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 September 30, 2017

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 ☒ 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 ☒ No ☐

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

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

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

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

As of September 30, 2017 , 254,475,927 shares of the Registrant's common stock, par value $1.66-2/3 per share, were outstanding.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

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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 September 30		Nine Months Ended September 30	
	2017	2016	2017	2016
Net sales	$ 3,776	$ 3,660	$ 11,068	$ 10,853
Cost of sales, exclusive of depreciation and amortization	2,100	1,978	6,087	5,783
Selling, general and administrative	905	893	2,658	2,720
Depreciation	85	82	245	240
Amortization	32	31	95	91
Research and development, net	114	115	337	344
Interest expense	27	34	78	96
Interest income	(5)	(6)	(13)	(20)
Pension settlement charge	—	968	22	968
Asbestos settlement, net	—	—	—	5
Other charges	13	12	39	58
Other income	(16)	(21)	(112)	(80)
Income (loss) from continuing operations before income taxes	$ 521	$ (426)	$ 1,632	$ 648
Income tax expense (benefit)	123	(220)	392	174
Income (loss) from continuing operations	$ 398	$ (206)	$ 1,240	$ 474
Income from discontinued operations, net of tax	217	27	220	77
Net income (loss) attributable to the controlling and noncontrolling interests	$ 615	$ (179)	$ 1,460	$ 551
Less: Net income attributable to noncontrolling interests	(6)	(5)	(16)	(18)
Net income (loss) (attributable to PPG)	$ 609	$ (184)	$ 1,444	$ 533
Amounts attributable to PPG:				
Income (loss) from continuing operations, net of tax	$ 392	$ (211)	$ 1,224	$ 456
Income from discontinued operations, net of tax	217	27	220	77
Net income (loss) (attributable to PPG)	$ 609	$ (184)	$ 1,444	$ 533
Earnings per common share:				
Income (loss) from continuing operations, net of tax	$ 1.53	$ (0.79)	$ 4.76	$ 1.71
Income from discontinued operations, net of tax	0.85	0.10	0.86	0.29
Net income (loss) (attributable to PPG)	$ 2.38	$ (0.69)	$ 5.62	$ 2.00
Earnings per common share – assuming dilution:				
Income (loss) from continuing operations, net of tax	$ 1.52	$ (0.79)	$ 4.73	$ 1.69
Income from discontinued operations, net of tax	0.84	0.10	0.85	0.29
Net income (loss) (attributable to PPG)	$ 2.36	$ (0.69)	$ 5.58	$ 1.98
Dividends per common share	$ 0.45	$ 0.40	$ 1.25	$ 1.16

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

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Statement of Comprehensive Income (Unaudited)
($ in millions)

	Three Months Ended September 30		Nine Months Ended September 30	
	2017	2016	2017	2016
Net income (loss) attributable to the controlling and noncontrolling interests	$ 615	$ (179)	$ 1,460	$ 551
Other comprehensive income, net of tax:				
Defined benefit pension and other postretirement benefits	(29)	348	(63)	391
Unrealized foreign currency translation adjustments	26	(147)	387	(231)
Derivative financial instruments	1	8	(16)	—
Other comprehensive income, net of tax	$ (2)	$ 209	308	160
Total comprehensive income	$ 613	$ 30	$ 1,768	$ 711
Less: amounts attributable to noncontrolling interests:				
Net income	(6)	(5)	(16)	(18)
Unrealized foreign currency translation adjustments	(2)	(1)	(15)	1
Comprehensive income attributable to PPG	$ 605	$ 24	$ 1,737	$ 694

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

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Condensed Consolidated Balance Sheet (Unaudited)
($ in millions)

	September 30, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 2,287	$ 1,820
Short-term investments	41	43
Receivables (less allowance for doubtful accounts of $25 and $36)	3,155	2,654
Inventories	1,805	1,514
Assets held for sale	—	223
Other	350	320
Total current assets	$ 7,638	$ 6,574
Property, plant and equipment (net of accumulated depreciation of $3,737 and $3,398)	2,730	2,608
Goodwill	3,881	3,572
Identifiable intangible assets, net	2,099	1,983
Deferred income taxes	421	184
Investments	261	179
Other assets	585	669
Total	$ 17,615	$ 15,769
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$ 3,895	$ 3,460
Restructuring reserves	107	100
Short-term debt and current portion of long-term debt	616	629
Liabilities held for sale	—	64
Total current liabilities	$ 4,618	$ 4,253
Long-term debt	4,089	3,787
Accrued pensions	758	740
Other postretirement benefits	767	724
Deferred income taxes	445	417
Other liabilities	928	935
Total liabilities	$ 11,605	$ 10,856
Commitments and contingent liabilities (Note 15)		
Shareholders' equity:		
Common stock	969	969
Additional paid-in capital	745	701
Retained earnings	17,106	15,984
Treasury stock, at cost	(10,855)	(10,472)
Accumulated other comprehensive loss	(2,063)	(2,356)
Total PPG shareholders' equity	$ 5,902	$ 4,826
Noncontrolling interests	108	87
Total shareholders' equity	$ 6,010	$ 4,913
Total	$ 17,615	$ 15,769

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)

	Nine Months Ended September 30	
	2017	2016
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$ 1,460	$ 551
Less: Income from discontinued operations	(220)	(77)
Income from continuing operations	$ 1,240	$ 474
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	340	331
Pension expense	51	58
Pension settlement	22	968
Stock-based compensation expense	33	37
Gain from the sale of a business	(25)	—
Gain from the sale of an equity affiliate	—	(20)
Equity affiliate earnings, net of distributions received	—	(5)
Deferred income tax benefit	(55)	(58)
Cash contributions to pension plans	(43)	(74)
Cash used for restructuring actions	(31)	(42)
Cash paid for asbestos settlement funding	—	(813)
Change in certain asset and liability accounts:		
Receivables	(350)	(256)
Inventories	(200)	(43)
Other current assets	(40)	(14)
Accounts payable and accrued liabilities	223	161
Taxes and interest payable	(112)	(93)
Noncurrent assets and liabilities, net	(103)	43
Other	70	(4)
Cash from operating activities - continuing operations	$ 1,020	$ 650
Cash from operating activities - discontinued operations	12	126
Cash from operating activities	$ 1,032	$ 776
Investing activities:		
Capital expenditures	(207)	(239)
Business acquisitions, net of cash balances acquired	(69)	(321)
Payments for acquisition of equity investment	(100)	—
Proceeds from the disposition of a business	593	—
Proceeds from the sale of an investment in an equity affiliate	—	41
Proceeds from maturity of short-term investments	—	92
Payments for the settlement of cross currency swap contracts	(34)	(36)
Proceeds from the settlement of cross currency swap and foreign currency contracts	37	37
Other	—	14
Cash from (used for) investing activities - continuing operations	$ 220	$ (412)
Cash used for investing activities - discontinued operations	(4)	(33)
Cash from (used for) investing activities	$ 216	$ (445)
Financing activities:		
Net change in borrowing with maturities of three months or less	(6)	(22)
Net (payments) proceeds on commercial paper and short-term debt	(81)	297
Repayment of long-term debt	(9)	(253)
Purchase of treasury stock	(413)	(400)
Issuance of treasury stock	45	29
Dividends paid	(321)	(309)
Payments related to tax withholding on stock-based compensation awards	(25)	(25)

Other	(41)	(9)
Cash used for financing activities	$ (851)	$ (692)
Effect of currency exchange rate changes on cash and cash equivalents	70	(21)
Net increase (decrease) in cash and cash equivalents	$ 467	$ (382)
Cash and cash equivalents, beginning of period	1,820	1,311
Cash and cash equivalents, end of period	$ 2,287	$ 929
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$ 60	$ 80
Taxes paid, net of refunds	$ 481	$ 276

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

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 Commission 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 Industries, Inc. and its subsidiaries (the "Company" or "PPG") as of September 30, 2017 , and the results of their operations and their cash flows for the three and nine months ended September 30, 2017 and 2016 . 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 Annual Report on Form 10-K for the year ended December 31, 2016 .

On September 1, 2017, PPG completed the sale of its North American fiber glass business to Nippon Electric Glass Co. Ltd. ("NEG"). Refer to Note 3 for additional information. All historical periods have been recast to present the results of operations and cash flows of PPG's North American fiber glass, former European and Asian fiber glass and flat glass businesses, collectively the Glass reportable business segment, as discontinued operations. The December 31, 2016 balance sheet has been recast to present the assets and liabilities of the North American fiber glass business as assets and liabilities held for sale. PPG now has two reportable business segments, Performance Coatings and Industrial Coatings.

The condensed consolidated statement of cash flows has also been recast for the adoption of Accounting Standard Update ("ASU") No. 2016-09, "Improvements to Employee Share-Based Payment Accounting," as discussed in Note 2.

Net sales, expenses, assets and liabilities can vary during each quarter of the year. Accordingly, the results of operations for the three and nine months ended September 30, 2017 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.

2 . New Accounting Standards

In August 2017, the Financial Accounting Standards Board ("FASB") issued ASU No. 2017-12, "Derivatives and Hedging - Targeted Improvements to Accounting for Hedging Activities." This ASU modifies the presentation and disclosure of hedging results. Further, it provides partial relief on the timing of certain aspects of hedge documentation and eliminates the requirement to recognize hedge ineffectiveness separately in income. The amendments in this ASU are effective for fiscal years beginning after December 15, 2018 and for interim periods therein. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operation or cash flows.

In May 2017, the FASB issued ASU No. 2017-09, "Stock Compensation - Scope of Modification Accounting." This ASU requires all equity award modifications to be accounted for as a modification unless the fair value, vesting conditions and classification of the award as equity or liability are the same as the classification of the original award immediately before the original award is modified. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017 and for interim periods therein. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operation or cash flows.

In March 2017, the FASB issued 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 net benefit costs to be disaggregated from all other components and be reported in the same line item or items as other compensation costs. The other components of net benefit cost are required to be presented in the income statement separately from the service cost. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017 and for interim periods therein. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operation or cash flows.

In January 2017, PPG adopted ASU No. 2017-04, "Simplifying the Test for Goodwill Impairment." This ASU simplifies how an entity is required to test goodwill for impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill. Adoption of this ASU did not have a material impact on PPG's consolidated financial position, results of operation or cash flows.

In January 2017, PPG adopted ASU No. 2016-18, "Restricted Cash." This ASU eliminates diversity in practice by requiring the statement of cash flows to reconcile total cash, including deposits with restrictions. PPG does not have a material amount of restricted cash. Adoption of this ASU did not have a material impact on PPG's consolidated financial position, results of operation or cash flows.

In January 2017, PPG adopted ASU No. 2016-09, “Improvements to Employee Share-Based Payment Accounting.” This ASU simplifies certain aspects of the accounting for share-based payment transactions, including income tax requirements, forfeitures, and presentation on the balance sheet and the statement of cash flows. In conjunction with the adoption of this ASU, PPG recast the condensed consolidated statement of cash flows to present withholding tax payments related to stock-based compensation made on behalf of employees as financing outflows. Adoption of this ASU did not have a material impact on PPG's consolidated financial position, results of operation 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.

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 will require significant judgment. The amendments in this ASU are effective for fiscal years beginning after December 15, 2017, and for interim periods therein. The provisions of this ASU may be applied retroactively or on a modified retrospective (cumulative effect) basis. PPG expects to adopt the standard using the modified retrospective approach in January 2018. In addition, PPG is evaluating recently issued guidance on practical expedients as part of its transition decision. PPG believes the preponderance of the Company’s contracts with customers are standard ship and bill arrangements where revenue is recognized at the time of shipment. Under the provisions of this ASU, PPG believes certain costs currently reported in Selling, general and administrative costs will be reclassified to Cost of sales, exclusive of depreciation and amortization on the Condensed Consolidated Statement of Income, as they represent costs incurred in satisfaction of performance obligations. In addition, PPG expects the cost of certain customer incentives to be recorded as a reduction of Net sales rather than Cost of sales, exclusive of depreciation and amortization or Selling, general and administrative costs. PPG does not believe this ASU will have a significant impact on its consolidated financial position, results of operations and cash flows.

3 . Acquisitions and Divestitures

Acquisitions

The Crown Group

On October 2, 2017, PPG acquired The Crown Group (“Crown”), a U.S.-based coatings application services business, which will be reported as part of PPG's coatings services business unit beginning in the fourth quarter 2017. Crown is one of the leading component and product finishers in North America. Crown applies coatings to customers’ manufactured parts and assembled products at 11 U.S. sites. Most of Crown’s facilities, which also provide assembly, warehousing and sequencing services, are located at customer facilities or positioned near customer manufacturing sites. The company serves manufacturers in the automotive, agriculture, construction, heavy truck and alternative energy industries. Crown has annual sales of approximately $125 million .

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 has been recorded as a loss in discontinued operations during the nine months-ended September 30, 2017.

Other

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. 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.

Divestitures

Glass Segment

On September 1, 2017, PPG completed the sale of its North American fiber glass business to NEG, which represents the culmination of a multi-year strategic shift in the Company's business portfolio, resulting in the exit of all glass operations. Accordingly, the results of operations, including the gain on the disposal, and cash flows for its former Glass reportable business segment have been recast as discontinued operations for all periods presented, which consists of the fiber glass business, PPG's ownership interest in two Asian fiber glass joint ventures and the flat glass business. PPG now has two reportable business segments.

The net sales and income from discontinued operations related to the former Glass reportable business segment for the three and nine months ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Net sales	$ 50	$ 285	$ 217	$ 828
Income from operations	$ 5	$ 38	$ 23	$ 109
Net gain on divestiture of North American fiber glass business	343	—	343	—
Income tax expense	131	11	138	32
Income from discontinued operations, net of tax	$ 217	$ 27	$ 228	$ 77

North American Fiber Glass Business

Pre-tax proceeds from the sale were $541 million , resulting in a pre-tax gain of $343 million , net of certain accruals and contingencies established in conjunction with the divestiture.

PPG's fiber glass operations included manufacturing facilities in Chester, South Carolina, and Lexington and Shelby, North Carolina; and administrative and research-and-development operations in Shelby and in Harmar, Pennsylvania, near Pittsburgh. The business, which employed more than 1,000 people and had net sales of approximately $350 million in 2016, supplies the transportation, energy, infrastructure and consumer markets. In 2016, PPG completed the sale of its European fiber glass operations to NEG and divested its ownership interests in two Asian fiber glass joint ventures.

The Company's December 31, 2016 balance sheet has been recast to present the assets and liabilities of the North American fiber glass business as held for sale.

The major classes of assets and liabilities of the North American fiber glass business included in the PPG condensed, consolidated balance sheet at December 31, 2016 were as follows:

($ in millions)	December 31, 2016
Receivables, net	$ 38
Inventory	32
Other current assets	1
Property, plant and equipment, net	151
Deferred tax asset [(a)]	(30)
Other non-current assets	1
Assets held for sale	$ 193
Accounts payable and accrued liabilities	52
Long-term liabilities	12
Liabilities held for sale	$ 64

[(a)] The net deferred income tax liability is included in assets held for sale due to the Company's tax jurisdictional netting.

Flat Glass Business

In October 2016, PPG completed the sale of its flat glass manufacturing and glass coatings operations to Vitro S.A.B. de C.V. For the three and nine months ended September 30, 2016, the results of operations of the flat glass business are presented as discontinued operations on the condensed consolidated statements of income and cash flows.

Plaka Business

In June 2017, PPG completed the sale of the assets of its Mexico-based Plaka plasterboard and cement-board business to Knauf International GmbH and recorded a pre-tax gain of $25 million during the nine months-ended September 30, 2017. The Company's balance sheet presents the assets and liabilities of the Plaka business as held for sale as of December 31, 2016.

4. Inventories

($ in millions)	September 30, 2017	December 31, 2016
Finished products	$ 1,136	$ 947
Work in process	184	165
Raw materials	452	370
Supplies	33	32
Total Inventories	$ 1,805	$ 1,514

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 33% and 38% of total inventories at September 30, 2017 and December 31, 2016 , respectively. If the first-in, first-out method of inventory valuation had been used, inventories would have been $105 million and $106 million higher as of September 30, 2017 and December 31, 2016 , respectively.

5. Goodwill and Other Identifiable Intangible Assets

The change in the carrying amount of goodwill attributable to each reportable segment for the nine months ended September 30, 2017 was as follows:

($ in millions)	Performance Coatings	Industrial Coatings	Total
January 1, 2017	$ 2,870	$ 702	$ 3,572
Acquisitions	23	(3)	20
Foreign currency	247	42	289
September 30, 2017	$ 3,140	$ 741	$ 3,881

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

($ in millions)	September 30, 2017 Gross Carrying Amount	September 30, 2017 Accumulated Amortization	September 30, 2017 Net	December 31, 2016 Gross Carrying Amount	December 31, 2016 Accumulated Amortization	December 31, 2016 Net
Trademarks - indefinite lives	$ 1,217	N/A	$ 1,217	$ 1,107	N/A	$ 1,107
Customer-related intangibles	$ 1,405	$ (733)	$ 672	$ 1,272	$ (618)	$ 654
Acquired technology	606	(481)	125	587	(446)	141
Trade names	158	(84)	74	142	(71)	71
Other	44	(33)	11	38	(28)	10
Total	$ 3,430	$ (1,331)	$ 2,099	$ 3,146	$ (1,163)	$ 1,983

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

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Amortization expense related to identifiable intangible assets	$ 32	$ 31	$ 95	$ 91

As of September 30, 2017 , estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	Future Amortization Expense
Remaining three months of 2017	$ 25
2018	115
2019	100
2020	90
2021	85
2022	85
Thereafter	382

6 . 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.

In December 2016, PPG’s Board of Directors approved a business restructuring program which includes actions necessary to reduce its 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 1,700 positions, with substantially all actions to be completed by the first quarter of 2018.

The following table summarizes the 2016 restructuring charge, the reserve activity for 2016, and the reserve activity for the nine months ended September 30, 2017 :

($ in millions, except for employees impacted)	Severance and Other Costs	Asset Write-offs	Total Reserve	Employees Impacted
Performance Coatings	$ 77	$ 45	$ 122	1,069
Industrial Coatings	52	14	66	804
Corporate	7	—	7	85
2016 restructuring charge	$ 136	$ 59	$ 195	1,958
2016 Activity	(6)	(59)	(65)	(40)
December 31, 2016	$ 130	$ —	$ 130	1,918
2017 Activity	(28)	—	(28)	(853)
Foreign currency	16	—	16	—
September 30, 2017	$ 118	$ —	$ 118	1,065

7 . Borrowings

In May 2016, PPG entered into two $250 million Term Loan Credit Agreements and subsequently prepaid the loans in December 2016.

In January 2016, PPG's $250 million 1.9% notes matured, and PPG repaid these notes with cash on hand.

8 . 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 nine months ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
(number of shares in millions)	2017	2016	2017	2016
Weighted average common shares outstanding	256.4	266.3	257.0	267.0
Effect of dilutive securities:				
Stock options	1.0	—	1.0	0.8
Other stock compensation awards	0.8	—	0.8	1.0
Potentially dilutive common shares	1.8	—	1.8	1.8
Adjusted weighted average common shares outstanding	258.2	266.3	258.8	268.8

The effect of antidilutive securities on the weighted average common shares outstanding excluded from the calculation of earnings per diluted common share for the three and nine months ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
(number of shares in millions)	2017	2016	2017	2016
Effect of anti-dilutive securities:				
Stock options	0.5	0.6	0.6	0.6
Other stock compensation awards	—	1.8	—	—
Potentially anti-dilutive common shares	0.5	2.4	0.6	0.6

9 . Income Taxes

	Nine Months Ended September 30	
	2017	2016
Effective tax rate on pre-tax income from continuing operations	24.0%	26.9%

The effective tax rate for 2017 and 2016 is lower than the U.S. federal statutory rate primarily due to earnings in foreign jurisdictions which are taxed at rates lower than the U.S. statutory rate and the impact of certain U.S. tax incentives.

The effective tax rate for 2016 includes a deferred tax benefit of $352 million related to the $968 million of pre-tax pension settlement charges recorded during the third quarter 2016. In June 2016, the Company recorded a $128 million net tax charge associated with the funding of the asbestos settlement trust ("Trust") described in Note 15, "Commitments and Contingent Liabilities." The Company provided taxes on certain of its foreign subsidiaries earnings to fund the Trust using cash from various jurisdictions. Also in conjunction with the funding of the Trust, PPG recorded certain one-time book tax benefits associated with the contribution of PPG's interest in Pittsburgh Corning's European subsidiary to the Trust and a change in measurement of certain deferred tax liabilities.

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 2006. In addition, the Internal Revenue Service (“IRS”) has completed its examination of the Company’s U.S. federal income tax returns filed for years through 2011. The IRS is currently conducting its examination of the Company's U.S. federal income tax return for 2012 and 2013.

10 . Pensions and Other Postretirement Benefits

Net periodic pension and other postretirement benefit costs are included in "Cost of sales, exclusive of depreciation and amortization," "Selling, general and administrative," and "Research and development" in the accompanying condensed consolidated statements of income.

The net periodic pension and other postretirement benefit costs for the three and nine months ended September 30, 2017 and 2016 were as follows:

	Pension			
	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Service cost	$ 8	$ 9	$ 25	$ 34
Interest cost	25	18	74	102
Expected return on plan assets	(35)	(26)	(105)	(158)
Amortization of actuarial losses	19	21	57	79
Amortization of prior service credit	—	—	—	(1)
Pension settlement charge	—	968	22	968
Net periodic benefit cost	$ 17	$ 990	$ 73	$ 1,024

	Other Postretirement Benefits			
	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Service cost	$ 1	$ 6	$ 6	$ 13
Interest cost	6	11	18	30
Amortization of actuarial losses	3	11	9	20
Amortization of prior service credit	(14)	(28)	(44)	(32)
Net periodic benefit (income) cost	$ (4)	$ —	$ (11)	$ 31

PPG expects its 2017 net periodic pension and other postretirement benefit cost, excluding settlement losses, to be approximately $50 million , with pension expense representing approximately $65 million and other postretirement benefit cost representing a benefit of approximately $15 million .

Contributions to Defined Benefit Pension Plans

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
U.S. defined benefit pension contributions	$ —	$ 50	$ 29	$ 50
Non-U.S. defined benefit pension mandatory contributions	$ 6	$ 15	$ 14	$ 28

PPG expects to make mandatory contributions to its non-U.S. pension plans in the range of $10 million to $15 million during the remaining three months of 2017 and may make voluntary contributions to its defined benefit pension plans in 2017 and beyond.

U.S. Non-qualified Pension

During the first quarter of 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 ($14 million after-tax). Any additional 2017 lump-sum payments from the Nonqualified Plan will trigger a further remeasurement and settlement charge.

U.S. Postretirement Medical

In August 2016, the Company communicated plan design changes to certain Medicare-eligible retiree plan participants. Effective January 1, 2017, the Company-sponsored Medicare-eligible plans were replaced by a Medicare private exchange. By offering retiree health coverage through a private Medicare exchange, PPG is able to provide Medicare-eligible participants with more choice of plans and plan designs, greater flexibility, and different price points for coverage.

The announcement of these plan design changes triggered a remeasurement of PPG's retiree medical benefit obligation using prevailing interest rates and resulted in a $306 million reduction in the Company's postretirement benefit obligation. PPG is accounting for the plan design change prospectively, and the plan change will reduce net periodic postretirement benefit cost by $54 million annually for the next 5 years .

As of January 1, 2017, PPG's contribution for Medicare-eligible retirees are in the form of a tax-free account known as a Health Reimbursement Arrangement (HRA). The HRA can be used to pay for healthcare and prescription drug plan premiums and certain out-of-pocket medical costs; unused funds can be carried over to future years. PPG has the right to amend, modify, or terminate this benefit plan at any time.

11 . Shareholders' Equity

Changes to shareholders' equity for the nine months ended September 30, 2017 and 2016 were as follows:

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2017	$ 4,826	$ 87	$ 4,913
Net income	1,444	16	1,460
Other comprehensive income, net of tax	293	15	308
Cash dividends	(321)	—	(321)
Issuance of treasury stock	75	—	75
Stock repurchase program	(413)	—	(413)
Stock-based compensation activity	(2)	—	(2)
Dividends paid on subsidiary common stock to noncontrolling interests	—	(5)	(5)
Other	—	(5)	(5)
September 30, 2017	$ 5,902	$ 108	$ 6,010

($ in millions)	Total PPG Shareholders' Equity	Non-controlling Interests	Total
January 1, 2016	$ 4,983	$ 86	$ 5,069
Net income	533	18	551
Other comprehensive income, net of tax	161	(1)	160
Cash dividends	(309)	—	(309)
Issuance of treasury stock	51	—	51
Stock repurchase program	(400)	—	(400)
Stock-based compensation activity	12	—	12
Dividends paid on subsidiary common stock to noncontrolling interests	—	(4)	(4)
Other	—	(9)	(9)
September 30, 2016	$ 5,031	$ 90	$ 5,121

12 . 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, 2017	$ (1,798)	$ (571)	$ 13	$ (2,356)
Current year deferrals to AOCI	634 [a]	—	—	634
Current year deferrals to AOCI, net of tax	(262) [b]	(93) [c]	(13) [d]	(368)
Reclassifications from AOCI to net income	—	30 [c],[e]	(3) [d],[e]	27
Net change	$ 372	$ (63)	$ (16)	$ 293
September 30, 2017	$ (1,426)	$ (634)	$ (3)	$ (2,063)
January 1, 2016	$ (1,332)	$ (1,379)	$ 9	$ (2,702)
Current year deferrals to AOCI	(157) [a]	—	—	(157)
Current year deferrals to AOCI, net of tax	(73) [b]	(267) [c]	(6) [d]	(346)
Reclassifications from AOCI to net income	—	658 [c],[e]	6 [d],[e]	664
Net change	$ (230)	$ 391	$ —	$ 161
September 30, 2016	$ (1,562)	$ (988)	$ 9	$ (2,541)

(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 benefit related to unrealized foreign currency translation adjustments on tax inter-branch transactions and net investment hedges for the nine months ended September 30, 2017 and 2016 was $(157) million and ($53) million , respectively. The balance also includes a remeasurement of the tax cost on certain foreign proceeds which have not been permanently reinvested.

(c) The tax benefit related to the adjustment for pension and other postretirement benefits for the nine months ended September 30, 2017 and 2016 was $(27) million and $(252) million , respectively.

(d) The tax benefit related to the changes in the unrealized gain (loss) on derivatives for the nine months ended September 30, 2017 and 2016 was $(7) million and $(1) million , respectively.

(e) Reclassifications from AOCI are included in the computation of net periodic pension and other post-retirement benefit costs (See Note 10, "Pensions and Other Postretirement Benefits") and in the gain recognized on cash flow hedges (See Note 13, "Financial Instruments, Hedging Activities and Fair Value Measurements").

13 . 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 September 30, 2017 and December 31, 2016 , 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. Prior to the settlement of the Asbestos Settlement Trust described in Note 15 , " Commitments and Contingent Liabilities ," the Company had exposure to changes in PPG's stock price. As a result, financial instruments, including derivatives, may be (or had 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. Changes in the fair value of derivatives that do not qualify for hedge accounting 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 nine month periods ended September 30, 2017 and 2016 .

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 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 nine month periods ended September 30, 2017 and 2016 and there were no gains or losses deferred in AOCI that were reclassified to income from continuing operations during the nine month periods ended September 30, 2017 and 2016 related to hedges of anticipated transactions there were no longer expected to occur.

Fair Value Hedges

Through September 2016, PPG designated certain foreign currency forward contracts as hedges against the Company's exposure to future changes in fair value of certain firm sales commitments denominated in foreign currency. As of September 30, 2017 and December 31, 2016 , there were no outstanding foreign currency forward contracts designated as hedges against future changes in the fair value of certain firm sales commitments.

Until June 2016, PPG held outstanding renewable equity forward arrangements to hedge the impact to PPG's income from continuing operations for changes in the fair value of 2,777,778 shares of PPG stock that were contributed to the asbestos settlement trust as discussed in Note 15, “Commitments and Contingent Liabilities.” These financial instruments were recorded at fair value as assets or liabilities and changes in the fair value of these financial instruments were reflected in the “Asbestos settlement – net” caption of the accompanying condensed consolidated statement of income. In conjunction with the funding of the Asbestos Settlement Trust in June 2016, the equity forward arrangements were settled. At settlement, the aggregated fair value of the equity forward arrangements was an asset of $258 million .

The Company used interest rate swaps from time to time to manage its exposure to changing interest rates. When outstanding, the interest rate swaps were designated as fair value hedges of certain outstanding debt obligations and were recorded at fair value. There were no interest rate swaps outstanding as of September 30, 2017 and December 31, 2016 . However, in prior years, PPG settled interest rate swaps and received cash. The fair value adjustment of the debt at the time the interest rate swaps were settled is still being amortized as a reduction to interest expense over the remaining term of the related debt, which matures in 2021. The amount being amortized to interest expense is insignificant.

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. As of September 30, 2017 and December 31, 2016 , the fair value of all foreign currency forward contracts designated as cash flow hedges was a net liability of $10 million and a net asset of $13 million , respectively.

Net Investment Hedges

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

As of September 30, 2017 , the Company had outstanding U.S. dollar to Euro cross currency swap contracts with a total notional amount of $560 million . These contracts are scheduled to expire in March 2018. At settlement of the outstanding contracts, PPG will receive $560 million U.S. dollars and pay Euros to the counterparties. During the term of these contracts, PPG receives semiannual payments in March and September of each year based on a U.S. dollar, long-term interest rate fixed as of the contract inception date, and PPG makes annual payments in March of each year to the counterparties based on a Euro, long-term interest rate fixed as of the contract inception date. As of September 30, 2017 and December 31, 2016 , the fair value of these contracts was a net asset of $8 million and $65 million , respectively.

As of September 30, 2017 and December 31, 2016 , PPG had designated €2.8 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 September 30, 2017 and December 31, 2016 was $3.3 billion and $2.9 billion , respectively.

Gains/Losses Deferred in AOCI

As of September 30, 2017 and December 31, 2016 , the Company had accumulated pre-tax unrealized net foreign currency translation gains in AOCI related to the Euro-denominated borrowings, foreign currency forward contracts and the cross currency swaps of $63 million and $482 million , respectively.

The following tables summarize the location within the financial statements and amount of gains (losses) related to derivative financial instruments for the nine months ended September 30, 2017 and 2016 . All dollar amounts are shown on a pre-tax basis.

($ in millions)	September 30, 2017		
	Loss Deferred in OCI	Gain Recognized	
Hedge Type		Amount	Caption
Cash Flow			
Foreign currency forward contracts [a]	$ (20)	$ 4	Other charges
Total Cash Flow	$ (20)	$ 4	
Net Investment			
Foreign currency forward contracts	$ (2)		
Cross currency swaps	(54)		
Foreign denominated debt	(363)		
Total Net Investment	$ (419)		

(a) The ineffective portion related to this item was $6 million of expense.

($ in millions)	September 30, 2016		
	Gain (Loss) Deferred in OCI	Gain Recognized	
Hedge Type		Amount	Caption
Cash Flow			
Foreign currency forward contracts [a]	7	8	Other charges
Total Cash Flow	$ 7	$ 8	
Net Investment			
Cross currency swaps	$ (13)		
Foreign denominated debt	(67)		
Total Net Investment	$ (80)		

(a) The ineffective portion related to this item was $7 million of expense.

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of September 30, 2017 and December 31, 2016 , 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 12, "Employee Benefit Plans" under Item 8 in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 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 September 30, 2017 and December 31, 2016 that are classified as Level 3 inputs.

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

	September 30, 2017		
($ in millions)	Level 1	Level 2	Level 3
Assets:			
Other current assets:			
Marketable equity securities	$ 4	$ —	$ —
Cross currency swaps	—	8	—
Foreign currency forward contracts	—	2	—
Investments:			
Marketable equity securities	76	—	—
Liabilities:			
Accounts payable and accrued liabilities:			
Foreign currency forward contracts	—	15	—

	December 31, 2016		
($ in millions)	Level 1	Level 2	Level 3
Assets:			
Other current assets:			
Marketable equity securities	$ 4	$ —	$ —
Foreign currency forward contracts	—	22	—
Investments:			
Marketable equity securities	78	—	—
Other assets:			
Cross currency swaps	—	65	—
Liabilities:			
Accounts payable and accrued liabilities:			
Foreign currency forward contracts	—	9	—

Long-Term Debt

($ in millions)	September 30, 2017 [a]	December 31, 2016 [b]
Long-term debt - carrying value	$ 4,667	$ 4,299
Long-term debt - fair value	$ 4,885	$ 4,502

(a) Excluding capital lease obligations of $16 million and short term borrowings of $22 million as of September 30, 2017 .

(b) Excluding capital lease obligations of $18 million and short term borrowings of $99 million as of December 31, 2016 .

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.

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

For the year ended December 31, 2016 , in conjunction with the 2016 restructuring actions, certain nonmonetary assets were written down to their fair value. Refer to Note 6, “Business Restructuring” for further details associated with these actions.

14 . 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 7.7 million as of September 30, 2017 .

Stock-based compensation and the income tax benefit recognized during the three and nine months ended September 30, 2017 and 2016 were as follows:

($ in millions)	Three Months Ended September 30		Nine Months Ended September 30	
	2017	2016	2017	2016
Stock-based compensation	$ 9	$ 11	$ 33	$ 37
Income tax benefit recognized	$ 4	$ 3	$ 12	$ 12

Grants of stock-based compensation during the nine months ended September 30, 2017 and 2016 were as follows:

	Nine Months Ended September 30			
	2017		2016	
Grant Details	Shares	Fair Value	Shares	Fair Value
Stock options	590,058	$ 21.15	649,984	$ 17.94
Restricted stock units	215,749	$ 96.69	239,599	$ 91.55
Contingent shares (a)	57,817	$ 103.67	60,381	$ 95.46

(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 nine months ended September 30, 2017 was calculated with the following weighted average assumptions:

Weighted average exercise price	$ 101.53
Risk-free interest rate	2.4%
Expected life of option in years	6.5
Expected dividend yield	1.8%
Expected volatility	22.0%

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. 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.

15 . 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 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.

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.

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 September 30, 2017, the Company is aware of approximately 625 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 will cease 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 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 judgments or jury verdicts; (vi) the lack of specific information in many cases concerning exposure for which PPG is allegedly responsible, and the claimants' alleged diseases resulting from such exposure; and (vii) potential changes in applicable federal and/or state tort liability law. All of these factors may have a material effect upon future asbestos-related liability estimates. As a potential offset to any future asbestos financial exposure, under the PC plan of reorganization PPG retained, for its own account, the right to pursue insurance coverage from certain of its historical insurers that did not participate in the PC plan of reorganization. While the ultimate outcome of PPG's asbestos litigation cannot be predicted with certainty, PPG believes that any financial exposure resulting from its asbestos-related claims will not have a material adverse effect on PPG's consolidated financial position, liquidity or results of operations.

Environmental Matters

It is PPG's policy to accrue expenses for environmental contingencies when it is probable that a liability has been incurred and the amount of loss can be reasonably estimated. Reserves for environmental contingencies are exclusive of claims against third parties and are generally not discounted. In management's opinion, the Company operates in an environmentally sound manner and the outcome of the Company's environmental contingencies will not have a material effect on PPG's financial position or liquidity; however, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized. Management anticipates that the resolution of the Company's environmental contingencies will occur over an extended period of time. See Note 13, "Commitments and Contingent Liabilities," under Item 8 in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 for additional descriptions of the following environmental matters.

As of September 30, 2017 and December 31, 2016 , PPG had reserves for environmental contingencies associated with PPG's former chromium manufacturing plant in Jersey City, N.J. and associated sites ("New Jersey Chrome") and for other environmental contingencies, including National Priority List sites and legacy glass and chemical manufacturing sites. These reserves are reported as "Accounts payable and accrued liabilities" and "Other liabilities" in the accompanying condensed consolidated balance sheet.

Environmental Reserves

($ in millions)	September 30, 2017	December 31, 2016
New Jersey Chrome	$ 144	$ 163
Legacy glass and chemical	74	70
Other	54	52
Total	$ 272	$ 285
Current portion	*$ 83*	*$ 76*

Pre-tax charges against income for environmental remediation costs are included in "Other charges" in the accompanying condensed consolidated statement of income. The pre-tax charges and cash outlays related to such environmental remediation for the three and nine ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Environmental remediation pre-tax charges	$ 3	$ 3	5	11
Cash outlays for environmental remediation activities	$ 14	$ 12	36	35

Remediation: New Jersey Chrome

In June 2009, PPG entered into a settlement agreement with the New Jersey Department of Environmental Protection ("NJDEP") and Jersey City, New Jersey (which had asserted claims against PPG for lost tax revenue) which was in the form of a Judicial Consent Order (the "JCO"). Under the JCO, PPG accepted sole responsibility for the remediation activities at its former chromium manufacturing location in Jersey City and 19 additional sites. The principal contaminant of concern is hexavalent chromium. The JCO also provided for the appointment of a court-approved Site Administrator who is responsible for establishing a master schedule for the remediation of the 20 PPG sites which existed at that

time. One site was subsequently removed from the JCO process during 2014 and will be remediated separately at a future date. A total of 19 sites remain subject to the JCO process.

The most significant assumptions underlying the estimate of remediation costs for all New Jersey Chrome sites are those related to the extent and concentration of chromium impacts in the soil, as these determine the quantity of soil that must be treated in place, the quantity that will have to be excavated and transported for offsite disposal, and the nature of disposal required. The reserve for the estimated costs to remediate all New Jersey Chrome sites are exclusive of any third party indemnification, as the recovery of any such amounts is uncertain.

Groundwater remediation at PPG's former chromium manufacturing site in Jersey City and five adjacent sites is expected to occur over several years after NJDEP's approval of a work plan. Ongoing groundwater monitoring will be utilized to develop a final groundwater remedial action work plan which is currently expected to be submitted to NJDEP no later than 2020.

PPG’s financial reserve for remediation of all New Jersey Chrome sites is $144 million at September 30, 2017 . The major cost components of this liability continue to be related to excavation, transportation and disposal of impacted soil, as well as construction services. These components each account for approximately 30% , 30% and 24% of the accrued amount, respectively.

There are multiple, future events yet to occur, including further remedy selection and design, remedy implementation and execution and applicable governmental agency or community organization approvals. Considerable uncertainty exists regarding the timing of these future events for the New Jersey Chrome sites. Final resolution of these events is expected to occur over the next several years. As these events occur and to the extent that the cost estimates of the environmental remediation remedies change, the existing reserve for this environmental remediation matter will be adjusted.

Remediation: Other Legacy Sites

Among other sites at which PPG is managing environmental liabilities, remedial actions are occurring at a legacy chemical manufacturing site in Barberton, Ohio, where PPG has completed a Facility Investigation and Corrective Measure Study under the USEPA’s Resource Conservation and Recovery Act (“RCRA”) Corrective Action Program. PPG has also been addressing the impacts from a legacy plate glass manufacturing site in Kokomo, Indiana under the Voluntary Remediation Program of the Indiana Department of Environmental Management. PPG is currently performing additional investigation activities at this location. With respect to certain waste sites, the financial condition of other potentially responsible parties also contributes to the uncertainty of estimating PPG’s final costs. Although contributors of waste to sites involving other potentially responsible parties may face governmental agency assertions of joint and several liability, in general, final allocations of costs are made based on the relative contributions of wastes to such sites. PPG is generally not a major contributor to such sites.

Remediation: Reasonably Possible Matters

In addition to the amounts currently reserved for environmental remediation, the Company may be subject to loss contingencies related to environmental matters estimated to be as much as $100 million to $200 million . Such unreserved losses are reasonably possible but are not currently considered to be probable of occurrence. These reasonably possible unreserved losses relate to environmental matters at a number of sites, none of which are individually significant. The loss contingencies related to these sites include significant unresolved issues such as the nature and extent of contamination at these sites and the methods that may have to be employed to remediate them.

The impact of evolving programs, such as natural resource damage claims, industrial site re-use initiatives and domestic and international remediation programs, also adds to the present uncertainties with regard to the ultimate resolution of this unreserved exposure to future loss. The Company’s assessment of the potential impact of these environmental contingencies is subject to considerable uncertainty due to the complex, ongoing and evolving process of investigation and remediation, if necessary, of such environmental contingencies, and the potential for technological and regulatory developments.

Other Matters

The Company had outstanding letters of credit and surety bonds of $181 million and guarantees of $17 million as of September 30, 2017 . The Company does not believe any loss related to such guarantees is likely.

16 . Reportable Business Segment Information

PPG is a multinational manufacturer with 10 operating segments that are organized based on the Company's major product lines. These operating segments are also the Company's reporting units for purposes of testing goodwill for impairment. The operating segments have been aggregated based on economic similarities, the nature of their products, production processes, end-use markets and methods of distribution into two reportable business segments.

The Performance Coatings reportable segment is comprised of the refinish, aerospace, architectural coatings – Americas and Asia-Pacific, architectural coatings - EMEA, and protective and marine coatings operating segments. This reportable segment primarily supplies a variety of protective and decorative coatings, sealants and finishes along with paint strippers, stains and related chemicals, as well as transparencies and transparent armor.

The Industrial Coatings reportable segment is comprised of the automotive original equipment manufacturer ("OEM") coatings, industrial coatings, packaging coatings, coatings services and the specialty coatings and materials operating segments. This reportable segment primarily supplies a variety of protective and decorative coatings and finishes along with adhesives, sealants, metal pretreatment products, optical monomers and coatings, precipitated silicas, *Teslin*® and other specialty materials, and coatings services.

Reportable segment net sales and segment income for the three and nine months ended September 30, 2017 and 2016 were as follows:

	Three Months Ended September 30		Nine Months Ended September 30	
($ in millions)	2017	2016	2017	2016
Net sales:				
Performance Coatings	$ 2,290	$ 2,223	$ 6,608	$ 6,600
Industrial Coatings	1,486	1,437	4,460	4,253
Total	$ 3,776	$ 3,660	$ 11,068	$ 10,853
Segment income:				
Performance Coatings	$ 365	$ 368	$ 1,063	$ 1,075
Industrial Coatings	223	249	760	806
Total	$ 588	$ 617	1,823	1,881
Corporate	(45)	(43)	(135)	(166)
Interest expense, net of interest income	(22)	(28)	(65)	(76)
Legacy items [(a)]	—	(4)	(3)	(25)
Asset write-down	—	—	—	(10)
Gain from the sale of an equity affiliate	—	—	—	20
Pension settlement charge	—	(968)	(22)	(968)
Gain from sale of a business	—	—	25	—
Income from a legal settlement	—	—	18	—
Transaction-related costs [(b)]	—	—	(9)	(8)
Income (loss) from continuing operations before income taxes	$ 521	$ (426)	$ 1,632	$ 648

(a) Legacy items include current costs related to former operations of the Company, including pension and other postretirement benefit costs, certain charges for legal matters and environmental remediation costs, and certain other charges which are not associated with PPG's current business portfolio. Until June 2016, legacy included the quarterly remeasurement of the asbestos settlement liability and equity forward.

(b) Transaction-related costs include advisory, legal, accounting, valuation and other professional or consulting fees incurred to effect significant acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs may also include the flow-through cost of sales for the step up to fair value of inventories acquired in acquisitions. These costs also include certain severance costs and charges associated with the Company's recent business portfolio transformation.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

Executive Overview

Below are our key financial results for the three months ended September 30, 2017 :

- Net sales were $3.8 billion , up more than 3% compared to the prior year, aided by favorable foreign currency translation of $67 million .
- Cost of sales, exclusive of depreciation and amortization was $2.1 billion , up 6.2% versus prior year.
- Selling, general and administrative ("SG&A") expense was $0.9 billion , up 1.3% . As a percentage of sales, SG&A expense decreased 0.4% .
- Income before income taxes was $521 million .
- The effective tax rate was 23.6% .
- Net income from continuing operations was $392 million .
- Earnings per diluted share from continuing operations was $1.52 .

For the nine months ended September 30, 2017 , Cash flows from operating activities - continuing operations was $1,020 million , an increase of $370 million year over year, largely due to the absence of the prior year funding of the Pittsburgh Corning asbestos trust.

Capital expenditures, including acquisitions (net of cash acquired), was $276 million for the nine months ended September 30, 2017 . In addition, PPG spent $100 million during the nine months-ended September 30, 2017 to acquire a 40% ownership interest in TCI.

During the nine months ended September 30, 2017 , the Company paid $321 million in dividends and repurchased $413 million of its outstanding common stock. During the third quarter 2017, PPG increased its normal quarterly dividend by 13% , or $0.05 per share, to $0.45 per share.

Performance in the third quarter of 2017 compared to the third quarter of 2016

Performance Overview

Net Sales

($ in millions, except percentages)	Three Months Ended September 30 2017	2016	Percent Change 2017 vs. 2016
United States and Canada	$ 1,604	$ 1,632	(1.7)%
Europe, Middle East and Africa (EMEA)	1,134	1,049	8.1 %
Asia-Pacific	648	620	4.5 %
Latin America	390	359	8.6 %
Total	$ 3,776	$ 3,660	3.2 %

2017 vs. 2016

Net sales increased $116 million due to the following:

- *Favorable foreign currency translation (+2%)*
- *Higher sales volumes (+0.6%)*
- *Net sales from acquired businesses (+0.6%)*
- *Slightly higher selling prices*

U.S. and Canada sales volumes were down a low-single-digit-percentage versus the prior year, including the effects from the natural disasters and lower automotive OEM industry production. In aggregate, general industrial coatings and specialty coatings and materials sales volumes increased a mid-single-digit percentage year-over-year. Packaging coatings sales volumes were up a mid-single-digit percentage, reflecting continued adoption of PPG technology. Our architectural coatings company-owned stores continued to perform well, as sales volumes increased a mid-single-digit percentage versus the prior year, including the unfavorable impact from several natural disasters. These increases were more than offset by sales volumes declines in our national retail (DIY) customer accounts and independent dealer networks. Protective coatings sales volumes were lower year-over-year primarily due to disruption caused by the hurricanes.

Europe, Middle East and Africa (EMEA) sales volumes were flat versus the prior year, primarily due to lower sales volumes in architectural coatings offset by modestly higher sales volumes in the automotive OEM, protective, aerospace, and packaging coatings businesses. Automotive refinish coatings organic sales increased a low-single-digit-percentage year-over-year. Marine and general industrial coatings sales volumes were consistent year-over-year, in-line with market.

Asia-Pacific sales volumes expanded by a mid-single-digit percentage year-over-year led by continued strong performance in automotive OEM and general industrial coatings along with growth in architectural coatings. From a country and sub-region perspective, and similar to the prior quarter, sales volumes versus the prior year grew in India, China and Southeast Asia and continued to decline in Korea.

Latin America sales volumes grew by a mid-single-digit percentage versus the prior year primarily due to low-double-digit percentage sales volume growth in the Industrial Coatings segment businesses. Sales volumes in the Performance Coating segment businesses were level with the prior year.

Net sales from acquired businesses, net of dispositions added approximately $20 million in the third quarter of 2017, primarily the DEUTEK and Univer businesses in Europe.

Foreign currency translation increased net sales by $67 million as the U.S. dollar weakened against several foreign currencies versus the prior year, most notably the Mexican peso and the euro.

Cost of Sales, exclusive of depreciation and amortization

($ in millions, except percentages)	Three Months Ended September 30 2017	2016	Percent Change 2017 vs. 2016
Cost of sales, exclusive of depreciation and amortization	$ 2,100	$ 1,978	6.2%
Cost of sales as a percentage of net sales	55.6%	54.0%	1.6%

2017 vs. 2016

Cost of sales, exclusive of depreciation and amortization, increased $122 million (+6.2%) primarily due to the following:

- *Increasing raw material costs*
- *Higher sales volumes*
- *Foreign currency translation*
- *Cost of sales attributable to acquired businesses*

Partially offset by:

- *Lower manufacturing costs, including restructuring cost savings*

Selling, general and administrative expenses

($ in millions, except percentages)	Three Months Ended September 30 2017	2016	Percent Change 2017 vs. 2016
Selling, general and administrative expenses (SG&A)	$ 905	$ 893	1.3 %
Selling, general and administrative expenses as a percentage of net sales	24.0%	24.4%	(0.4)%

2017 vs. 2016

SG&A expense increased $12 million (1.3%) primarily due to the following:

- *Foreign currency translation*
- *Wage and other cost inflation*
- *SG&A expenses attributable to acquired businesses*

Partially offset by:

- *Lower net periodic other postretirement benefit costs*
- *Restructuring cost savings*
- *Lower selling and advertising expense*
- *Lower incentive compensation expense*

Other costs and income

($ in millions, except percentages)	Three Months Ended September 30 2017	2016	Percent Change 2017 vs. 2016
Interest expense, net of Interest income	$ 22	$ 28	(21.4)%
Pension settlement charge	$ —	$ 968	(100.0)%
Other charges	$ 13	$ 12	8.3 %
Other income	$ (16)	$ (21)	(23.8)%

Interest expense, net of Interest income

Interest expense, net of interest income decreased $6 million year-over-year primarily due to lower interest rate debt outstanding during 2017.

Pension Settlement Charge

During the third quarter 2016, PPG recorded pension settlement charges totaling $968 million. Refer to Note 10, "Pensions and Other Postretirement Benefits" for additional details.

Effective tax rate and earnings per diluted share

	Three Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
Income tax expense (benefit)	$ 123	$ (220)	(155.9)%
Effective tax rate	23.6%	51.6%	(28.0)%
Adjusted effective tax rate, continuing operations*	23.6%	24.4%	(0.8)%
Earnings per diluted share, continuing operations	$ 1.52	$ (0.79)	(292.4)%
Adjusted earnings per diluted share*	$ 1.52	$ 1.52	— %

*See Regulation G Reconciliation.

Income tax benefit for the three months-ended September 30, 2016 includes $352 million related to pension settlement charges recorded during the quarter.

Earnings per diluted share from continuing operations for the three months ended September 30, 2017 was unfavorably impacted from the natural disasters by approximately $0.05, primarily due to lost sales volumes from company-owned store closures and higher raw material and logistic costs. We expect a continued unfavorable impact to earnings per diluted share from the natural disasters during the fourth quarter 2017.

Earnings per diluted share from continuing operations for the three months ended September 30, 2017 increased year-over-year due to the absence of third quarter 2016 pension settlement charges. The Company also benefited from the 6.8 million shares repurchased in the fourth quarter of 2016 and 4.0 million shares repurchased during 2017.

Regulation G Reconciliation - Results from Operations

PPG Industries believes investors' understanding of the company's operating performance is enhanced by the disclosure of net income, earnings per diluted share and the effective tax rate adjusted for certain charges. PPG's management considers this information useful in providing insight into the company's ongoing operating performance because it excludes the impact of items that cannot reasonably be expected to recur on a quarterly basis or that are not attributable to our primary operations. Net income, earnings per diluted share and the effective tax rate adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles (GAAP) and should not be considered a substitute for net income, earnings per diluted share, the effective tax rate or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted net income, earnings per diluted share and the effective tax rate may not be comparable to similarly titled measures as reported by other companies.

Income before income taxes is reconciled to adjusted income before income taxes, the effective tax rate from continuing operations is reconciled to the adjusted effective tax rate from continuing operations and net income (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) are reconciled to adjusted net income (attributable to PPG) and adjusted earnings per share – assuming dilution below:

	Three months ended September 30, 2017				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations	$ 521	$ 123	23.6%	$ 392	$ 1.52

	Three months ended September 30, 2016				
($ in millions, except percentages and per share amounts)	(Loss) Income Before Income Taxes	Tax (Benefit) Expense	Effective Tax Rate	Net (loss) income from continuing operations (attributable to PPG)	(Loss) Earnings per share
As reported, continuing operations	$ (426)	$ (220)	51.6%	$ (211)	$ (0.79)
Adjusted for:					
Pension settlement charges	968	352	36.4%	616	2.31
Adjusted, continuing operations, excluding certain charges	$ 542	$ 132	24.4%	$ 405	$ 1.52

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except per share amounts)	Three Months Ended September 30 2017	2016	$ Change 2017 vs. 2016	% Change 2017 vs. 2016
Net sales	$ 2,290	$ 2,223	$ 67	3.0 %
Segment income	$ 365	$ 368	$ (3)	(0.8)%

2017 vs. 2016

Performance Coatings net sales increased $67 million (+3.0%) due to the following:

- *Favorable foreign currency translation of $46 million (+2%)*
- *Higher selling prices (+1%)*
- *Net sales from acquisitions (+1%)*

Partially offset by:

- *Lower sales volumes (-1%)*

Architectural coatings - Americas and Asia-Pacific sales volumes were flat versus the prior year, including the unfavorable impact from the natural disasters. In the U.S. and Canada, we implemented selling price actions. Sales volumes increased by a mid-single-digit percentage in U.S. and Canada company-owned stores, including the unfavorable impact from the hurricanes, and marked the 7th consecutive quarterly improvement. The increase in sales volumes was more than offset by sales volume declines in the U.S. and Canada independent dealer networks and mixed volume results in national retail (DIY) customer accounts, as both of these distribution channels continue to experience soft demand. Organic sales improved in both the Latin America and Asia-Pacific regions.

Architectural coatings - EMEA sales volumes decreased by a mid-single-digit percentage year-over-year primarily driven by continued weak demand in certain important countries, such as France, as well as our turning away certain business due to low profitability or lack of customer acceptance of selling price increases. Demand in certain parts of this business remained consistent with prior sequential quarters, such as the UK, where we continue to outperform the market. Selling prices improved due to various pricing initiatives implemented during the quarter. Acquisition-related sales contributed approximately 1% growth in the Performance Coatings segment, primarily DEUTEK and Univer.

Automotive refinish coatings organic sales grew by a low-single-digit percentage year-over-year, led by above-market performance in U.S. and Canada, despite the impact of the natural disasters. Organic sales across the other regions were consistent with the market.

Aerospace coatings sales volumes grew by a low-single-digit percentage versus the prior year, aided by higher demand in Europe.

Protective and marine coatings sales volumes were flat year-over-year and improved sequentially versus the prior quarter, despite lower U.S. protective coatings sales volumes caused by the hurricanes.

Segment income decreased $3 million (-0.8%) year-over-year primarily due to significant increases in raw material costs, lower sales volumes and wage and other cost inflation. These cost increases were substantially offset by disciplined cost management actions, including further benefits from the Company's 2016 restructuring program, as well as the impact on segment income of initial selling price actions. Favorable foreign currency translation increased segment income by approximately $7 million (Mexican peso and the euro).

Looking Ahead

In the fourth quarter 2017, we expect sequentially lower net sales due to normal business seasonality, specifically in our architectural businesses in Europe, the U.S. and Canada. From a business perspective, we anticipate overall demand will remain generally consistent in our architectural coatings - Americas and Asia Pacific business, with lower sales seasonally in the U.S. and Canada and minimal sales in Puerto Rico due to continued store closures caused by the hurricanes. Architectural coatings sales volumes in Mexico are expected to remain somewhat tempered due to demand uncertainty stemming from the recent earthquakes. We expect architectural coatings - EMEA demand to track market demand growth but mixed by country. Further, we expect continued sequential growth trends in aerospace and automotive refinish coatings will be consistent with market demand. We anticipate continuing unfavorable impacts on sales and segment income from the marine coatings sub-segment and flat to modestly positive protective coatings demand, with differences by region. Additionally, we expect raw material costs to remain at current levels for the remainder of the year and with no significant benefit to segment sales and income from acquisition-related sales, as previous acquisitions reach their one-year anniversary. Based on current exchange rates, including recent U.S. dollar weakness, we expect that foreign currency translation will have a favorable impact on segment sales and income in the fourth quarter.

Industrial Coatings

	Three Months Ended September 30		$ Change	% Change
($ in millions, except per share amounts)	2017	2016	2017 vs. 2016	2017 vs. 2016
Net sales	$ 1,486	$ 1,437	$ 49	3.4 %
Segment income	$ 223	$ 249	$ (26)	(10.4)%

2017 vs. 2016

Industrial Coatings segment net sales increased $49 million (+3%) due to the following:

- *Higher sales volumes (+3%), led by growth in Latin America and Asia-Pacific.*
- *Favorable foreign currency translation of approximately $20 million (+1%)*

Partially offset by:

- *Lower selling prices (-1%)*

PPG's automotive OEM coatings sales volumes increased by a low-single-digit percentage versus the prior year, consistent with global automotive industry production. PPG's performance was aided by our geographic mix of sales, as we remain well positioned in higher growth regions.

General industrial coatings and specialty coatings and materials sales volumes, in aggregate, grew by a mid-single-digit percentage year-over-year led by growth in the emerging regions, outpacing regional industrial growth rates for the 7 th consecutive quarter. Higher sales volumes were achieved across all regions and in many end-use markets, including year-over-year increases in electronics materials, heavy duty equipment and organic light emitting diode (OLED) materials.

Packaging coatings sales volumes were up a mid-single-digit percentage year-over-year, led by customer adoption of new PPG technologies, with above industry growth rates in several regions.

Segment income decreased $26 million (-10%) year-over-year primarily due to higher raw material and logistics costs some of which was related to the natural disasters, lower selling prices, and wage and other cost inflation, partially offset by lower manufacturing and overhead costs, including benefits from business restructuring actions and income from higher sales volumes. Favorable foreign currency translation added $3 million to segment income.

Looking ahead

In the fourth quarter 2017, global automotive OEM industry production is anticipated to be flat, with declines in the U.S. and China where the small engine tax subsidy is scheduled to expire in December. Last year, the delay in communicating the extension of the subsidy caused a surge in fourth quarter demand. Automotive OEM production in Europe is expected to grow a mid-single-digit percentage. Additionally, we expect continued moderate industrial end-use market demand growth trends, with ongoing variability by geography and sub-sector. Further, we expect general industrial coatings and specialty coatings and materials above market performance to continue; however, the Asia-Pacific region will have a difficult fourth quarter comparison as sales volumes grew at a low-double-digit-percentage in 2016. Finally, we expect incremental, above market volume growth in packaging coatings from further customer adoption of PPG technologies.

On October 2, the company completed the acquisition of The Crown Group ("Crown"), a U.S.-based coatings application services business. We expect acquisition-related sales from Crown of approximately $20 million to $25 million in the

fourth quarter. Similar to the MetoKote acquisition, we expect margins to be dilutive to the segment for the first few quarters as the business is integrated into PPG.

Also, based on current exchange rates, including recent U.S. dollar weakness, we expect foreign currency translation to only have a minor impact on segment sales and income in the fourth quarter.

Performance in the first nine months of 2017 compared to the first nine months of 2016

Performance Overview

Net Sales

	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
United States and Canada	$ 4,830	$ 4,829	—%
EMEA	3,309	3,216	2.9%
Asia-Pacific	1,839	1,789	2.8%
Latin America	1,090	1,019	7.0%
Total	$ 11,068	$ 10,853	2.0%

2017 vs. 2016

Net sales increased $215 million due to the following:

- *Net sales from acquired businesses (+2%)*
- *Higher sales volumes (+1%)*

Partially offset by:

- *Unfavorable foreign currency translation (-1%)*

United States and Canada sales volumes declined a low-single-digit percentage year-over-year, with demand mixed by end-use market segment. Automotive refinish and packaging coatings expanded sales volumes, as customers continued to adopt PPG's innovative and sustainable new products. Aerospace and protective coatings experienced year-over-year sales volume growth. Sales volumes in the general industrial coatings business improved year-over-year, as growth in general finish coatings helped to offset modest declines in the automotive parts sub-segment related to lower automotive industry production in the region. In architectural coatings, increased sales volume growth in the company-owned stores channel was more than offset by lower demand in the independent dealer networks and national retail (DIY) customer accounts. Sales volumes declined in automotive OEM coatings, in large-part due to lower industry production.

EMEA sales volumes increased modestly versus the prior year. Our aerospace coatings, protective coatings and automotive OEM coatings businesses experienced year-over-year sales volume growth. Automotive refinish coatings organic sales increased a low-single-digit percentage year-over-year. Sales volumes declined a low-single-digit percentage versus the prior year in architectural coatings. Sales volumes were flat versus the prior year in general industrial coatings primarily due to strong above-market growth in the prior year.

Asia-Pacific sales volumes expanded by a mid-single-digit percentage year-over-year led by growth in each business within the Industrial Coatings segment along with sales volume growth in the architectural coatings business. From a country and sub-region perspective, sales volumes grew in India, China, and Southeast Asia versus the prior year. Korea sales volumes continued to decline year-over-year primarily due to continued weakness in new shipbuilding.

Latin America sales volumes expanded by a mid-single-digit percentage versus the prior year primarily due to above market growth in our automotive OEM coatings business due to automotive industry production expansion with the opening of new assembly facilities in Mexico. Sales volumes in general industrial coatings were up a high-single-digit-percentage year-over-year, exceeding market growth in the region. Regional sales volumes were lower in architectural coatings versus the prior year driven by Brazil.

Net sales from acquired businesses, net of dispositions, added approximately $180 million in the first nine months of 2017, primarily MetoKote, DEUTEK and Univer.

Foreign currency translation reduced net sales by about $60 million as the U.S. dollar strengthened against most foreign currencies versus the prior year, most notably the Mexican peso, British pound and the euro, though the dollar weakened during the third quarter.

Cost of Sales, exclusive of depreciation and amortization

	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
Cost of sales, exclusive of depreciation and amortization	$ 6,087	$ 5,783	5.3%
Cost of sales as a percentage of net sales	55.0%	53.3%	1.7%

2017 vs. 2016

Cost of sales, exclusive of depreciation and amortization, increased $304 million (+5.3%) primarily due to the following:

- *Raw material cost inflation*
- *Cost of sales attributable to acquired businesses*
- *Higher sales volumes*

Partially offset by:

- *Lower manufacturing costs, including restructuring cost savings*
- *Foreign currency translation*

Selling, general and administrative expenses

	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
Selling, general and administrative expenses (SG&A)	$ 2,658	$ 2,720	(2.3)%
Selling, general and administrative expenses as a percentage of net sales	24.0%	25.1%	(1.1)%

2017 vs. 2016

SG&A expense decreased $62 million (-2.3%) primarily due to the following:

- *Lower net periodic other postretirement benefit costs*
- *Lower selling and advertising expense*
- *Restructuring cost savings*
- *Lower incentive compensation expense*

Partially offset by:

- *Wage and other cost inflation*
- *SG&A expenses attributable to acquired businesses*

Other costs and income

	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
Interest expense, net of Interest income	$ 65	$ 76	(14.5)%
Pension settlement charge	$ 22	$ 968	(97.7)%
Asbestos settlement, net	$ —	$ 5	(100.0)%
Other charges	$ 39	$ 58	(32.8)%
Other income	$ (112)	$ (80)	40.0 %

Interest expense, net of Interest income

Interest expense, net of interest income decreased $11 million year-over-year primarily due to lower interest rate debt outstanding during 2017.

Pension settlement charge

During 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 during the first nine months of 2017.

During the third quarter 2016, PPG recorded pension settlement charges totaling $968 million. Refer to Note 10, "Pensions and Other Postretirement Benefits" for additional details.

Other charges

Other charges decreased $19 million due in part to the absence of a prior year asset impairment charge of $10 million.

Other income

Other income increased $32 million from the prior year primarily due to a second quarter 2017 gain from the sale of the Plaka business, income from a legal settlement, and the step-up to fair-value of our investment in two affiliates due to the acquisition of our partner's remaining ownership interest. These benefits were partially offset by the absence of a prior year gain from the sale of our investment in an equity affiliate.

Effective tax rate and earnings per diluted share

	Nine Months Ended September 30		Percent Change
($ in millions, except percentages)	**2017**	**2016**	**2017 vs. 2016**
Income tax expense	$ 392	$ 174	125.3 %
Effective tax rate	24.0%	26.9%	(2.9)%
Adjusted effective tax rate, continuing operations*	24.4%	24.6%	(0.2)%
Earnings per diluted share, continuing operations	$ 4.73	$ 1.69	179.9 %
Adjusted earnings per diluted share*	$ 4.67	$ 4.49	4.0 %

*See Regulation G Reconciliation.

Income tax expense for the nine months-ended September 30, 2016 includes a $352 million benefit related to pension settlement charges and a $128 million charge related to the funding of the Pittsburgh Corning asbestos trust.

Earnings per diluted share from continuing operations for the nine months ended September 30, 2017 increased year-over-year due to the absence of the third quarter 2016 pension settlement charge. The Company also benefited from the 6.8 million shares repurchased in the fourth quarter of 2016 and 4.0 million shares repurchased during 2017.

Regulation G Reconciliation - Results from Operations

PPG Industries believes investors' understanding of the company's operating performance is enhanced by the disclosure of net income, earnings per diluted share and the effective tax rate adjusted for certain charges. PPG's management considers this information useful in providing insight into the company's ongoing operating performance because it excludes the impact of items that cannot reasonably be expected to recur on a quarterly basis or that are not attributable to our primary operations. Net income, earnings per diluted share and the effective tax rate adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles (GAAP) and should not be considered a substitute for net income, earnings per diluted share, the effective tax rate or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted net income, earnings per diluted share and the effective tax rate may not be comparable to similarly titled measures as reported by other companies.

Income before income taxes is reconciled to adjusted income before income taxes, the effective tax rate from continuing operations is reconciled to the adjusted effective tax rate from continuing operations and net income (attributable to PPG) and earnings per share – assuming dilution (attributable to PPG) are reconciled to adjusted net income (attributable to PPG) and adjusted earnings per share – assuming dilution below:

	Nine months ended September 30, 2017				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations	$ 1,632	$ 392	24.0%	$ 1,224	$ 4.73
Adjusted for:					
Transaction-related costs [1]	9	3	37.9%	6	0.02
Gain from sale of the Plaka business	(25)	(1)	3.2%	(24)	(0.09)
Gain from a legal settlement	(18)	(7)	37.9%	(11)	(0.04)
Pension settlement charge	22	8	37.9%	14	0.05
Adjusted, continuing operations, excluding certain charges	$ 1,620	$ 395	24.4%	$ 1,209	$ 4.67

	Nine months ended September 30, 2016				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations	$ 648	$ 174	26.9%	$ 456	$ 1.69
Adjusted for:					
Transaction-related costs [1]	8	3	37.6%	5	0.03
Gain on the sale of an investment in an equity affiliate	(20)	(7)	37.6%	(13)	(0.05)
Net tax effect of asbestos settlement funding	—	(128)	N/A	128	0.48
Asset write-down	10	3	25.0%	8	0.03
Pension settlement charges	968	352	36.4%	616	2.31
Adjusted, continuing operations, excluding certain charges	$ 1,614	$ 397	24.6%	$ 1,200	$ 4.49

(1) Transaction-related costs include advisory, legal, accounting, valuation, and other professional or consulting fees incurred to effect significant acquisitions, as well as similar fees and other costs to effect disposals not classified as discontinued operations. These costs also include certain charges associated with the Company's business portfolio transformation.

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except per share amounts)	Nine Months Ended September 30 2017	2016	$ Change 2017 vs. 2016	% Change 2017 vs. 2016
Net sales	$ 6,608	$ 6,600	$ 8	0.1 %
Segment income	$ 1,063	$ 1,075	$ (12)	(1.1)%

2017 vs. 2016

Performance Coatings net sales increased $8 million (0.1%) due to the following:

- *Higher selling prices (+1%)*
- *Net sales from acquired businesses (+1%)*

Partially offset by:

- *Lower sales volumes (-1%)*
- *Unfavorable foreign currency translation of approximately $40 million (-1%)*

Architectural coatings - Americas and Asia-Pacific sales volumes declined a low-single-digit-percentage versus the prior year. During 2017, pricing actions were implemented, which partially offset increasing raw material costs. Sales volumes increased by a mid-single-digit percentage in company-owned stores in the U.S. and Canada, including the unfavorable impact from natural disasters in the third quarter. This increase was more than offset by sales volume declines in the U.S. and Canada independent dealer networks and national retail (DIY) customer accounts, as both distribution channels continued to experience soft demand. Organic sales improved in both the Latin America and Asia-Pacific regions.

Architectural coatings - EMEA net sales increased by a mid-single-digit percentage year-over-year, despite unfavorable foreign currency translation. Sales volumes were down year-over-year primarily driven by continued weak demand in certain important countries, such as France, as well as our turning away certain business due to low profitability or lack of customer acceptance of selling price increases. Demand growth in certain parts of this business continued, such as the UK, where we continue to outperform the market. Aggregate pricing improved as we implemented announced selling price increases in company-owned stores. Acquisition-related sales, principally DEUTEK and Univer, contributed approximately $80 million to net sales.

Automotive refinish coatings organic sales grew by a low-single-digit percentage year-over-year, led by above-market performance in U.S. and Canada. In Asia-Pacific, net sales increased, partially due to the recent Futian Xinshi acquisition in China.

Aerospace coatings sales volumes were up modestly, led by Europe, versus the prior year as industry growth rates remained tepid despite solid commercial airliner production levels.

Protective and marine coatings sales volumes declined by a mid-to-high-single-digit percentage year-over-year. Protective coatings sales volumes expanded in most regions, led by Europe, but were more than offset by significant weakness in new shipbuilding activity, primarily in the Asia-Pacific region.

Segment income decreased $12 million (-1%) year-over-year primarily due to increasing raw material costs, lower sales volumes, wage and other cost inflation and unfavorable foreign currency translation, which reduced segment income by more than $10 million (Mexican peso, British pound and the euro). These cost increases were partially offset by lower manufacturing and overhead costs, including the initial benefits from business restructuring actions, selling price increases and acquisition-related income.

Industrial Coatings

($ in millions, except per share amounts)	Nine Months Ended September 30 2017	2016	$ Change 2017 vs. 2016	% Change 2017 vs. 2016
Net sales	$ 4,460	$ 4,253	$ 207	4.9 %
Segment income	$ 760	$ 806	$ (46)	(5.7)%

2017 vs. 2016

Industrial Coatings net sales increased $207 million (+5%) due to the following:

- *Higher sales volumes (+4%), led by growth in Latin America and Asia-Pacific.*
- *Net sales attributable to acquired businesses (+3%)*

Partially offset by:

- *Lower selling prices (-1%)*
- *Unfavorable foreign currency translation of approximately $20 million (-1%)*

PPG's automotive OEM coatings sales volumes increased by a low-to-mid-single-digit percentage versus the prior year, consistent with the global automotive industry production growth rate, led by China, Mexico, Europe and Brazil. Sales volumes declined in the U.S. and Canada, partially reflecting lower year-over-year industry production.

General industrial coatings and specialty coatings and materials sales volumes, in aggregate, grew by a mid-single-digit percentage year-over-year. Demand levels remained mixed by end-use market and geography, with strong year-over-year growth led by Asia-Pacific and Latin America, which outpaced regional industrial production demand growth. Sales volumes grew across most sub-segments, including year-over-year increases in electronics materials, heavy duty equipment and organic light emitting diode (OLED) materials. Acquisition-related sales, primarily MetoKote, added approximately $125 million.

Packaging coatings sales volumes grew by a low-single-digit percentage year-over-year, primarily driven by ongoing industry conversions to PPG's new can coatings technologies, led by the U.S.

Segment income decreased $46 million (-6%) year-over-year primarily due to increasing raw material costs, lower selling prices, wage and other cost inflation, higher transitory transportation and logistics costs required to meet increased customer demand in Asia and unfavorable foreign currency translation ($7 million). These cost increases were partially offset by income from higher sales volumes, lower manufacturing and overhead costs, including the initial benefits from business restructuring actions, and acquisition-related income.

Liquidity and Capital Resources

PPG had cash and short-term investments totaling $2.3 billion and $1.9 billion at September 30, 2017 and December 31, 2016 , respectively.

Cash from operating activities - continuing operations for the nine months ended September 30, 2017 was $1,020 million . Cash from operating activities - continuing operations was $650 million for the nine months ended September 30, 2016 . Operating cash flow increased primarily due to the absence of the cash paid to fund the Pittsburgh Corning asbestos bankruptcy trust in June 2016. This benefit was offset by higher working capital ($215 million) and higher cash tax and interest payments ($185 million).

Other uses of cash during the nine months ended September 30, 2017 included:

- Capital expenditures, excluding acquisitions, of $207 million , or about 2% of sales.
- Purchase of an investment in an equity affiliate of $100 million.
- Business acquisition cash spending of $69 million .
- Contributions to PPG's pension plans of $43 million .
- Cash dividends paid of $321 million .
- Share repurchases of $413 million .

In May 2016, PPG entered into two $250 million Term Loan Credit Agreements and subsequently prepaid the loans in December 2016.

In January 2016, PPG's $250 million 1.9% notes matured, and PPG repaid these notes with cash on hand.

Total capital spending in 2017 is expected to be in the range of 2.0% to 2.5% of full year sales. PPG expects to make mandatory contributions to its non-U.S. pension plans in the range of $10 million to $15 million in the fourth quarter of 2017.

We believe that our cash on hand and short term investments, cash from operations and the Company's available borrowing capacity will continue to be sufficient to fund operating activities, capital spending, including acquisitions, dividend payments, debt service, share repurchases and contributions to pension plans. We intend to deploy our cash in a timely, disciplined manner with a continued emphasis on incremental earnings accretive initiatives, including additional acquisitions and share repurchases. The Company expects cash deployment for acquisitions and share repurchases of at least $3.5 billion for the years 2017 and 2018 combined.

PPG's total debt to equity ratio (total debt, including capital leases, to total debt and PPG shareholders' equity) was 44% at September 30, 2017 and 47% at December 31, 2016 .

Operating Working Capital is a subset of total working capital and represents (1) trade receivables – net of the allowance for doubtful accounts, (2) FIFO inventories and (3) trade liabilities. We believe Operating Working Capital represents the key components of working capital under the operating control of our businesses. A key metric we use to measure improvement in our working capital management is Operating Working Capital as a percentage of sales (current quarter sales annualized).

($ in millions, except percentages)	**September 30, 2017**	**December 31, 2016**	**September 30, 2016**
Trade Receivables, Net	$ 2,759	$ 2,288	$ 2,595
Inventories, FIFO	1,910	1,620	1,771
Trade Creditors' Liabilities	2,255	1,907	1,956
Operating Working Capital	$ 2,414	$ 2,001	$ 2,410
Operating Working Capital as a % of Sales	16.0%	14.6%	16.5%
Days sales outstanding	59	54	58
Days payable outstanding	94	93	92

Other Liquidity Information

Environmental

	Three Months Ended September 30		**Nine Months Ended September 30**	
($ in millions)	**2017**	**2016**	**2017**	**2016**
Cash outlays for environmental remediation activities	$ 14	$ 12	$ 36	$ 35

($ in millions)	**Remainder of 2017**	**Annually 2018 - 2021**
Projected future cash outlays for environmental remediation activities	$20 - $30	$25 - $50

Restructuring

The 2016 restructuring actions have anticipated annual savings of approximately $125 million once fully implemented. The company expects to achieve at least $45 million in savings in 2017 with the remainder of the projected annual savings to be substantially realized by year-end 2018.

Taiwan Chlorine Industries

In April 2017, PPG paid $100 million to acquire a 40% interest in Taiwan Chlorine Industries from China Petrochemical Development Corporation. Refer to Note 3, "Acquisitions and Divestitures" for additional information.

Currency

Comparing exchange rates as of December 31, 2016 to September 30, 2017 , the U.S. dollar weakened against numerous currencies in which PPG operates, most notably the Mexican peso and Euro. As a result, consolidated net assets at September 30, 2017 increased by $372 million , compared to December 31, 2016 .

Comparing exchange rates during the first nine months of 2017 to those of the first nine months of 2016 , the U.S. dollar strengthened against the currencies of most countries in which PPG operates, most notably the euro, Mexican peso and British pound. This had an unfavorable impact on income from continuing operations before income taxes for the nine months ended September 30, 2017 of $19 million from the translation of these foreign earnings into U.S. dollars.

New Accounting Standards

See Note 2 , " New Accounting Standards ," to the accompanying condensed consolidated financial statements for further details on recently issued accounting guidance.

Commitments and Contingent Liabilities, including Environmental Matters

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. See Part II, Item 1, "Legal Proceedings" of this Form 10-Q and Note 15 , " Commitments and Contingent Liabilities ," to the accompanying condensed consolidated financial statements for a description of certain of these lawsuits.

As discussed in Part II, Item 1 and Note 15 , although the result of any future litigation of such lawsuits and claims is inherently unpredictable, 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, any such outcome may be material to the results of operations of any particular period in which costs, if any, are recognized.

As also discussed in Note 15 , PPG has significant reserves for environmental contingencies. Please refer to the Environmental Matters section of Note 15 for details of these reserves. A significant portion of our reserves for environmental contingencies relate to ongoing remediation at PPG's former chromium manufacturing plant in Jersey City, N.J. and associated sites ("New Jersey Chrome"). The Company continues to analyze, assess and remediate the environmental issues associated with New Jersey Chrome. Information will continue to be generated from the ongoing groundwater remedial investigation activities related to New Jersey Chrome and will be incorporated into a final draft remedial action work plan for groundwater expected to be submitted to the New Jersey Department of Environmental Protection no later than 2020.

It is possible that technological, regulatory and enforcement developments, the results of environmental studies and other factors could alter the Company's expectations with respect to future charges against income and future cash outlays. Specifically, the level of expected future remediation costs and cash outlays is highly dependent upon activity related to New Jersey Chrome.

Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of the Company. Management's Discussion and Analysis and other sections of this Quarterly Report contain forward-looking statements that reflect the Company's current views with respect to future events and financial performance.You can identify forward-looking statements by the fact that they do not relate strictly to current or historic facts. Forward-looking statements are identified by the use of the words "aim," "believe," "expect," "anticipate," "intend," "estimate," "project," "outlook," "forecast" and other expressions that indicate future events and trends. Any forward-looking statement speaks only as of the date on which such statement is made, and the Company undertakes no obligation to update any forward looking statement, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make on related subjects in our reports to the Securities and Exchange Commission. Also, note the following cautionary statements.

Many factors could cause actual results to differ materially from the Company's forward-looking statements. Such factors include ongoing impacts of the natural disasters described herein and their length and severity, any currently unanticipated future impacts from the natural disasters, global economic conditions, increasing price and product competition by foreign and domestic competitors, fluctuations in cost and availability of raw materials, the ability to maintain favorable supplier relationships and arrangements, the timing of and the realization of anticipated cost savings from restructuring initiatives, difficulties in integrating acquired businesses and achieving expected synergies therefrom, economic and political conditions in international markets, the ability to penetrate existing, developing and emerging foreign and domestic markets, foreign exchange rates and fluctuations in such rates, fluctuations in tax rates, the impact of future legislation, the impact of environmental regulations, unexpected business disruptions and the unpredictability of existing and possible future litigation.

Consequently, while the list of factors presented here and in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 under the caption "Item 1A Risk Factors" are considered representative, no such list should

be considered to be a complete statement of all potential risks and uncertainties. Unlisted factors may present significant additional obstacles to the realization of forward-looking statements.

Consequences of material differences in the results compared with those anticipated in the forward-looking statements could include, among other things, lower sales or earnings, business disruption, operational problems, financial loss, legal liability to third parties, other factors set forth in “Item 1A. Risk Factors” of the Company’s Annual Report on Form 10-K for the year ended December 31, 2016 and similar risks, any of which could have a material adverse effect on the Company’s consolidated financial condition, results of operations or liquidity.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

As of September 30, 2017 and December 31, 2016, PPG had non-U.S. dollar denominated borrowings outstanding of $3.3 billion and $3.1 billion, respectively. A weakening of the U.S. dollar by 10% against European currencies and by 20% against Asian and South American currencies would have resulted in unrealized translation losses on these borrowings of approximately $376 million as of September 30, 2017 and $344 million as of December 31, 2016 .

The fair value of foreign currency forward contracts outstanding as of September 30, 2017 and 2016 was a liability of $11 million and an asset of $16 million, respectively. The potential reduction in PPG's income from continuing operations resulting from the impact of adverse changes in exchange rates on the fair value of its outstanding foreign currency hedge contracts of 10% for European and Canadian currencies and 20% for Asian and Latin American currencies for the nine months ended September 30, 2017 and 2016 was $122 million and $105 million, respectively.

There were no other material changes in the Company’s exposure to market risk from December 31, 2016 to September 30, 2017 . See Note 13 , “ Financial Instruments, Hedging Activities and Fair Value Measurements ” for a description of our instruments subject to market risk.

Item 4. Controls and Procedures

a. Evaluation of disclosure controls and procedures. Based on their evaluation as of the end of the period covered by this Form 10-Q, the Company’s principal executive officer and principal financial officer have concluded that the Company’s disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934 (the “Exchange Act”)) are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms and to ensure that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company’s management, including its principal executive and principal financial officers, as appropriate, to allow timely decisions regarding required disclosure.

b. Changes in internal control. There were no changes in the Company’s internal control over financial reporting that occurred during the Company’s most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

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 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 may contest coverage. 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.

The results of any 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.

For many years, PPG has been a defendant in lawsuits involving claims alleging personal injury from exposure to asbestos. For a description of asbestos litigation affecting the Company, see Note 15 , " Commitments and Contingent Liabilities " to the accompanying condensed consolidated financial statements under Part I, Item 1 of this Form 10-Q.

In the past, the Company and others have been named as defendants in several cases in various jurisdictions claiming damages related to exposure to lead and remediation of lead-based coatings applications. PPG has been dismissed as a defendant from most of these lawsuits and has never been found liable in any of these cases.

In March 2016, the Natural Resource Trustees for the Calcasieu River Estuary (the United States Department of the Interior, acting through the United States Fish and Wildlife Service, the National Oceanic and Atmospheric Administration of the United States Department of Commerce, the Louisiana Department of Environmental Quality and the Louisiana Department of Wildlife and Fisheries) reached an agreement in principle with PPG and two other potentially responsible parties to resolve the Trustees' claims for natural resource damages alleged to have been caused by the release of hazardous substances into the Estuary. PPG's share of this settlement is $3,600,000.

In December 2011, the United States Environmental Protection Agency ("EPA") issued a Finding of Violation alleging that PPG's Delaware, Ohio facility violated certain leak detection and repair ("LDAR") requirements of the federal Clean Air Act. In 2016, PPG and the EPA reached an agreement in principle to settle this matter with a total civil penalty of $225,000 and certain enhancements to the facility's LDAR program. During the third quarter 2017, the Consent Decree was entered by the court and PPG paid the stipulated civil penalty.

Item 1A. Risk Factors

There were no material changes in the Company's risk factors from the risks disclosed in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 .

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Directors who are not also officers of the Company receive common stock equivalents pursuant to the PPG Industries, Inc. Deferred Compensation Plan for Directors ("PPG Deferred Compensation Plan for Directors"). Common stock equivalents are hypothetical shares of common stock having a value on any given date equal to the value of a share of common stock. Common stock equivalents earn dividend equivalents that are converted into additional common stock equivalents but carry no voting rights or other rights afforded to a holder of common stock. The common stock equivalents credited to directors under both plans are exempt from registration under Section 4(a)(2) of the Securities Act of 1933 as private offerings made only to directors of the Company in accordance with the provisions of the plans.

Under the PPG Deferred Compensation Plan for Directors, each director may elect to defer the receipt of all or any portion of the compensation paid to such director for serving as a PPG director. All deferred payments are held in the form of common stock equivalents. Payments out of the deferred accounts are made in the form of common stock of the Company (and cash as to any fractional common stock equivalent). In the third quarter of 2017 , the directors, as a group, were credited with 1,715 common stock equivalents under this plan. The value of these common stock equivalents, when credited, ranged from $106.69 to $110.61.

Issuer Purchases of Equity Securities

The following table summarizes the Company's stock repurchase activity for the three months ended September 30, 2017:

Month	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Programs (1)	Maximum Number of Shares That May Yet Be Purchased Under the Programs (1)
July 2017				
Repurchase program	434,820	$ 109.51	434,820	15,760,339
August 2017				
Repurchase program	769,597	$ 103.64	769,597	15,136,253
September 2017				
Repurchase program	1,149,396	$ 106.68	1,149,396	13,403,230
Total quarter ended September 30, 2017				
Repurchase program	2,353,813	$ 106.21	2,353,813	13,403,230

(1) In October 2016, PPG's board of directors approved a $2 billion share repurchase program. The remaining shares yet to be purchased under the 2016 program have been calculated using PPG's closing stock price on the last business day of the respective month. This repurchase program has no expiration date.

Item 6. Exhibits

See the Index to Exhibits on Page 43.

PPG INDUSTRIES, INC. AND SUBSIDIARIES

Index to Exhibits

The following exhibits are filed as part of, or incorporated by reference into, this Form 10-Q.

†12	Computation of Ratio of Earnings to Fixed Charges for the Nine Months Ended September 30, 2017 and for the Five Years Ended December 31, 2016.
†31.1	Certification of Principal Executive Officer Pursuant to Rule 13a-14(a) or 15d-14(a) of the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
†31.2	Certification of Principal Financial Officer Pursuant to Rule 13a-14(a) or 15d-14(a) of the Exchange Act, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
††32.1	Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
††32.2	Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS*	XBRL Instance Document
101.SCH*	XBRL Taxonomy Extension Schema Document
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document

† Filed herewith.
†† Furnished herewith.
* Attached as Exhibit 101 to this report are the following documents formatted in XBRL (Extensible Business Reporting Language): (i) the Condensed Consolidated Statement of Income for the three and nine months ended September 30, 2017 and 2016 , (ii) the Condensed Consolidated Balance Sheet at September 30, 2017 and December 31, 2016 , (iii) the Condensed Consolidated Statement of Cash Flows for the three and nine months ended September 30, 2017 and 2016 , and (iv) Notes to Condensed Consolidated Financial Statements for the three and nine months ended September 30, 2017 .

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

PPG INDUSTRIES, INC.
(Registrant)

Date: October 20, 2017

By: /s/ Vincent J. Morales
Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer and Duly Authorized Officer)

By: /s/ Mark C. Kelly
Mark C. Kelly
Vice President and Controller
(Principal Accounting Officer and Duly Authorized Officer)

Exhibit 12

PPG INDUSTRIES, INC. AND CONSOLIDATED SUBSIDIARIES
Computation of Ratio of Earnings to Fixed Charges
(Dollars in millions)

	Nine Months Ended September 30	Year Ended December 31				
	2017	**2016**	**2015**	**2014**	**2013**	**2012**
Earnings:						
Earnings before income taxes and net earnings in equity affiliates	$ 1,621	$ 773	$ 1,735	$ 1,216	$ 1,177	$ 764
Plus:						
Fixed charges exclusive of capitalized interest	147	215	210	278	280	277
Amortization of capitalized interest	4	5	5	5	4	5
Adjustments for equity affiliates	8	2	73	5	1	—
Total	**$ 1,780**	**$ 995**	**$ 2,023**	**$ 1,504**	**$ 1,462**	**$ 1,046**
Fixed Charges:						
Interest expense including amortization of debt discount/premium and debt expense	$ 78	$ 125	$ 125	$ 187	$ 196	$ 210
Rentals - portion representative of interest	69	90	85	91	84	67
Fixed charges exclusive of capitalized interest	147	215	210	278	280	277
Capitalized interest	6	8	9	16	10	8
Total	**$ 153**	**$ 223**	**$ 219**	**$ 294**	**$ 290**	**$ 285**
Ratio of earnings to fixed charges	**11.6**	**4.5**	**9.2**	**5.1**	**5.0**	**3.7**

Note: The financial information of all prior periods has been reclassified to reflect discontinued operations.

Exhibit 31.1

PRINCIPAL EXECUTIVE OFFICER CERTIFICATION

I, Michael H. McGarry, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PPG Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 20, 2017

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer

Exhibit 31.2

PRINCIPAL FINANCIAL OFFICER CERTIFICATION

I, Vincent J. Morales, certify that:

1. I have reviewed this quarterly report on Form 10-Q of PPG Industries, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: October 20, 2017

/s/ Vincent J. Morales

Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of PPG Industries, Inc. for the period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael H. McGarry, Chairman and Chief Executive Officer of PPG Industries, Inc., certify to the best of my knowledge, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of PPG Industries, Inc.

/s/ Michael H. McGarry

Michael H. McGarry
Chairman and Chief Executive Officer
October 20, 2017

A signed original of this written statement required by Section 906 has been provided to PPG Industries, Inc. and will be retained by PPG Industries, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of PPG Industries, Inc. for the period ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Vincent J. Morales, Senior Vice President and Chief Financial Officer of PPG Industries, Inc., certify to the best of my knowledge, pursuant to 18 U.S.C. §1350, as adopted pursuant to §906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of PPG Industries, Inc.

/s/ Vincent J. Morales

Vincent J. Morales
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

October 20, 2017

A signed original of this written statement required by Section 906 has been provided to PPG Industries, Inc. and will be retained by PPG Industries, Inc. and furnished to the Securities and Exchange Commission or its staff upon request.