501	($5)		$496
Earnings per common share:				
Income from continuing operations, net of tax	$1.96	($0.03)		$1.93
Loss from discontinued operations, net of tax	(0.01)	0.01		—
Net income (attributable to PPG)	$1.95	($0.02)		$1.93
Earnings per common share – assuming dilution:				
Income from continuing operations, net of tax	$1.95	($0.03)		$1.92
Loss from discontinued operations, net of tax	(0.01)	0.01		—
Net income (attributable to PPG)	$1.94	($0.02)		$1.92
Dividends per common share	$0.40	$—		$0.40

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	Six Months Ended June 30, 2017			
	As Previously Reported	Restatement Adjustment	Reference	As Restated
Net sales	$7,292	($2)	(a)	$7,290
Selling, general and administrative	1,753	1	(b),(c),(d),(f)	1,754
Other charges	26	—	(g)	26
Other income	(96)	3	(e)	(93)
Income from continuing operations before income taxes	$1,111	($6)		$1,105
Income tax expense	269	(2)	(h)	267
Income from continuing operations	$842	($4)		$838
Income from discontinued operations, net of tax	3	2	(e)	5
Net income attributable to the controlling and noncontrolling interests	$845	($2)		$843
Less: Net income attributable to noncontrolling interests	(10)	—		(10)
Net income (attributable to PPG)	$835	($2)		$833
Amounts attributable to PPG:				
Income from continuing operations, net of tax	$832	($4)		$828
Income from discontinued operations, net of tax	3	2		5
Net income (attributable to PPG)	$835	($2)		$833
Earnings per common share:				
Income from continuing operations, net of tax	$3.23	($0.01)		$3.22
Income from discontinued operations, net of tax	0.01	0.01		0.02
Net income (attributable to PPG)	$3.24	$—		$3.24
Earnings per common share – assuming dilution:				
Income from continuing operations, net of tax	$3.21	($0.02)		$3.19
Income from discontinued operations, net of tax	0.01	0.01		0.02
Net income (attributable to PPG)	$3.22	($0.01)		$3.21
Dividends per common share	$0.80	$—		$0.80

Quarterly Condensed Consolidated Statement of Comprehensive Income (unaudited) - Summary of Restatement

In the condensed consolidated statement of comprehensive income for the three and six months ended June 30, 2017, Net income attributable to the controlling and noncontrolling interests reflects the impact of the restatement adjustments. The restatement adjustments had no impact to the previously disclosed components of Other comprehensive income, net of tax.

Quarterly Condensed Consolidated Statement of Cash Flows (unaudited) - Summary of Restatement

There was no net impact of the restatement adjustments on net cash provided by operating activities, net cash provided by investing activities or net cash used in financing activities in the condensed consolidated statement of cash flows for the six months ended June 30, 2017. The adjustments only had an impact on certain captions within cash from operating activities.

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3. New Accounting Standards

Accounting Standards Adopted in 2018

Effective January 1, 2018, PPG adopted Accounting Standard Updates ("ASU") No. 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." This ASU requires the service cost component of these costs to be disaggregated from all other components and to be reported in the same line item or items as other compensation costs. The other components of these costs are required to be presented in the income statement separately from the service cost component. This ASU required retrospective adoption for all prior periods presented.

The effect of the retrospective adoption on the condensed consolidated statement of income related to the net periodic pension and other postretirement benefit costs was as follows:

	Three Months Ended June 30, 2017		
($ in millions)	As Previously Reported (1)	Reclassifications	As Revised
Cost of sales, exclusive of depreciation and amortization	$2,082	$1	$2,083
Selling, general and administrative	872	4	876
Research and development, net	113	(1)	112
Other charges	12	(4)	8
Income from continuing operations before income taxes	659	—	659

	Six Months Ended June 30, 2017		
($ in millions)	As Previously Reported (1)	Reclassifications	As Revised
Cost of sales, exclusive of depreciation and amortization	$3,987	($2)	$3,985
Selling, general and administrative	1,754	(3)	1,751
Research and development, net	223	(2)	221
Other charges	26	7	33
Income from continuing operations before income taxes	1,105	—	1,105

(1) Previously reported amounts reflect the impact of the restatement as described in Note 2, "Restatement of Previously Reported Condensed Consolidated Quarterly Financial Statements" and in the 2017 Form 10-K/A

In February 2018, the Financial Accounting Standards Board ("FASB") issued ASU No. 2018-02, "Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income." This ASU allows a reclassification from Accumulated other comprehensive income to Retained earnings for stranded tax effects resulting from the Tax Cuts and Jobs Act. PPG early adopted this standard in the first quarter of 2018 using the specific identification method and recorded a reclassification from other comprehensive income to retained earnings of $107 million.

Effective January 1, 2018, PPG adopted ASU No. 2014-09, "Revenue from Contracts with Customers: Topic 606." See Note 4, "Revenue Recognition" for further details regarding the impact of adoption of this standard.

PPG's adoption of the following ASU's in 2018 did not have a significant impact on PPG's consolidated financial position, results of operations or cash flows:

Accounting Standard Update	
2017-12	Derivatives and Hedging - Targeted Improvements to Accounting for Hedging Activities
2017-09	Stock Compensation - Scope of Modification Accounting
2016-16	Intra-Entity Transfers of Assets Other Than Inventory
2016-05	Classification of Certain Cash Receipts and Cash Payments
2016-01	Recognition and Measurement of Financial Assets and Liabilities

Accounting Standards to be Adopted in Future Years

In June 2016, the FASB issued ASU No. 2016-13, “Financial Instruments - Credit Losses.” This ASU requires an organization to measure all expected credit losses for financial assets held at the reporting date based on historical experience, current conditions, and reasonable and supportable forecasts. Financial institutions and other organizations will now use forward-looking information to better inform their credit loss estimates. The amendments in this ASU are effective for fiscal years beginning after December 15, 2019 and for interim periods therein. Entities may choose to

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adopt the new ASU as of its fiscal year beginning after December 15, 2018. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operations or cash flows.

In February 2016, the FASB issued ASU No. 2016-02, “Leases.” This ASU requires all lessees to recognize on the balance sheet right to use assets and lease liabilities for the rights and obligations created by lease arrangements with terms greater than 12 months. The amendments in this ASU are effective for fiscal years beginning after December 15, 2018 and for interim periods therein. PPG is in the process of assessing the impact the adoption of this ASU will have on its consolidated financial position, results of operations and cash flows. At a minimum, total assets and total liabilities will increase in the period the ASU is adopted. Early adoption of this ASU is permitted. At December 31, 2017, PPG’s undiscounted future minimum payments outstanding for lease obligations were approximately $840 million.

4. Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, “Revenue from Contracts with Customers: Topic 606.” This ASU replaces nearly all existing U.S. GAAP guidance on revenue recognition. The standard prescribes a five-step model for recognizing revenue, the application of which may require significant judgment. The new guidance requires PPG to evaluate the transfer of promised goods or services to customers and recognize revenue in an amount that reflects the consideration which the Company expects to be entitled to receive in exchange for those goods and services.

The Company recognizes revenue when control of the promised goods or services is transferred to the customer and in amounts that the Company expects to collect. The timing of revenue recognition takes into consideration the various shipping terms applicable to the Company’s sales. For most transactions, control passes in accordance with agreed upon delivery terms. This approach is consistent with the Company’s historical revenue recognition methodology.

The Company delivers products to company-owned stores, home centers and other regional or national consumer retail outlets, paint dealers, concessionaires and independent distributors, company-owned distribution networks, and directly to manufacturing companies and retail customers. Each product delivered to a third party customer is considered to satisfy a performance obligation. Performance obligations generally occur at a point in time and are satisfied when control of the goods passes to the customer. The Company is entitled to collection of the sales price under normal credit terms in the regions in which it operates.

The Company also provides services by applying coatings to customers' manufactured parts and assembled products and by providing technical support to certain customers. Performance obligations are satisfied over time as critical milestones are met and as services are provided. PPG is entitled to payment as the services are rendered. For the three and six months ended June 30, 2018 and 2017, service revenue constituted approximately 5% of total revenue, while the balance constituted standard ship and bill, retail or consignment arrangements. Accounts receivable are recognized when there is an unconditional right to consideration. Payment terms vary from customer to customer, depending on creditworthiness, prior payment history and other considerations.

Net sales by segment and region for the three and six months ended June 30, 2018 and 2017 were as follows:

($ in millions)	Performance Coatings		Industrial Coatings		Total Net Sales	
	Three Months Ended June 30		Three Months Ended June 30		Three Months Ended June 30	
	2018	2017 As Restated	2018	2017	2018	2017 As Restated
United States and Canada	$1,173	$1,093	$619	$588	$1,792	$1,681
EMEA	811	740	468	412	1,279	1,152
Asia-Pacific	277	238	403	370	680	608
Latin America	237	228	143	135	380	363
Total	$2,498	$2,299	$1,633	$1,505	$4,131	$3,804

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($ in millions)	Performance Coatings		Industrial Coatings		Total Net Sales	
	Six Months Ended June 30		Six Months Ended June 30		Six Months Ended June 30	
	2018	2017 As Restated	2018	2017	2018	2017 As Restated
United States and Canada	$2,147	$2,055	$1,230	$1,169	$3,377	$3,224
EMEA	1,518	1,369	941	806	2,459	2,175
Asia-Pacific	519	458	791	733	1,310	1,191
Latin America	474	434	292	266	766	700
Total	$4,658	$4,316	$3,254	$2,974	$7,912	$7,290

The Company adopted the ASU using the modified retrospective approach which required the financial statements to reflect the new standard as of January 1, 2018, and as a result, contracts that ended prior to January 1, 2018 were not included within the Company’s assessment. Accordingly, the amounts in the comparative condensed consolidated statements of income and condensed consolidated balance sheet have not been recast. The ASU also provided additional clarity that resulted in reclassifications to or from Net sales, Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative and Other income. Certain costs historically reported in Selling, general and administrative costs will now be recorded in Cost of sales, exclusive of depreciation and amortization in the condensed consolidated statement of income, as they represent costs incurred in satisfaction of performance obligations. In addition, the cost of certain customer incentives are now recorded as a reduction of Net sales rather than Cost of sales, exclusive of depreciation and amortization or Selling, general and administrative costs.

The following table summarizes the impact of the adoption of this ASU on the condensed consolidated statement of income for the three and six months ended June 30, 2018:

	Three Months Ended June 30, 2018		
($ in millions)	Without adoption	Adjustments	As Reported
Net sales	$4,134	($3)	$4,131
Cost of sales, exclusive of depreciation and amortization	2,360	19	2,379
Selling, general and administrative	963	(18)	945
Other income	(26)	2	(24)
Income from continuing operations before income taxes	479	—	479

	Six Months Ended June 30, 2018		
($ in millions)	Without adoption	Adjustments	As Reported
Net sales	$7,919	($7)	$7,912
Cost of sales, exclusive of depreciation and amortization	4,517	43	4,560
Selling, general and administrative	1,892	(41)	1,851
Other income	(53)	5	(48)
Income from continuing operations before income taxes	900	—	900

5. Acquisitions and Divestitures

Acquisitions

In January 2018, PPG acquired ProCoatings, a leading architectural paint and coatings wholesaler located in The Netherlands. ProCoatings, established in 2001, distributes a large portfolio of well-known professional paint brands through its network of 23 multi-brand stores.

In January 2017, PPG completed the acquisition of DEUTEK S.A., a leading Romanian paint and architectural coatings manufacturer, from the Emerging Europe Accession Fund. DEUTEK, established in 1993, manufactures and markets a large portfolio of well-known professional and consumer paint brands, including OSKAR® and DANKE!®. The company's products are sold in more than 120 do-it-yourself stores and 3,500 independent retail outlets in Romania.

In January 2017, PPG also acquired certain assets of automotive refinish coatings company Futian Xinshi ("Futian"), an automotive refinish coatings company based in the Guangdong province of China. Futian distributes its products in China through a network of more than 200 distributors.

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Taiwan Chlorine Industries

Taiwan Chlorine Industries (“TCI”) was established in 1986 as a joint venture between PPG and China Petrochemical Development Corporation (“CPDC”) to produce chlorine-based products in Taiwan, at which time PPG owned 60 percent of the venture. In conjunction with the 2013 separation of its commodity chemicals business, PPG conveyed to Axiall Corporation ("Axiall") its 60% ownership interest in TCI. Under PPG’s agreement with CPDC, if certain post-closing conditions were not met following the three year anniversary of the separation, CPDC had the option to sell its 40% ownership interest in TCI to Axiall for $100 million. In turn, Axiall had a right to designate PPG as its designee to purchase the 40% ownership interest of CPDC. In April 2016, Axiall announced that CPDC had decided to sell its ownership interest in TCI to Axiall. In June 2016, Axiall formally designated PPG to purchase the 40% ownership interest in TCI. In August 2016, Westlake Chemical Corporation acquired Axiall, which became a wholly-owned subsidiary of Westlake. On April 11, 2017, PPG finalized its purchase of CPDC’s 40% ownership interest in TCI. The difference between the acquisition date fair value and the purchase price of PPG’s 40% ownership interest in TCI was recorded as a loss in discontinued operations during the second quarter 2017.

Divestitures

Glass Segment

The net sales and income from discontinued operations related to the former Glass reportable business segment for the three and six months ended June 30, 2017 were as follows:

($ in millions)	Three Months Ended June 30, 2017 As Restated	Six Months Ended June 30, 2017 As Restated
Net sales	$84	$167
Income from operations	$12	$21
Income tax expense	4	8
Income from discontinued operations, net of tax	$8	$13

6. Inventories

($ in millions)	June 30, 2018	December 31, 2017
Finished products	$1,218	$1,083
Work in process	204	177
Raw materials	500	437
Supplies	34	33
Total Inventories	$1,956	$1,730

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 33% and 34% of total inventories at June 30, 2018 and December 31, 2017, respectively. If the first-in, first-out method of inventory valuation had been used, inventories would have been $113 million and $103 million higher as of June 30, 2018 and December 31, 2017, respectively.

7. Goodwill and Other Identifiable Intangible Assets

The change in the carrying amount of goodwill attributable to each reportable segment for the six months ended June 30, 2018 was as follows:

($ in millions)	Performance Coatings	Industrial Coatings	Total
January 1, 2018	$3,104	$838	$3,942
Acquisitions	53	1	54

Foreign currency	(62)	(14)	(76)
June 30, 2018	$3,095	$825	$3,920

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A summary of the carrying value of the Company's identifiable intangible assets is as follows:

($ in millions)	June 30, 2018 Gross Carrying Amount	June 30, 2018 Accumulated Amortization	June 30, 2018 Net	December 31, 2017 Gross Carrying Amount	December 31, 2017 Accumulated Amortization	December 31, 2017 Net
Trademarks - indefinite lives	$1,142	N/A	$1,142	$1,158	N/A	$1,158
Customer-related intangibles	$1,414	($781)	$633	$1,437	($762)	$675
Acquired technology	630	(502)	128	613	(489)	124
Trade names	166	(91)	75	166	(87)	79
Other	43	(35)	8	44	(35)	9
Total	$2,253	($1,409)	$1,986	$3,418	($1,373)	$2,045

The Company’s identifiable intangible assets with finite lives are being amortized over their estimated useful lives.

($ in millions)	Three Months Ended June 30 2018	Three Months Ended June 30 2017	Six Months Ended June 30 2018	Six Months Ended June 30 2017
Amortization expense related to identifiable intangible assets	$34	$32	$70	$63

As of June 30, 2018, estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	Future Amortization Expense
Remaining six months of 2018	$60
2019	120
2020	110
2021	105
2022	105
2023	95
Thereafter	249

8. Business Restructuring

The Company records restructuring liabilities that represent charges incurred in connection with consolidations of certain operations, including operations from acquisitions, as well as headcount reduction programs. These charges consist primarily of severance costs and asset write-downs.

On April 23, 2018, the Company approved a business restructuring plan which includes actions to reduce its global cost structure. The program is in response to the impacts of a customer assortment change in our U.S. architectural coatings business during the first quarter 2018 and sustained, elevated raw material inflation. The program aims to further right-size employee headcount and production capacity in certain businesses based on current product demand, as well as reductions in various global functional and administrative costs.

A pretax restructuring charge of $83 million was recorded in PPG's second quarter 2018 financial results, of which $80 million represents employee severance and other cash costs. The remainder of the charge represents the write-down of certain assets. In addition, other cash costs of approximately $25 million will be incurred, consisting of approximately $10 million of incremental restructuring-related cash costs for certain items that are required to be expensed on an as-incurred basis and approximately $15 million for items which are expected to be capitalized. The Company also expects approximately $20 million of incremental non-cash accelerated depreciation expense for certain assets due to their reduced expected asset life as a result of this program, $5 million of which was recognized in the second quarter of 2018. Substantially all actions from this business restructuring plan are expected to be complete by the end of the second quarter of 2019.

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The 2018 restructuring charge and the reserve activity for the quarter ended June 30, 2018 were as follows:

($ in millions, except for employees impacted)	Severance and Other Costs	Asset Write-offs	Total Reserve	Employees Impacted
Performance Coatings	$49	$3	$52	1,032
Industrial Coatings	21	—	21	298
Corporate	10	—	10	348
Total second quarter 2018 restructuring charge	$80	$3	$83	1,678
2018 Activity	(2)	(3)	(5)	(358)
Foreign currency impact	(2)	—	(2)	—
June 30, 2018	$76	$—	$76	1,320

In December 2016, PPG's Board of Directors approved a business restructuring program which includes actions necessary to reduce the Company's global cost structure. The program is focused on certain regions and end-use markets where business conditions are the weakest, as well as reductions in production capacity and various global functional and administrative costs. The restructuring actions will result in the net reduction of approximately 2,000 positions, with substantially all actions to be completed in 2018.

In the first quarter of 2018, adjustments of approximately $17 million were recorded to reduce the remaining restructuring reserves established in 2016 to reflect the current estimate of the costs to complete these actions. Also in the first quarter of 2018, some additional restructuring actions were approved and charges of approximately $17 million were recorded.

The following table summarizes the reserve activity related to the 2016 restructuring charge for the six months ended June 30, 2018:

($ in millions, except for employees impacted)	Severance and Other Costs	Employees Impacted
December 31, 2017	$102	949
2018 Activity	(30)	(491)
Foreign currency	(3)	—
June 30, 2018	$69	458

9. Borrowings

In February 2018, PPG completed a public offering of $300 million aggregate principal amount of 3.2% notes due 2023 and $700 million aggregate principal amount of 3.75% notes due 2028. These notes were issued pursuant to PPG's existing shelf registration statement and pursuant to an indenture between the Company and The Bank of New York Mellon Trust Company, N.A., as trustee, as supplemented. The Indenture governing these notes contains covenants that limit the Company's ability to, among other things, incur certain liens securing indebtedness, engage in certain sale-leaseback transactions, and enter into certain consolidations, mergers, conveyances, transfers or leases of all or substantially all the Company's assets. The terms of these notes also require the Company to make an offer to repurchase Notes upon a Change of Control Triggering Event (as defined in the Indenture) at a price equal to 101% of their principal amount plus accrued and unpaid interest. The Company may issue additional debt from time to time pursuant to the Indenture.

The aggregate cash proceeds from the notes, net of discounts and fees, was $992 million. A portion of the notes were converted from a fixed interest rate to a floating interest rate using interest rate swap contracts. For more information, refer to Note 15, "Financial Instruments, Hedging Activities and Fair Value Measurements."

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10. Earnings Per Share

The effect of dilutive securities on the weighted average common shares outstanding included in the calculation of earnings per diluted common share for the three and six months ended June 30, 2018 and 2017 were as follows:

	Three Months Ended June 30		Six Months Ended June 30	
(number of shares in millions)	2018	2017	2018	2017
Weighted average common shares outstanding	244.9	257.1	247.4	257.4
Effect of dilutive securities:				
Stock options	0.8	1.1	0.8	1.1
Other stock compensation awards	0.7	0.8	0.7	0.8
Potentially dilutive common shares	1.5	1.9	1.5	1.9
Adjusted weighted average common shares outstanding	246.4	259.0	248.9	259.3

Excluded from the computation of earnings per diluted share due to their antidilutive effect were 1.1 million outstanding stock options for the three and six months ended June 30, 2018 and 0.6 million outstanding stock options for the three and six months ended June 30, 2017.

11. Income Taxes

	Six Months Ended June 30	
	2018	2017 As Restated
Effective tax rate on pre-tax income from continuing operations	21.2%	24.2 %

The effective tax rate for the six months ended June 30, 2018 was slightly higher than the U.S. federal statutory rate primarily due to earnings in foreign jurisdictions which were taxed at higher rates than the U.S. statutory rate and the impact of state and local income tax expense in the U.S. These impacts were partially offset by discrete tax benefits recognized in the first and second quarters of 2018, including the release of reserves for uncertain tax positions related to settlements of certain tax returns. The effective tax rate for 2017 of 24.2% was lower than the U.S. federal statutory rate in effect at that time primarily due to earnings in foreign jurisdictions which were taxed at rates lower than the U.S. statutory rate and the impact of certain U.S. tax incentives.

In December 2017, the U.S. enacted the Tax Cuts and Jobs Act ("the Act") which, among other things, lowered the U.S. corporate statutory income tax rate from 35% to 21%, eliminated certain deductible items and added other deductible items for corporations, imposed a tax on unrepatriated foreign earnings and eliminated U.S. taxes on most future foreign earnings. PPG recorded a provisional amount as of December 31, 2017, which represented the Company's best estimate as of February 1, 2018. The Company anticipates U.S. regulatory agencies will issue further regulations during 2018, which may alter this estimate. The Company is still evaluating among other things, its position with respect to permanent reinvestment of foreign earnings overseas and other related outside basis difference considerations and the amount of tax owed on unrepatriated earnings by subsidiaries. The Company believes its remeasurement of its U.S deferred tax assets and liabilities is complete, except for changes in estimates that can result from finalizing the filing of our 2017 U.S. income tax return, which are not anticipated to be material, and changes that may be a direct impact of other provisional amounts recorded due to the enactment of the Act. The Company will refine its estimates to incorporate new or better information as it becomes available through the filing date of its 2017 U.S. income tax returns in the fourth quarter of 2018.

The tax owed by PPG on its unrepatriated foreign earnings is payable over eight years and is subject to a prescriptive calculation to determine the portion payable in 2018 and beyond. PPG's current estimate, using this prescriptive method, indicates its tax payable will be increased by approximately $1 million to $3 million per year through 2025. As such, the portion of the tax on unrepatriated foreign earnings not payable within the next 12 months is presented within "Other liabilities" on the consolidated balance sheet.

The Company files federal, state and local income tax returns in numerous domestic and foreign jurisdictions. In most tax jurisdictions, returns are subject to examination by the relevant tax authorities for a number of years after the returns have been filed. The Company is no longer subject to examinations by tax authorities in any major tax jurisdiction for years before 2007. In addition, the Internal Revenue Service has completed its examination of the Company’s U.S. federal income tax returns filed for years through 2013.

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12. Pensions and Other Postretirement Benefits

Effective January 1, 2018, PPG adopted ASU No. 2017-07, "Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost." See Note 3, "New Accounting Standards" for more information. Service cost for net periodic pension and other postretirement benefit costs is included in Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative, and Research and development, net in the accompanying condensed consolidated statements of income. All other components of net periodic benefit cost are now recorded in Other charges, except for pension settlement charges, in the accompanying condensed consolidated statements of income.

The net periodic pension and other postretirement benefit costs for the three and six months ended June 30, 2018 and 2017 were as follows:

	Pension			
	Three Months Ended June 30		Six Months Ended June 30	
($ in millions)	2018	2017	2018	2017
Service cost	$8	$8	$16	$17
Interest cost	24	25	48	49
Expected return on plan assets	(38)	(36)	(76)	(70)
Amortization of actuarial losses	16	19	32	38
Pension settlement charge	—	—	—	22
Net periodic benefit cost	$10	$16	$20	$56

	Other Postretirement Benefits			
	Three Months Ended June 30		Six Months Ended June 30	
($ in millions)	2018	2017	2018	2017
Service cost	$3	$3	$5	$5
Interest cost	6	5	12	12
Amortization of actuarial losses	4	1	9	6
Amortization of prior service credit	(15)	(17)	(30)	(30)
Net periodic benefit cost	($2)	($8)	($4)	($7)

PPG expects its 2018 net periodic pension and other postretirement benefit cost to be approximately $30 million, with pension expense representing approximately $40 million and other postretirement benefit cost representing a benefit of approximately $10 million.

Contributions to Defined Benefit Pension Plans

	Three Months Ended June 30		Six Months Ended June 30	
($ in millions)	2018	2017	2018	2017
U.S. defined benefit pension contributions	$—	$—	$25	$29
Non-U.S. defined benefit pension mandatory contributions	$5	$3	$10	$8

PPG made a $25 million voluntary contribution to its U.S. defined benefit pension plans in January 2018. PPG expects to make mandatory contributions to its non-U.S. pension plans in the range of $10 million to $20 million during the remaining 6 months of 2018 and may make voluntary contributions to its defined benefit pension plans in 2018 and beyond.

U.S. Non-qualified Pension

In the first quarter 2017, PPG made lump-sum payments to certain retirees who had participated in PPG's U.S. non-qualified pension plan (the "Nonqualified Plan") totaling approximately $40 million. As the lump-sum payments were in excess of the expected 2017 service and interest costs for the Nonqualified Plan, PPG remeasured the periodic benefit obligation of the Nonqualified Plan as of March 1, 2017 and recorded a settlement charge totaling $22 million million ($14 million after-tax).

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13. Shareholders' Equity

Changes to shareholders' equity for the six months ended June 30, 2018 and 2017 were as follows:

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2018	$5,557	$115	$5,672
Net income	705	10	715
Other comprehensive income, net of tax	(218)	(8)	(226)
Reclassifications from other comprehensive income to retained earnings - Adoption ASU 2018-02 [(a)]	107	—	107
Cash dividends	(222)	(2)	(224)
Issuance of treasury stock	33	—	33
Stock repurchase program	(1,063)	—	(1,063)
Stock-based compensation activity	(12)	—	(12)
Other	(3)	(16)	(19)
June 30, 2018	$4,884	$99	$4,983

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2017	$4,828	$87	$4,915
Net income (As Restated)	833	10	843
Other comprehensive income, net of tax	297	13	310
Cash dividends	(205)	—	(205)
Issuance of treasury stock	49	—	49
Stock repurchase program	(163)	—	(163)
Stock-based compensation activity (As Restated)	(16)	—	(16)
Other	—	(5)	(5)
June 30, 2017 (As Restated)	$5,623	$105	$5,728

(a) See Note 3, "New Accounting Standards" for more information.

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14. Accumulated Other Comprehensive Loss

($ in millions)	Unrealized Foreign Currency Translation Adjustments	Pension and Other Postretirement Benefit Adjustments, net of tax	Unrealized Gain (Loss) on Derivatives, net of tax	Accumulated Other Comprehensive (Loss) Income
January 1, 2018	($1,567)	($493)	$3	($2,057)
Current year deferrals to AOCI	(257) [(a)]	—	—	(257)
Current year deferrals to AOCI, net of tax	114 [(b)]	24	(1) [(d)]	137
Reclassification from AOCI to Retained earnings - Adoption ASU 2018-02	(23)	(84)	—	(107)
Reclassifications from AOCI to net income	—	8 [(c),(e)]	1 [(d),(e)]	9
Net change	($166)	($52)	$—	($218)
June 30, 2018	($1,733)	($545)	$3	($2,275)
January 1, 2017	($1,798)	($571)	$13	($2,356)
Current year deferrals to AOCI	530 [(a)]	—	—	530
Current year deferrals to AOCI, net of tax	(182) [(b)]	(59)	(13) [(d)]	(254)
Reclassifications from AOCI to net income	—	25 [(c),(e)]	(4) [(d),(e)]	21
Net change	$348	($34)	($17)	$297
June 30, 2017	($1,450)	($605)	($4)	($2,059)

(a) Unrealized foreign currency translation adjustments related to the translation of foreign denominated balance sheet account balances are not presented net of tax given that no deferred U.S. income taxes have been provided on the undistributed earnings of non-U.S. subsidiaries because they are deemed to be reinvested for an indefinite period of time.

(b) The tax cost (benefit) related to unrealized foreign currency translation adjustments on cross currency swaps and debt instruments for the six months ended June 30, 2018 and 2017 was $31 million and ($113) million, respectively.

(c) The tax benefit related to the adjustment for pension and other postretirement benefits for the six months ended June 30, 2018 and 2017 was ($3) million and ($14) million, respectively.

(d) The tax benefit related to the changes in the unrealized gain (loss) on derivatives for the six months ended June 30, 2018 and 2017 was $(1) million and ($8) million, respectively.

(e) Reclassifications from AOCI are included in the computation of net periodic pension and other post-retirement benefit costs (See Note 12, "Pensions and Other Postretirement Benefits") and in the gain recognized on cash flow hedges (See Note 15, "Financial Instruments, Hedging Activities and Fair Value Measurements").

15. Financial Instruments, Hedging Activities and Fair Value Measurements

Financial instruments include cash and cash equivalents, short-term investments, cash held in escrow, marketable equity securities, accounts receivable, company-owned life insurance, accounts payable, short-term and long-term debt instruments, and derivatives. The fair values of these financial instruments approximated their carrying values at June 30, 2018 and December 31, 2017, in the aggregate, except for long-term debt instruments.

Hedging Activities

The Company has exposure to market risk from changes in foreign currency exchange rates and interest rates. As a result, financial instruments, including derivatives, have been used to hedge these underlying economic exposures. Certain of these instruments qualify as cash flow, fair value and net investment hedges upon meeting the requisite criteria, including effectiveness of offsetting hedged or underlying exposures. In certain cases, PPG employs foreign currency contracts to economically hedge net foreign currency exposures, which do not qualify for hedge accounting. Accordingly, changes in the fair value of such derivatives are recognized in income from continuing operations in the period incurred.

PPG’s policies do not permit speculative use of derivative financial instruments. PPG enters into derivative financial instruments with high credit quality counterparties and diversifies its positions among such counterparties in order to reduce its exposure to credit losses. The Company did not realize a credit loss on derivatives during the three and six month periods ended June 30, 2018 and 2017.

All of PPG's outstanding derivative instruments are subject to accelerated settlement in the event of PPG’s failure to meet its debt or payment obligations under the terms of the instruments’ contractual provisions. In addition, should the

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Company be acquired and its payment obligations under the derivative instruments' contractual arrangements not be assumed by the acquirer, or should PPG enter into bankruptcy, receivership or reorganization proceedings, the instruments would also be subject to accelerated settlement.

There were no derivative instruments de-designated or discontinued as hedging instruments during the three and six month periods ended June 30, 2018 and 2017 and there were no gains or losses deferred in Accumulated other comprehensive loss that were reclassified to income from continuing operations during the six month periods ended June 30, 2018 and 2017 related to hedges of anticipated transactions that were no longer expected to occur.

Cash Flow Hedges

PPG designates certain foreign currency forward contracts as cash flow hedges of the Company's exposure to variability in exchange rates on intercompany and third party transactions denominated in foreign currencies.

Fair Value Hedges

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. PPG principally manages its fixed and variable interest rate risk by retiring and issuing long-term and short-term debt from time to time and occasionally through the use of interest rate swaps. In February of 2018, PPG entered into interest rate swaps which converted $525 million of fixed rate debt to variable rate debt. The swaps are designated as fair value hedges. As such, these swaps are carried at fair value. Changes in the fair value of these swaps and that of the related debt are recorded in Interest expense in the accompanying condensed consolidated statement of income.

Net Investment Hedges

PPG uses cross currency swaps and euro-denominated debt to hedge a portion of its net investment in its European operations.

In February 2018, PPG entered into U.S. dollar to euro cross currency swap contracts with a total notional amount of $575 million and designated these contracts as hedges of the Company's net investment in its European operations. During the term of these contracts, PPG will receive payments in U.S. dollars and make payments in euros to the counterparties. The Company also settled outstanding U.S. dollar to euro cross currency swap contracts with a total notional amount of $560 million in February 2018.

As of June 30, 2018 and December 31, 2017, PPG had designated €2.3 billion of euro-denominated borrowings as hedges of a portion of its net investment in the Company's European operations. The carrying value of these instruments as of June 30, 2018 and December 31, 2017 was $2.7 billion.

Gains/Losses Deferred in Accumulated Other Comprehensive Loss

As of June 30, 2018, the Company had accumulated pre-tax unrealized net foreign currency translation gains in Accumulated other comprehensive loss related to the euro-denominated borrowings, foreign currency forward contracts and cross currency swaps of $95 million. As of December 31, 2017, the Company had accumulated pre-tax unrealized net foreign currency translation gains of $16 million.

The following table summarizes the location within the condensed consolidated financial statements and amount of gains (losses) related to derivative financial instruments activity for the six months ended June 30, 2018 and 2017. All dollar amounts are shown on a pre-tax basis.

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($ in millions)	June 30, 2018 Gain (Loss) Deferred in OCI	Gain (Loss) Recognized	June 30, 2017 Loss Deferred in OCI	Gain Recognized	Caption In Condensed Consolidated Statement of Income
Not Designated as Hedging Instruments:					
Foreign currency forward contracts [(1)]		$23		$—	Other charges
Fair Value					
Interest rate swaps		2		—	Interest expense
Cash Flow					
Foreign currency forward contracts	($3)	(3)	($20)	6	Other charges and Cost of sales
Total Cash Flow	($3)	$22	($20)	$6	
Net Investment					
Foreign currency forward contracts			($3)		
Cross currency swaps	$5	$5	($38)		Interest expense
Foreign denominated debt	74		(254)		
Total Net Investment	$79	$5	($295)		

(1) For the period ended June 30, 2018, the amounts excluded from effectiveness testing recognized in earnings based on an amortized approach was expense of $2 million, with a deferred loss balance of $1 million remaining in accumulated other comprehensive income as of June 30, 2018.

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of June 30, 2018 and December 31, 2017, the assets and liabilities measured at fair value on a recurring basis were cash equivalents, equity securities and derivatives. In addition, the Company measures its pension plan assets at fair value (see Note 13, "Employee Benefit Plans" under Item 8 in the 2017 Form 10-K/A for further details). The Company's financial assets and liabilities are measured using inputs from the following three levels:

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets and liabilities that the Company has the ability to access at the measurement date. Level 1 inputs are considered to be the most reliable evidence of fair value as they are based on unadjusted quoted market prices from various financial information service providers and securities exchanges.

Level 2 inputs are directly or indirectly observable prices that are not quoted on active exchanges, which include quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable for the asset or liability and inputs that are derived principally from or corroborated by observable market data by correlation or other means. The fair values of the derivative instruments reflect the instruments' contractual terms, including the period to maturity, and uses observable market-based inputs, including forward curves.

Level 3 inputs are unobservable inputs employed for measuring the fair value of assets or liabilities. The Company does not have any recurring financial assets or liabilities that are recorded in its consolidated balance sheets as of June 30, 2018 and December 31, 2017 that are classified as Level 3 inputs.

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Assets and liabilities reported at fair value on a recurring basis:

($ in millions)	June 30, 2018 Level 1	Level 2	Level 3	December 31, 2017 Level 1	Level 2	Level 3
Assets:						
Other current assets:						
Marketable equity securities	$4	$—	$—	$4	$—	$—
Foreign currency forward contracts [(a)]	—	2	—	—	4	—
Foreign currency forward contracts [(b)]	—	64	—	—	2	—
Cross currency swaps	—	—	—	—	2	—
Investments:						
Marketable equity securities	79	—	—	79	—	—
Other assets						
Cross currency swaps [(d)]	—	20	—	—	—	—
Liabilities:						
Accounts payable and accrued liabilities:						
Foreign currency forward contracts [(a)]	—	2	—	—	1	—
Foreign currency forward contracts [(b)]	—	4	—	—	22	—
Other liabilities						
Interest rate swaps [(c)]	—	2	—	—	—	—

(a) Cash flow hedges
(b) Derivatives not designated as hedging instruments
(c) Fair value hedges
(d) Net investment hedges

Long-Term Debt

($ in millions)	June 30, 2018 [(a)]	December 31, 2017 [(b)]
Long-term debt - carrying value	$5,038	$4,123
Long-term debt - fair value	$5,204	$4,341

(a) Excluding capital lease obligations of $14 million and short term borrowings of $18 million as of June 30, 2018.
(b) Excluding capital lease obligations of $15 million and short term borrowings of $8 million as of December 31, 2017.

The fair values of the debt instruments were based on discounted cash flows and interest rates then currently available to the Company for instruments of the same remaining maturities and were measured using level 2 inputs.

16. Stock-Based Compensation

The Company’s stock-based compensation includes stock options, restricted stock units (“RSUs”) and grants of contingent shares that are earned based on achieving targeted levels of total shareholder return. All current grants of stock options, RSUs and contingent shares are made under the PPG Industries, Inc. Amended and Restated Omnibus Incentive Plan (the “PPG Amended Omnibus Plan”), which was amended and restated effective April 21, 2016. Shares available for future grants under the PPG Amended Omnibus Plan were 7.4 million as of June 30, 2018.

Stock-based compensation and the income tax benefit recognized during the three and six months ended June 30, 2018 and 2017 were as follows:

($ in millions)	Three Months Ended June 30 2018	2017	Six Months Ended June 30 2018	2017 As Restated
Stock-based compensation	$9	$8	$18	$17

Income tax benefit recognized	$2	$2	$4	$5

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Grants of stock-based compensation during the six months ended June 30, 2018 and 2017 were as follows:

	Six Months Ended June 30			
	2018		2017	
Grant Details	Shares	Fair Value	Shares	Fair Value
Stock options	532,705	$25.27	590,058	$21.15
Restricted stock units	230,363	$107.73	215,105	$97.48
Contingent shares (a)	52,450	$115.64	57,817	$110.20

(a) The number of contingent shares represents the target value of the award.

Stock options are generally exercisable 36 months after being granted and have a maximum term of 10 years. Compensation expense for stock options is recorded over the vesting period based on the fair value on the date of grant. The fair value of the stock option grants issued during the six months ended June 30, 2018 was calculated with the following weighted average assumptions:

Weighted average exercise price	$115.98	
Risk-free interest rate	2.9	%
Expected life of option in years	6.5	
Expected dividend yield	1.7	%
Expected volatility	21.0	%

The risk-free interest rate is determined by using the U.S. Treasury yield curve at the date of the grant and using a maturity equal to the expected life of the option. The expected life of options is calculated using the average of the vesting term and the maximum term, as prescribed by accounting guidance on the use of the simplified method for determining the expected term of an employee share option. The expected dividend yield and volatility are based on historical stock prices and dividend amounts over historical time periods equal in length to the expected life of the options.

Time-based RSUs generally vest over the three-year period following the date of grant, unless forfeited, and will be paid out in the form of stock, cash or a combination of both at the Company's discretion at the end of the vesting period. Performance-based RSUs vest based on achieving specific annual performance targets for earnings per share growth and cash flow return on capital over the three calendar year-end periods following the date of grant. Unless forfeited, the performance-based RSUs will be paid out in the form of stock, cash or a combination of both at the Company's discretion at the end of the three-year performance period if PPG meets the performance targets.

Contingent share grants (referred to as "TSR awards") are made annually and are paid out at the end of each three-year period following the date of grant based on PPG's performance. Performance is measured by determining the percentile rank of the total shareholder return of PPG common stock in relation to the total shareholder return of the S&P 500 as it existed at the beginning of the three-year performance period excluding any companies that have been removed from the index because they ceased to be publicly traded during the performance period. Any payments made at the end of the award period may be in the form of stock, cash or a combination of both at the Company's discretion. The TSR awards qualify as liability awards, and compensation expense is recognized over the three-year award period based on the fair value of the awards (giving consideration to the Company's percentile rank of total shareholder return) remeasured in each reporting period until settlement of the awards.

17. Commitments and Contingent Liabilities

PPG is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. These lawsuits and claims may relate to contract, patent, environmental, product liability, asbestos exposure, antitrust, employment, securities and other matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury and property damage, PPG believes it has adequate insurance; however, certain of PPG's insurers are contesting coverage with respect to some of these claims, and other insurers, as they had prior to the asbestos settlement described below, may contest coverage in the future. PPG's lawsuits and claims against others include claims against insurers and other third parties with respect to actual and contingent losses related to environmental, asbestos and other matters.

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The results of any current or future litigation and claims are inherently unpredictable. However, management believes that, in the aggregate, the outcome of all lawsuits and claims involving PPG, including asbestos-related claims, will not have a material effect on PPG’s consolidated financial position or liquidity; however, such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized.

Asbestos Matters

Prior to 2000, the Company had been named as a defendant in numerous claims alleging bodily injury from (i) exposure to asbestos-containing products allegedly manufactured, sold or distributed by the Company, its subsidiaries, or for which they are otherwise alleged to be liable; (ii) exposure to asbestos allegedly present at a facility owned or leased by the Company; or (iii) exposure to asbestos-containing products of Pittsburgh Corning Corporation (“PC”) for which the Company was alleged to be liable under a variety of legal theories (the Company and Corning Incorporated were each 50% shareholders in PC).

Pittsburgh Corning Corporation asbestos bankruptcy

In 2000, PC filed for Chapter 11 in the U.S. Bankruptcy Court for the Western District of Pennsylvania in an effort to permanently and comprehensively resolve all of its pending and future asbestos-related liability claims. At the time of the bankruptcy filing, the Company had been named as one of many defendants in approximately 114,000 open claims. The Bankruptcy Court subsequently entered a series of orders preliminarily enjoining the prosecution of asbestos litigation against PPG until after the effective date of a confirmed PC plan of reorganization. During the pendency of this preliminary injunction staying asbestos litigation against PPG, PPG and certain of its historical liability insurers negotiated a settlement with representatives of present and future asbestos claimants. That settlement was incorporated into a PC plan of reorganization that was confirmed by the Bankruptcy Court on May 24, 2013 and ultimately became effective on April 27, 2016. With the effectiveness of the plan, the preliminary injunction staying the prosecution of asbestos litigation against PPG expired by its own terms on May 27, 2016. In accordance with the settlement, the Bankruptcy Court issued a permanent channeling injunction under Section 524(g) of the Bankruptcy Code that prohibits present and future claimants from asserting claims against PPG that arise, in whole or in part, out of exposure to asbestos or asbestos-containing products manufactured, sold and/or distributed by PC or asbestos on or emanating from any PC premises. The channeling injunction, by its terms, also prohibits codefendants in cases that are subject to the channeling injunction from asserting claims against PPG for contribution, indemnification or other recovery. The channeling injunction also precludes the prosecution of claims against PPG arising from alleged exposure to asbestos or asbestos-containing products to the extent that a claimant is alleging or seeking to impose liability, directly or indirectly, for the conduct of, claims against, or demands on PC by reason of PPG’s: (i) ownership of a financial interest in PC; (ii) involvement in the management of PC, or service as an officer, director or employee of PC or a related party; (iii) provision of insurance to PC or a related party; or (iv) involvement in a financial transaction affecting the financial condition of PC or a related party. The foregoing PC related claims are referred to as “PC Relationship Claims.”

The channeling injunction channels the Company’s liability for PC Relationship Claims to a trust funded in part by PPG and its participating insurers for the benefit of current and future PC asbestos claimants (the “Trust”). The Trust is the sole recourse for holders of PC Relationship Claims. PPG and its affiliates have no further liability or responsibility for, and will be permanently protected from, pending and future PC Relationship Claims. The channeling injunction does not extend to present and future claims against PPG that arise out of alleged exposure to asbestos or asbestos-containing products historically manufactured, sold and/or distributed by PPG or its subsidiaries or for which they are alleged to be liable that are not PC Relationship Claims, and does not extend to claims against PPG alleging personal injury allegedly caused by asbestos on premises presently or formerly owned, leased or occupied by PPG. These claims are referred to as non-PC Relationship Claims.

In accordance with the PC plan of reorganization, PPG's equity interest in PC was canceled. PPG satisfied its funding obligations to the Trust on June 9, 2016, when it conveyed to the Trust the stock it owned in Pittsburgh Corning Europe and 2,777,778 shares of PPG’s common stock and made a cash payment to the Trust in the amount of $764 million. PPG’s historical insurance carriers participating in the PC plan of reorganization are required to make cash payments to the Trust of approximately $1.7 billion, subject to a right of prepayment at a 5.5% discount rate.

On October 13, 2016, the Bankruptcy Court issued an order entering a final decree and closing the Chapter 11 case. That order provided that the Bankruptcy Court retained jurisdiction to enforce any order issued in the case and any agreements approved by the court, enforce the terms and conditions of the modified third amended Plan, and consider any requests to reopen the case.

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Non-PC relationship asbestos claims

At the time PC filed for bankruptcy, PPG had been named as one of many defendants in one or more of the categories of asbestos-related claims identified above. Over the course of the 16 years during which the PC bankruptcy proceedings, and corresponding preliminary injunction staying the prosecution of asbestos-related claims against PPG, were pending, certain plaintiffs alleging premises claims filed motions seeking to lift the stay with respect to more than 1,000 individually-identified premises claims. The Bankruptcy Court granted motions to lift the stay in respect to certain of these premises claims and directed PPG to engage in a process to address any additional premises claims that were the subject of pending or anticipated lift-stay motions. As a result of the overall process as directed by the Bankruptcy Court involving more than 1,000 premises claims between 2006 and May 27, 2016, hundreds of these claims were withdrawn or dismissed without payment and approximately 650 premises claims were dismissed upon agreements by PPG and its insurers to resolve such claims in exchange for monetary payments.

With respect to the remaining claims still reportable within the inventory of 114,000 asbestos-related claims at the time PC filed for bankruptcy, the Company considers such claims to fall within one or more of the following categories: (1) claims that have been closed or dismissed as a result of processes undertaken during the bankruptcy; (2) claims that may have been previously filed on the dockets of state and federal courts in various jurisdictions, but are inactive as to the Company; and (3) claims that are subject, in whole or in part, to the channeling injunction and thus will be resolved, in whole or in part, in accordance with the Trust procedures established under the PC bankruptcy reorganization plan. As a result of the foregoing, the Company does not consider these three categories of claims to be open or active litigation against it, although the Company cannot now determine whether, or the extent to which, any of these claims may in the future be reinstituted, reinstated, or revived such that they may become open and active asbestos-related claims against it.

Current open and active claims post-Pittsburgh Corning bankruptcy

As of June 30, 2018, the Company was aware of approximately 420 open and active asbestos-related claims pending against the Company and certain of its subsidiaries. These claims consist primarily of non-PC Relationship Claims and claims against a subsidiary of PPG. The Company is defending the remaining open and active claims vigorously.

Since April 1, 2013, a subsidiary of PPG has been implicated in claims alleging death or injury caused by asbestos-containing products manufactured, distributed or sold by a North American architectural coatings business or its predecessors which was acquired by PPG. All such claims have been either served upon or tendered to the seller for defense and indemnity pursuant to obligations undertaken by the seller in connection with the Company’s purchase of the North American architectural coatings business. The seller has accepted the defense of these claims subject to the terms of various agreements between the Company and the seller. The seller’s defense and indemnity obligations in connection with newly filed claims ceased with respect to claims filed after April 1, 2018.

PPG has established reserves totaling approximately $180 million for asbestos-related claims that would not be channeled to the Trust which, based on presently available information, we believe will be sufficient to encompass all of PPG’s current and potential future asbestos liabilities. These reserves include a $162 million reserve established in 2009 in connection with an amendment to the PC plan of reorganization. These reserves, which are included within "Other liabilities" on the accompanying condensed consolidated balance sheets, represent PPG’s best estimate of its liability for these claims. PPG does not have sufficient current claim information or settlement history on which to base a better estimate of this liability in light of the fact that the Bankruptcy Court’s injunction staying most asbestos claims against the Company was in effect from April 2000 through May 2016. PPG will monitor the activity associated with its remaining asbestos claims and evaluate, on a periodic basis, its estimated liability for such claims, its insurance assets then available, and all underlying assumptions to determine whether any adjustment to the reserves for these claims is required.

The amount reserved for asbestos-related claims by its nature is subject to many uncertainties that may change over time, including (i) the ultimate number of claims filed; (ii) the amounts required to resolve both currently known and future unknown claims; (iii) the amount of insurance, if any, available to cover such claims; (iv) the unpredictable aspects of the litigation process, including a changing trial docket and the jurisdictions in which trials are scheduled; (v) the outcome of any trials, including potential jud