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

FORM 10-Q

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the quarterly period ended: March 31, 2020
or
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____ to _____
Commission file number 1-1687

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

25-0730780
(I.R.S. Employer Identification No.)
Pennsylvania
(State or Other Jurisdiction of Incorporation or Organization)
One PPG Place, Pittsburgh, Pennsylvania
(Address of Principal Executive Offices)
15272
(Zip Code)
(412) 434-3131
(Registrant's Telephone Number, Including Area Code)

Not Applicable
(Former Name, Former Address and Former Fiscal Year, if Changed Since Last Report)
Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $1.66 2/3	PPG	New York Stock Exchange
0.875% Notes due 2022	PPG 22	New York Stock Exchange
0.875% Notes due 2025	PPG 25	New York Stock Exchange
1.400% Notes due 2027	PPG 27	New York Stock Exchange

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

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

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

Large Accelerated Filer	☑	Accelerated Filer	☐
Non-accelerated Filer	☐	Smaller Reporting Company	☐
		Emerging Growth Company	☐

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

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

As of March 31, 2020, 235,923,428 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 March 31	
	2020	2019
Net sales	$3,377	$3,624
Cost of sales, exclusive of depreciation and amortization	1,908	2,073
Selling, general and administrative	905	889
Depreciation	93	86
Amortization	36	32
Research and development, net	101	105
Interest expense	32	31
Interest income	(9)	(6)
Business restructuring, net	7	(3)
Other charges	3	14
Other income	(18)	(16)
Income before income taxes	$319	$419
Income tax expense	71	102
Net income attributable to controlling and noncontrolling interests	$248	$317
Less: Net income attributable to noncontrolling interests	(5)	(5)
Net income (attributable to PPG)	$243	$312
Earnings per common share (attributable to PPG)	$1.03	$1.32
Earnings per common share (attributable to PPG) - assuming dilution	$1.02	$1.31

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

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

	Three Months Ended March 31	
	2020	2019
Net income attributable to the controlling and noncontrolling interests	$248	$317
Other comprehensive (loss)/income, net of tax:		
Defined benefit pension and other postretirement benefits	1	(6)
Unrealized foreign currency translation adjustments	(706)	81
Derivative financial instruments	3	—
Other comprehensive (loss)/income, net of tax	($702)	$75
Total comprehensive (loss)/income	($454)	$392
Less: amounts attributable to noncontrolling interests:		
Net income	(5)	(5)
Unrealized foreign currency translation adjustments	10	1
Comprehensive (loss)/income attributable to PPG	($449)	$388

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)

	March 31, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$1,886	$1,216
Short-term investments	50	57
Receivables, net	2,804	2,756
Inventories	1,859	1,710
Other current assets	467	431
Total current assets	$7,066	$6,170
Property, plant and equipment (net of accumulated depreciation of $4,065 and $4,082)	2,863	2,983
Goodwill	4,243	4,470
Identifiable intangible assets, net	1,918	2,131
Deferred income taxes	183	220
Investments	245	258
Operating lease right-of-use assets	784	782
Other assets	762	694
Total	$18,064	$17,708
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable and accrued liabilities	$3,367	$3,496
Restructuring reserves	206	196
Short-term debt and current portion of long-term debt	1,456	513
Current portion of operating lease liabilities	166	170
Total current liabilities	$5,195	$4,375
Long-term debt	4,751	4,539
Operating lease liabilities	627	622
Accrued pensions	737	745
Other postretirement benefits	656	661
Deferred income taxes	399	452
Other liabilities	862	911
Total liabilities	$13,227	$12,305
Commitments and contingent liabilities (Note 16)		
Shareholders' equity:		
Common stock	$969	$969
Additional paid-in capital	954	950
Retained earnings	19,029	18,906
Treasury stock, at cost	(13,187)	(13,191)
Accumulated other comprehensive loss	(3,042)	(2,350)
Total PPG shareholders' equity	$4,723	$5,284
Noncontrolling interests	114	119
Total shareholders' equity	$4,837	$5,403
Total	$18,064	$17,708

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 Shareholders' Equity (Unaudited)

($ in millions)

	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total PPG	Non-controlling Interests	Total
January 1, 2020	$969	$950	$18,906	($13,191)	($2,350)	$5,284	$119	$5,403
Net income attributable to the controlling and noncontrolling interests	—	—	243	—	—	$243	5	$248
Other comprehensive loss, net of tax	—	—	—	—	(692)	($692)	(10)	($702)
Cash dividends	—	—	(120)	—	—	($120)	—	($120)
Issuance of treasury stock	—	12	—	4	—	$16	—	$16
Stock-based compensation activity	—	(8)	—	—	—	($8)	—	($8)
March 31, 2020	$969	$954	$19,029	($13,187)	($3,042)	$4,723	$114	$4,837

	Common Stock	Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive (Loss)/Income	Total PPG	Non-controlling Interests	Total
January 1, 2019	$969	$788	$18,131	($12,958)	($2,300)	$4,630	$102	$4,732
Net income attributable to the controlling and noncontrolling interests	—	—	312	—	—	$312	5	$317
Other comprehensive income/(loss), net of tax	—	—	—	—	76	$76	(1)	$75
Cash dividends	—	—	(113)	—	—	($113)	—	($113)
Purchase of treasury stock	—	—	—	(175)	—	($175)	—	($175)
Issuance of treasury stock	—	121	—	63	—	$184	—	$184
Stock-based compensation activity	—	(10)	—	—	—	($10)	—	($10)
March 31, 2019	$969	$899	$18,330	($13,070)	($2,224)	$4,904	$106	$5,010

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 Cash Flows (Unaudited)

($ in millions)	Three Months Ended March 31 2020	2019
Operating activities:		
Net income attributable to controlling and noncontrolling interests	$248	$317
Adjustments to reconcile net income to cash from operations:		
Depreciation and amortization	129	118
Pension expense	10	12
Environmental remediation charges	8	10
Business restructuring, net	7	(3)
Stock-based compensation expense	7	9
Equity affiliate income, net of dividends	(4)	(4)
Deferred income taxes	(4)	(32)
Cash contributions to pension plans	(2)	(3)
Cash used for restructuring actions	(18)	(15)
Change in certain asset and liability accounts (net of acquisitions):		
Receivables	(58)	(299)
Inventories	(206)	(152)
Other current assets	(28)	(56)
Accounts payable and accrued liabilities	(87)	(24)
Taxes and interest payable	(28)	42
Noncurrent assets and liabilities, net	(27)	(22)
Other	(106)	36
Cash used for operating activities	($159)	($66)
Investing activities:		
Capital expenditures	(37)	(47)
Business acquisitions, net of cash balances acquired	(44)	(57)
Payments for the settlement of cross currency swap contracts	(2)	(6)
Proceeds from the settlement of cross currency swap contracts	10	16
Other	14	8
Cash used for investing activities	($59)	($86)
Financing activities:		
Proceeds on commercial paper and short-term debt, net of payments	371	309
Proceeds from revolving credit facility	800	—
Repayment of long-term debt	(5)	(1)
Repayment of acquired debt	(8)	—
Purchase of treasury stock	—	(175)
Issuance of treasury stock	5	7
Dividends paid on PPG common stock	(120)	(113)
Payments related to tax withholding on stock-based compensation awards	(7)	(8)
Other	(24)	13
Cash from financing activities	$1,012	$32
Effect of currency exchange rate changes on cash and cash equivalents	(124)	2
Net increase/(decrease) in cash and cash equivalents	$670	($118)
Cash and cash equivalents, beginning of period	1,216	902
Cash and cash equivalents, end of period	$1,886	$784
Supplemental disclosures of cash flow information:		
Interest paid, net of amount capitalized	$48	$40
Taxes paid, net of refunds	$90	$94
Supplemental disclosure of noncash investing activities:		
Reissuance of common stock for business acquisition	$—	$164

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 (the "SEC") and accounting principles generally accepted in the United States of America ("U.S. GAAP") for interim reporting. Under these rules, certain footnotes and other financial information that are normally required for annual financial statements can be condensed or omitted. These statements include all adjustments, consisting only of normal, recurring adjustments, necessary for a fair presentation of the financial position and shareholders' equity of PPG as of March 31, 2020, and the results of its operations and cash flows for the three months ended March 31, 2020 and 2019. 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 2019 Annual Report on Form 10-K (the "2019 Form 10-K").

Net sales, expenses, assets and liabilities can vary during each quarter of the year. Accordingly, the results of operations for the three months ended March 31, 2020 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

Accounting Standards Adopted in 2020

Effective January 1, 2020, PPG adopted Accounting Standards Update (“ASU”) No. 2016-13, "Financial Instruments - Credit Losses." This ASU requires an organization to measure all expected credit losses for financial assets, including trade receivables, held at the reporting date based on historical experience, current conditions, and reasonable and supportable information. Organizations will now use forward-looking information to better estimate their credit losses. PPG adopted this ASU using a modified retrospective approach. Under this method of adoption, PPG determined that there was no cumulative-effect adjustment to beginning Retained earnings on the condensed consolidated balance sheet. Adoption of this standard did not impact PPG’s Income before income taxes and had no impact on the condensed consolidated statement of cash flows. See Note 3, “Allowance for Credit Losses” for further details.

Effective January 1, 2020, PPG adopted ASU No. 2018-15, “Intangibles - Goodwill and Other - Internal-Use Software: Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract.” This ASU aligns the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). PPG adopted this ASU prospectively. Under this method of adoption, PPG determined there was not a material impact to the condensed consolidated balance sheet, Income before income taxes or the condensed consolidated statement of cash flows.

Accounting Standards to be Adopted in Future Years

In March 2020, the Financial Accounting Standards Board (“FASB”) issued ASU No. 2020-04, “Reference Rate Reform." This ASU provides optional guidance for a limited period of time to ease potential accounting impacts associated with transitioning away from reference rates that are expected to be discontinued, such as the London Interbank Offered Rate ("LIBOR"). The amendments in this ASU apply only to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued. The amendments in this ASU are effective through December 31, 2022. PPG is currently assessing the potential impacts this ASU may have on its consolidated financial position, results of operations and cash flows.

In December 2019, the FASB issued ASU No. 2019-12, "Income Taxes - Simplifying the Accounting for Income Taxes." This ASU is intended to simplify various aspects related to accounting for income taxes by eliminating certain exceptions within Accounting Standards Codification Topic 740, "Income Taxes" and clarifies certain aspects of the current accounting guidance. The amendments in this ASU are effective for fiscal years beginning after December 15, 2020 and for interim periods therein with early adoption permitted. PPG does not believe this ASU will have a material impact on its consolidated financial position, results of operations or cash flows.

3. Allowance for Credit Losses

All trade receivables are reported on the condensed consolidated balance sheet at the outstanding principal amount adjusted for any allowance for credit losses and any charge offs. PPG provides an allowance for credit losses to reduce trade receivables to their estimated net realizable value equal to the amount that is expected to be collected. This allowance is estimated based on historical collection experience, current regional economic and market conditions, the aging of accounts receivable, assessments of current creditworthiness of customers, and forward-looking information. The use of forward-looking information is based on certain macroeconomic and microeconomic indicators including, but not limited to, regional business environment risk, political risk, and commercial and financing risks.

PPG reviews its reserves for credit losses on a quarterly basis to ensure its reserves for credit losses reflect regional risk trends as well as current and future global operating conditions.

In March 2020, PPG recorded estimated future credit losses for trade receivables of $30 million related to the potential financial impacts of the COVID-19 pandemic. These amounts were estimated based on regional business information, including certain forward-looking information and other considerations. As new information becomes available, PPG will monitor the adequacy of this reserve.

The following table summarizes the activity for the allowance for credit losses for the three months ended March 31, 2020:

($ in millions)	Trade Receivables Allowance for Credit Losses
January 1, 2020	$22
Current-period provision for credit losses	33
Trade receivables written off as uncollectible, net of recoveries	(4)
Foreign currency impact	(1)
March 31, 2020	$50

4. Acquisitions

On March 2, 2020, PPG completed the acquisition of Alpha Coating Technologies, LLC, a manufacturer of powder coatings for light industrial applications and heat sensitive substrates. The pro-forma impact on PPG's sales and results of operations, including the pro-forma effect of events that are directly attributable to the acquisition, was not significant. The results of this business since the date of acquisition have been reported within the industrial coatings business within the Industrial Coatings reportable business segment.

On January 31, 2020, PPG completed the acquisition of Industria Chimica Reggiana S.p.A ("ICR"), an Italian manufacturer of automotive refinish products. The pro-forma impact on PPG's sales and results of operations, including the pro-forma effect of events that are directly attributable to the acquisition, was not significant. The results of this business since the date of acquisition have been reported within the automotive refinish coatings business within the Performance Coatings reportable business segment.

On April 16, 2019, PPG completed the acquisition of Hemmelrath, a global manufacturer of coatings for automotive original equipment manufacturers ("OEMs"). The pro-forma impact on PPG's sales and results of operations, including the pro-forma effect of events that are directly attributable to the acquisition, was not significant. The results of this business since the date of acquisition have been reported within the automotive OEM coatings business within the Industrial Coatings reportable business segment.

On March 1, 2019, PPG completed the acquisition of Whitford Worldwide Company ("Whitford"), a global manufacturer that specializes in low-friction and nonstick coatings for industrial applications and consumer products. Whitford operates 10 manufacturing facilities globally. The pro-forma impact on PPG's sales and results of operations, including the proforma effect of events that are directly attributable to the acquisition, was not significant. The results of this business since the date of acquisition have been reported within the industrial coatings business within the Industrial Coatings reportable business segment.

5. Inventories

($ in millions)	March 31, 2020	December 31, 2019
Finished products	$1,138	$1,047
Work in process	204	197
Raw materials	482	431
Supplies	35	35
Total Inventories	$1,859	$1,710

Most U.S. inventories are valued using the last-in, first-out method. These inventories represented approximately 36% and 34% of total inventories at March 31, 2020 and December 31, 2019, respectively. If the first-in, first-out method of inventory valuation had been used, inventories would have been $120 million and $124 million higher as of March 31, 2020 and December 31, 2019, respectively.

6. Goodwill and Other Identifiable Intangible Assets

The change in the carrying amount of goodwill attributable to each reportable segment for the three months ended March 31, 2020 was as follows:

($ in millions)	Performance Coatings	Industrial Coatings	Total
January 1, 2020	$3,442	$1,028	$4,470
Acquisitions, including purchase accounting adjustments	4	16	20
Foreign currency impact	(218)	(29)	(247)
March 31, 2020	$3,228	$1,015	$4,243

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

	March 31, 2020			December 31, 2019		
($ in millions)	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Indefinite-Lived Identifiable Intangible Assets						
Trademarks	$1,012	N/A	$1,012	$1,167	N/A	$1,167
Definite-Lived Identifiable Intangible Assets						
Acquired technology	$709	($550)	$159	$710	($549)	$161
Customer-related	1,508	(866)	642	1,578	(885)	693
Trade names	205	(109)	96	210	(111)	99
Other	48	(39)	9	51	(40)	11
Total Definite Lived Intangible Assets	$2,470	($1,564)	$906	$2,549	($1,585)	$964
Total Identifiable Intangible Assets	$3,482	($1,564)	$1,918	$3,716	($1,585)	$2,131

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

As of March 31, 2020, estimated future amortization expense of identifiable intangible assets is as follows:

($ in millions)	Future Amortization Expense
Remaining nine months of 2020	$99
2021	$125
2022	$125
2023	$110
2024	$90
2025	$85
Thereafter	$272

7. 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 certain other cash costs. As a result of these programs, the Company will also incur incremental non-cash accelerated depreciation expense for certain assets due to their reduced expected asset life. These charges are not allocated to the Company's reportable business segments. Refer to Note 18 Reportable Business Segment Information for additional information.

2019 Restructuring Program

In June 2019, the Company approved a business restructuring plan which included actions to reduce its global cost structure. The program is the result of a comprehensive internal operational assessment to identify further opportunities to improve the profitability of the overall business portfolio. This program includes further manufacturing optimization; targeted pruning of low-profit business in certain regions; exiting certain smaller product lines that are not meeting profitability objectives; reorganization of certain business unit cost structures based on the current economic climate; and certain redundancy actions related to recent acquisitions. The majority of restructuring actions are expected to be completed by the end of the fourth quarter 2020 with the remainder of the actions expected to be completed in 2022.

2018 Restructuring Program

In April 2018, the Company approved a business restructuring plan which included actions to reduce its global cost structure. The program was in response to the impacts of customer assortment changes in our U.S. architectural coatings business during the first quarter 2018 and sustained, elevated raw material inflation. The program aims to further right-size employee headcount and production capacity in certain businesses based on product demand, as well as reductions in various global functional and administrative costs. The majority of restructuring actions are expected to be completed by the end of the second quarter of 2020.

The following table summarizes the reserve activity for the three months ended March 31, 2020 and 2019:

	Total Reserve	
($ in millions)	**2020**	**2019**
January 1	$224	$110
Newly approved restructuring actions	22	—
Release of prior reserves	(15)	(3)
Cash payments	(18)	(15)
Foreign currency impact	(3)	(1)
March 31	$210	$91

8. Borrowings

In August 2019, PPG amended and restated its five-year credit agreement (the "Credit Agreement") with several banks and financial institutions. The Credit Agreement provides for a $2.2 billion unsecured revolving credit facility. The Company has the ability to increase the size of the Credit Agreement by up to an additional $750 million, subject to the receipt of lender commitments and other conditions precedent. The Credit Agreement will terminate on August 30, 2024. The Company has the right, subject to certain conditions set forth in the Credit Agreement, to designate certain subsidiaries of the Company as borrowers under the Credit Agreement. In connection with any such designation, the Company is required to guarantee the obligations of any such subsidiaries under the Credit Agreement. In March 2020, PPG borrowed $800 million under the Credit Agreement, which is classified as short-term based on PPG's intent to repay these borrowings within one year. There were no amounts outstanding under the credit agreement as of December 31, 2019.

The Credit Agreement also supports the Company's commercial paper borrowings which are classified as long-term based on PPG's intent and ability to refinance these borrowings on a long-term basis. Commercial paper borrowings of $307 million and $100 million were outstanding as of March 31, 2020 and December 31, 2019, respectively.

On April 14, 2020, PPG entered into a $1.5 billion 364-Day Term Loan Credit Agreement (the "Term Loan"). The Term Loan contains covenants that are consistent with those in the Credit Agreement and that are usual and customary restrictive covenants for facilities of its type, which include, with specified exceptions, limitations on the Company's ability to create liens or other encumbrances, to enter into sale and leaseback transactions and to enter into consolidations, mergers or transfers of all or substantially all of its assets. The Term Loan also requires the

Company to maintain a ratio of Total Indebtedness to Total Capitalization, as defined in the Term Loan, of 60% or less; provided, that for any fiscal quarter in which the Company has made an acquisition for consideration in excess of $1 billion and for the next five fiscal quarters thereafter, the ratio of Total Indebtedness to Total Capitalization may not exceed 65% at any time. The Term Loan terminates and all amounts outstanding are payable on April 13, 2021. As of March 31, 2020, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and Term Loan was 53%.

9. Leases

PPG leases certain retail paint stores, warehouses, distribution facilities, office space, fleet vehicles and equipment.

The components of lease expense were as follows:

($ in millions)	Classification in the Condensed Consolidated Statement of Income	Three Months Ended March 31 2020	2019
Operating lease cost:			
Operating lease cost	Cost of sales, exclusive of depreciation and amortization	$8	$9
Operating lease cost	Selling, general and administrative	53	48
Total operating lease cost		$61	$57
Finance lease cost:			
Amortization of right-of-use assets	Depreciation	$1	$1
Total lease cost		$62	$58

Total operating lease cost is inclusive of the following:

($ in millions)	Three Months Ended March 31 2020	2019
Variable lease costs	$5	$4
Short-term lease costs	$3	$1

($ in millions)	Classification on the Condensed Consolidated Balance Sheet	March 31, 2020	December 31, 2019
Assets:			
Operating	Operating lease right-of-use assets	$784	$782
Finance [(a)]	Property, plant, and equipment, net	13	17
Total leased assets		$797	$799
Liabilities:			
Current			
Operating	Current portion of operating lease liabilities	$166	$170
Finance	Short-term debt and current portion of long-term debt	2	3
Noncurrent			
Operating	Operating lease liabilities	$627	$622
Finance	Long-term debt	7	8
Total lease liabilities		$802	$803

(a) Net of accumulated depreciation of $11 million as of March 31, 2020 and December 31, 2019.

($ in millions)	Three Months Ended March 31 2020	2019
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows paid for operating leases	$52	$52
Financing cash flows paid for finance leases	$1	$1
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$61	$34

	March 31, 2020	December 31, 2019
Weighted-average remaining lease term (in years)		
Operating leases	7.6	7.4
Finance leases	6.3	6.2
Weighted-average discount rate		
Operating leases	3.0 %	3.0 %
Finance leases	9.3 %	9.4 %

As of March 31, 2020, maturities of lease liabilities were as follows:

($ in millions)	Operating Leases	Finance Leases
Remaining nine months of 2020	$145	$2
2021	158	2
2022	125	2
2023	97	2
2024	76	1
Thereafter	290	2
Total lease payments	$891	$11
Less: Interest	98	2
Total lease obligations	$793	$9

10. Earnings Per Common 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 months ended March 31, 2020 and 2019 were as follows:

(number of shares in millions)	Three Months Ended March 31 2020	2019
Weighted average common shares outstanding	236.5	236.7
Effect of dilutive securities:		
Stock options	0.5	0.7
Other stock compensation plans	0.7	0.6
Potentially dilutive common shares	1.2	1.3
Adjusted weighted average common shares outstanding	237.7	238.0
Dividends per common share	$0.51	$0.48

Excluded from the computation of earnings per diluted share due to their antidilutive effect were 1.5 million and 1.6 million outstanding stock options for the three months ended March 31, 2020 and 2019, respectively.

11. Income Taxes

	Three Months Ended March 31	
	2020	2019
Effective tax rate on pretax income	22.3 %	24.3 %

The effective tax rate of 22.3% for the three months ended March 31, 2020 reflects a benefit of $11 million of discrete items associated with PPG's U.S. and foreign jurisdictions. Income tax expense for the first three months of 2020 is based on an estimated annual effective rate, which requires management to make its best estimate of annual pretax income or loss. Income tax expense for the three months ended March 31, 2019 reflects $2 million for discrete items associated with PPG's U.S. and foreign locations and implementation of updated regulations associated with the 2017 Tax Cuts and Jobs Act for Global Intangible Low Taxed Income.

During the year, PPG management regularly updates forecasted annual pretax results for the various countries in which PPG operates based on changes in factors such as prices, shipments, product mix, raw material inflation and manufacturing operations. To the extent that actual 2020 pretax results for U.S. and foreign income or loss vary from estimates, the actual Income tax expense recognized in 2020 could be different from the forecasted amount used to estimate the Income tax expense for the three months ended March 31, 2020.

12. Pensions and Other Postretirement Benefits

Service cost for net periodic pension and other postretirement benefit costs is included in Cost of sales, exclusive of depreciation and amortization, Selling, general and administrative, and Research and development, net in the accompanying condensed consolidated statements of income. All other components of net periodic benefit cost are recorded in Other charges in the accompanying condensed consolidated statements of income.

The net periodic pension and other postretirement benefit costs for the three months ended March 31, 2020 and 2019 were as follows:

	Pension		Other Postretirement Benefits	
	Three Months Ended March 31		Three Months Ended March 31	
($ in millions)	2020	2019	2020	2019
Service cost	$6	$6	$2	$2
Interest cost	22	26	5	6
Expected return on plan assets	(36)	(35)	—	—
Amortization of actuarial losses	18	15	4	2
Amortization of prior service credit	—	—	(15)	(14)
Net periodic benefit cost	$10	$12	($4)	($4)

PPG expects its 2020 net periodic pension and other postretirement benefit cost will be approximately $25 million, with pension expense representing approximately $40 million and other postretirement benefit cost representing a benefit of approximately $15 million.

Contributions to Defined Benefit Pension Plans

	Three Months Ended March 31	
($ in millions)	2020	2019
Non-U.S. defined benefit pension mandatory contributions	$2	$3

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 nine months of 2020. PPG may make voluntary contributions to its defined benefit pension plans in 2020 and beyond.

13. Accumulated Other Comprehensive Loss

($ in millions)	Unrealized Foreign Currency Translation Adjustments	Pension and Other Postretirement Benefit Adjustments, net of tax (c)	Unrealized Gain on Derivatives, net of tax	Accumulated Other Comprehensive Loss
January 1, 2020	($1,627)	($724)	$1	($2,350)
Current year deferrals to AOCI (a)	(758)	—	—	(758)
Current year deferrals to AOCI, net of tax (b)	62	(4)	3	61
Reclassifications from AOCI to net income	—	5	—	5
Period change	($696)	$1	$3	($692)
March 31, 2020	($2,323)	($723)	$4	($3,042)
January 1, 2019	($1,734)	($568)	$2	($2,300)
Current year deferrals to AOCI (a)	31	—	—	31
Current year deferrals to AOCI, net of tax (b)	51	(8)	—	43
Reclassifications from AOCI to net income	—	2	—	2
Period change	$82	($6)	$—	$76
March 31, 2019	($1,652)	($574)	$2	($2,224)

(a) Except for income taxes of $7 million and $6 million as of March 31, 2020 and 2019, respectively, related to foreign currency impacts of certain unasserted earnings, unrealized foreign currency translation adjustments related to translation of foreign denominated balance sheets are not presented net of tax given that no deferred U.S. income taxes have been provided on undistributed earnings of non-U.S. subsidiaries because they are deemed to be reinvested for an indefinite period of time.

(b) The tax cost related to unrealized foreign currency translation adjustments on tax inter-branch transactions and net investment hedges as of March 31, 2020 and 2019 was $19 million and $17 million, respectively.

(c) The tax cost related to the adjustment for pension and other postretirement benefits as of March 31, 2020 and 2019 was $2 million and $1 million, respectively. Reclassifications from AOCI are included in the computation of net periodic benefit costs (See Note 12, "Pensions and Other Postretirement Benefits").

14. 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 March 31, 2020 and December 31, 2019, in the aggregate, except for long-term debt instruments.

Hedging Activities

The Company has exposure to market risk from changes in foreign currency exchange rates and interest rates. As a result, financial instruments, including derivatives, have been used to hedge a portion of these underlying economic exposures. Certain of these instruments qualify as fair value, cash flow, 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 before income taxes 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 month periods ended March 31, 2020 and 2019.

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

There were no derivative instruments de-designated or discontinued as hedging instruments during the three month periods ended March 31, 2020 and 2019 and there were no gains or losses deferred in Accumulated other comprehensive loss on the condensed consolidated balance sheet that were reclassified to Income before income

taxes in the condensed consolidated statement of income in the three month periods ended March 31, 2020 and 2019 related to hedges of anticipated transactions that were no longer expected to occur.

Fair Value Hedges

The Company uses interest rate swaps from time to time to manage its exposure to changing interest rates. When outstanding, the interest rate swaps are typically designated as fair value hedges of certain outstanding debt obligations of the Company and are recorded at fair value.

PPG has interest rate swaps which converted $525 million of fixed rate debt to variable rate debt. These swaps are designated as fair value hedges and are carried at fair value. Changes in the fair value of these swaps and changes in the fair value of the related debt are recorded in interest expense in the accompanying condensed consolidated state of income. The fair value of these interest rate swaps was $76 million and $35 million at March 31, 2020 and December 31, 2019, respectively.

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 third party transactions denominated in foreign currencies. Underlying notional amounts related to these foreign currency forward contracts were $18 million at March 31, 2020 and $43 million at December 31, 2019, respectively. As of March 31, 2020 and December 31, 2019, the fair value of all foreign currency forward contracts designated as cash flow hedges was an asset of $3 million and a liability of $1 million, respectively.

Net Investment Hedges

PPG uses cross currency swaps and foreign currency euro-denominated debt to hedge a significant portion of its net investment in its European operations, as follows:

As of March 31, 2020 and December 31, 2019, PPG has U.S. dollar to euro cross currency swap contracts with a total notional amount of $875 million and designated these contracts as hedges of the Company's net investment in its European operations. During the term of these contracts, PPG will receive payment in U.S. dollars and make payments in euros to the counterparties. As of March 31, 2020 and December 31, 2019, the fair value of the U.S. dollar to euro cross currency swap contracts was an asset of $90 million and a net asset of $48 million, respectively.

As of March 31, 2020 and December 31, 2019, PPG had designated €2.0 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 March 31, 2020 and December 31, 2019 was $2.2 billion for both periods.

Other Financial Instruments

PPG uses foreign currency forward contracts to manage net transaction exposures that do not qualify for hedge accounting; therefore, the change in the fair value of these instruments is recorded in Other charges in the condensed consolidated statement of income in the period of change. Underlying notional amounts related to these foreign currency forward contracts were $3.4 billion and $2.8 billion at March 31, 2020 and December 31, 2019, respectively. As of March 31, 2020 and December 31, 2019 the fair value of these contracts were net liabilities of $14 million and $6 million, respectively.

Gains/Losses Deferred in Accumulated Other Comprehensive Loss

As of March 31, 2020, the Company had accumulated pretax unrealized translation gains in Accumulated other comprehensive loss on the condensed consolidated balance sheet related to the euro-denominated borrowings, foreign currency forward contracts and the cross currency swaps of $313 million. As of December 31, 2019, the Company had accumulated pretax unrealized translation gains of $235 million.

The following table summarizes the location within the condensed consolidated financial statements and amount of gains/(losses) related to derivative and debt financial instruments for the three months ended March 31, 2020 and 2019. All dollar amounts are shown on a pretax basis.

($ in millions)	March 31, 2020		March 31, 2019		Caption In Condensed Consolidated Statement of Income
	Gain Deferred in OCI	Gain Recognized	Gain Deferred in OCI	Gain/(Loss) Recognized	
Economic					
Foreign currency forward contracts	$—	$16	$—	$6	Other charges
Fair Value					
Interest rate swaps	—	2	—	—	Interest expense
Cash Flow					
Foreign currency forward contracts	4	—	—	(1)	Other charges and Cost of sales
Total Cash Flow	$4	$18	$—	$5	
Net Investment					
Cross currency swaps	$42	$5	$13	$4	Interest expense
Foreign denominated debt	36	—	57	—	
Total Net Investment	$78	$5	$70	$4	

Fair Value Measurements

The Company follows a fair value measurement hierarchy to measure its assets and liabilities. As of March 31, 2020 and December 31, 2019, the assets and liabilities measured at fair value on a recurring basis were cash equivalents, equity securities and derivatives. In addition, the Company measures its pension plan assets at fair value (see Note 13, "Employee Benefit Plans" under Item 8 in the 2019 Form 10-K 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 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 condensed consolidated balance sheets as of March 31, 2020 and December 31, 2019 that are classified as Level 3 inputs.

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

($ in millions)	March 31, 2020			December 31, 2019		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Assets:						
Other current assets:						
Marketable equity securities	$5	$—	$—	$5	$—	$—
Foreign currency forward contracts [a]	—	33	—	—	14	—
Foreign currency forward contracts [d]	—	3	—	—	—	—
Investments:						
Marketable equity securities	$68	$—	$—	$80	$—	$—
Other assets:						
Cross currency swaps [b]	$—	$90	$—	$—	$52	$—
Interest rate swaps [c]	—	76	—	—	35	—
Liabilities:						
Accounts payable and accrued liabilities:						
Foreign currency forward contracts [d]	$—	$—	$—	$—	$1	$—
Foreign currency forward contracts [a]	—	47	—	—	20	—
Other liabilities:						
Cross currency swap [b]	$—	$—	$—	$—	$4	$—

(a) Derivatives not designated as hedging instruments

(b) Net investment hedges

(c) Fair value hedges

(d) Cash flow hedges

Long-Term Debt

($ in millions)	March 31, 2020 [a]	December 31, 2019 [b]
Long-term debt - carrying value	$5,246	$5,031
Long-term debt - fair value	$5,443	$5,363

(a) Excluding finance lease obligations of $9 million and short-term borrowings of $952 million as of March 31, 2020.

(b) Excluding finance lease obligations of $11 million and short-term borrowings of $10 million as of December 31, 2019.

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.

15. 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 ("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 6.4 million as of March 31, 2020.

Stock-based compensation and the income tax benefit recognized during the three months ended March 31, 2020 and 2019 were as follows:

($ in millions)	Three Months Ended March 31	
	2020	2019
Stock-based compensation	$7	$9
Income tax benefit recognized	$2	$2

Grants of stock-based compensation during the three months ended March 31, 2020 and 2019 were as follows:

	Three Months Ended March 31			
	2020		2019	
Grant Details	Shares	Fair Value	Shares	Fair Value
Stock options	659,835	$21.93	588,870	$22.50
Restricted stock units	182,276	$112.99	179,564	$103.35
Contingent shares (a)	54,648	$119.52	51,850	$109.74

(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 three months ended March 31, 2020 was calculated with the following weighted average assumptions:

Weighted average exercise price	$119.52
Risk free interest rate	1.6 %
Expected life of option in years	6.5
Expected dividend yield	1.5 %
Expected volatility	20.0 %

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 past 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.

For awards granted in 2020, the amount paid upon vesting of performance-based RSUs may range from 0% to 200% of the original grant, based upon the frequency with which the annual earnings per share growth and cash flow return on capital performance targets are met over the three calendar year periods comprising the vesting period. For awards granted in 2019 and 2018, the amount paid upon vesting of performance-based RSUs may range from 0% to 180% of the original grant.

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. For awards granted in 2020, the payment of awards following the three-year award period will be based on performance achieved in accordance with the scale set forth in the plan agreement and may range from 0% to 200% of the initial grant. For awards granted in 2019 and 2018, the amount paid following the three-year award period may range from 0% to 220% of the initial grant. Any payments made at the end of the award period may be in the form of stock, cash or a combination of both at the Company's discretion. The TSR awards qualify as liability awards, and compensation expense is recognized over the three-year award period based on the fair value of the awards (giving consideration to the Company's percentile rank of total shareholder return) remeasured in each reporting period until settlement of the awards.

16. Commitments and Contingent Liabilities

PPG is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. These lawsuits and claims may relate to contract, patent, environmental, product liability, asbestos exposure, antitrust, employment, securities and other

matters arising out of the conduct of PPG's current and past business activities. To the extent that these lawsuits and claims involve personal injury, property damage, and certain other claims, 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 with respect to some of the asbestos claims. 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 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.

Shareholder Class Action

On May 20, 2018, a putative securities class action lawsuit was filed in the U.S. District Court for the Central District of California against the Company and three of its current and former officers. On September 21, 2018, an Amended Class Action Complaint was filed in the lawsuit. The Amended Complaint, captioned Trevor Mild v. PPG Industries, Inc., Michael H. McGarry, Vincent J. Morales, and Mark C. Kelly, asserted securities fraud claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 on behalf of a putative class of persons who purchased or otherwise acquired stock of the Company between January 19, 2017 and May 10, 2018. The allegations related to, among other things, allegedly false and misleading statements and/or failures to disclose information about the Company's business, operations and prospects. The parties reached a settlement in principal on May 1, 2019. On June 2, 2019, the plaintiff filed with the Court a Petition for Preliminary Approval of the proposed settlement, including the proposed settlement amount of $25 million. On November 22, 2019, the Court entered final judgment approving the settlement. PPG's insurance carriers confirmed to the Company insurance coverage for the full amount of the settlement. Settlement payments are expected to occur in 2020.

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 prior to April 27, 2016).

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. 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 prior: (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 Bankruptcy Court's 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 are 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".

Non-PC relationship claims

With respect to the asbestos-related claims pending against the Company 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 non-PC Relationship Claims against it.

Current open and active claims post-Pittsburgh Corning bankruptcy

As of March 31, 2020, the Company was aware of approximately 530 open and active asbestos-related claims pending against the Company and certain of its subsidiaries. These claims consist of non-PC Relationship Claims against PPG and claims against a PPG subsidiary the Company acquired on April 1, 2013. The Company is defending these open and active claims vigorously.

PPG has established reserves totaling approximately $190 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 estimable potential future asbestos liabilities. These reserves, which are included within Other liabilities on the accompanying condensed consolidated balance sheets, represent PPG's best estimate of its liability for these claims.

These reserves include a $162 million reserve established in 2009 in connection with an amendment to the PC plan of reorganization for non-PC Relationship Claims other than claims arising from premises-related exposures. 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.

These reserves also include PPG's best estimate, following an analysis performed in 2019 of its claims history and discussions with consultants and its counsel, of the value of the Company's potential liability for premises-related non-PC Relationship Claims against it and claims against PPG's subsidiary acquired on April 1, 2013 that are presently pending, and that are projected to be asserted through December 31, 2028.

PPG monitors the activity associated with its asbestos claims and evaluates, 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 14, "Commitments and Contingent Liabilities," under Item 8 of the 2019 Form 10-K for additional descriptions of the following environmental matters.

As remediation at certain legacy environmental sites progresses, PPG continues to refine its assumptions underlying the estimates of the expected future costs of its remediation programs. PPG's ongoing evaluation may result in additional charges against income to increase the reserves for these sites. Remediation activities at our legacy sites are not related to the ongoing operations of PPG. In 2020 and 2019, certain charges have been recorded based on updated estimates to increase existing reserves for these sites. Certain other charges related to environmental remediation actions are also expensed as incurred.

As of March 31, 2020 and December 31, 2019, PPG had reserves for environmental contingencies associated with PPG's former chromium manufacturing plant in Jersey City, New Jersey ("New Jersey Chrome"), glass and chemical manufacturing sites, and for other environmental contingencies, including current manufacturing locations and National Priority List 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)	March 31, 2020	December 31, 2019
New Jersey Chrome	$116	$134
Glass and chemical	100	96
Other	83	74
Total	$299	$304
Current portion	*$71*	*$62*

Pretax charges against income for environmental remediation costs are included in Other charges in the accompanying condensed consolidated statement of income. The pretax charges and cash outlays related to such environmental remediation for the three months ended March 31, 2020 and 2019 were as follows:

	Three Months Ended March 31	
($ in millions)	2020	2019
Environmental remediation pretax charges	$11	$16
Cash outlays for environmental remediation activities	$25	$16

In the first quarter of 2019, a one-time charge was taken to increase an existing legacy reserve classified within "Other" sites above by $10 million.

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. PPG regularly evaluates the assessments of costs incurred to date versus current

progress and the potential cost impacts of the most recent information, including the extent of impacted soils, percentage of hazardous versus non-hazardous soils, daily soil excavation rates, and engineering, administrative and other associated costs. Based on these assessments, the reserve is adjusted accordingly. Principal factors affecting costs include refinements in the estimate of the mix of hazardous to non-hazardous soils to be excavated, an overall increase in soil volumes to be excavated, enhanced water management requirements, decreased daily soil excavation rates due to site conditions, initial estimates for remedial actions related to groundwater, and oversight and management costs. The reserve adjustments 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 the former Garfield Avenue chromium manufacturing site and five adjacent sites is expected to occur over several years after NJDEP's approval of the 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 in 2020.

PPG's financial reserve for remediation of all New Jersey Chrome sites was $116 million at March 31, 2020. 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 18%, 14% and 33% 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. Further 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 continue to be adjusted.

Remediation: Glass, Chemicals and Other Sites

Among other sites at which PPG is managing environmental liabilities, remedial actions are occurring at a chemical manufacturing site in Barberton, Ohio, where PPG has completed a Facility Investigation and Corrective Measure Study under the United States Environmental Protection Agency's Resource Conservation and Recovery Act 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 and a site associated with a legacy plate glass manufacturing site near Ford City, Pennsylvania under the Pennsylvania Land Recycling Program under the oversight of the Pennsylvania Department of Environmental Protection. PPG is currently performing additional investigation and remedial activities at these locations.

With respect to certain other 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 $134 million and guarantees of $9 million as of March 31, 2020. The Company does not believe any loss related to such guarantees is likely.

17. Revenue Recognition

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

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

The Company also provides services by applying coatings to customers' manufactured parts and assembled products and by providing technical support to certain customers. Performance obligations are satisfied over time as critical milestones are met and as services are provided. PPG is entitled to payment as the services are rendered. For the three months ended March 31, 2020 and 2019, service revenue constituted approximately 5% of total revenue.

Net sales by segment and region for the three months ended March 31, 2020 and 2019 were as follows:

	Performance Coatings		Industrial Coatings		Total Net Sales	
	Three Months Ended March 31		Three Months Ended March 31		Three Months Ended March 31	
($ in millions)	2020	2019	2020	2019	2020	2019
United States and Canada	$927	$953	$582	$613	$1,509	$1,566
Europe, Middle East and Africa ("EMEA")	665	688	396	426	1,061	1,114
Asia Pacific	199	243	260	340	459	583
Latin America	217	224	131	137	348	361
Total	$2,008	$2,108	$1,369	$1,516	$3,377	$3,624

18. Reportable Business Segment Information

PPG is a multinational manufacturer with 9 operating segments (which the Company refers to as "strategic business units") that are organized based on the Company's major products lines. The Company's reportable business segments include the following two segments: Performance Coatings and Industrial Coatings. The operating segments have been aggregated based on economic similarities, the nature of their products, production processes, end-use markets and methods of distribution.

The Performance Coatings reportable business segment is comprised of the automotive refinish coatings, aerospace coatings, architectural coatings – Americas and Asia Pacific, architectural coatings - EMEA, and protective and marine coatings operating segments. This reportable business 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 business segment is comprised of the automotive OEM coatings, industrial coatings, packaging coatings, and the specialty coatings and materials operating segments. This reportable business 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, and other specialty materials.

Reportable business segment net sales and segment income for the three months ended March 31, 2020 and 2019 were as follows:

	Three Months Ended March 31	
($ in millions)	2020	2019
Net sales:		
Performance Coatings	$2,008	$2,108
Industrial Coatings	1,369	1,516
Total	$3,377	$3,624
Segment income:		
Performance Coatings	$272	$297
Industrial Coatings	181	218
Total	$453	$515
Corporate	(60)	(47)
Interest expense, net of interest income	(23)	(25)
Increase in allowance for doubtful accounts related to COVID-19	(30)	—
Business restructuring-related costs, net [(a)]	(13)	(3)
Environmental remediation charges	(8)	(10)
Acquisition-related costs [(b)]	—	(7)
Litigation matters	—	(4)
Income before income taxes	$319	$419

(a) Included in business restructuring-related costs, net are business restructuring charges, accelerated depreciation of certain assets and other related costs, offset by releases related to previously approved programs.

(b) Acquisition-related costs include advisory, legal, accounting, valuation, and other professional or consulting fees incurred to effect acquisitions. These costs are included in Selling, general and administrative expense in the condensed consolidated statement of income. Acquisition-related costs also include the impact for the step up to fair value of inventory acquired in certain acquisitions which are included in Cost of Sales, exclusive of depreciation and amortization in the condensed consolidated statement of income.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our unaudited financial statements and the notes thereto included in the condensed consolidated financial statements in Part I, Item 1, "Financial Statements," of this report and in conjunction with the 2019 Form 10-K.

Executive Overview

COVID-19

Our first quarter results reflect a sudden and wide-ranging deterioration in global demand as a result of the COVID-19 pandemic beginning with the impacts of the economic shutdown in China during February and continuing across the world during the month of March. As the COVID-19 pandemic spread, we remained focused on and prioritized protecting our people, customers and all of our stakeholders. While we cannot determine the precise impact of the COVID-19 outbreak on our first quarter results, we estimate that net sales and earnings per diluted share were unfavorably impacted from the effects of the COVID-19 pandemic by approximately $225 million and $0.35, respectively. From a financial perspective, our businesses through early March, with the exception of those in China, were mostly performing at or above the financial targets we had set at the outset of the year, and we were pacing toward low-double-digit percentage EPS growth. We had solid performance in our global architectural and packaging coatings businesses and continued growth in the aerospace coatings business. In the last two weeks of March, however, many of our larger original equipment manufacturer ("OEM") customers were forced to shut down; a number of architectural paint stores in certain countries were mandated to close; and miles driven and flown throughout the world fell sharply as many countries imposed stay-at-home mandates. For our reportable business segments, the impact was more significant in the Industrial Coatings segment as company sales in China are weighted more to those businesses.

In addition, in March 2020, PPG recorded estimated future credit losses for trade receivables of $30 million, or $0.10 per-diluted-share, related to the potential financial impacts of the COVID-19 pandemic. These amounts were

estimated based on a regional business perspective including certain forward-looking information and other considerations. As new information becomes available, PPG will monitor the adequacy of this reserve.

We have taken immediate and broad steps to adapt to the current business climate, including decisive cost actions and an increased focus on cash generation and liquidity. These include announced salary reductions for senior leaders, shutdowns of some manufacturing and distribution operations, temporary employee furloughs at the most severely demand-impacted businesses, reduced spending across all businesses and functions, and deferred capital expenditures. In addition, we continued to execute our previously announced restructuring programs, achieving about $20 million of savings in the first quarter. We are continuing to assess and manage through the crisis, and will determine if further cost or restructuring actions are warranted.

In mid-March, the company borrowed $800 million under its revolving credit facility reflecting an abundance of caution and the anticipated uncertainty in the debt capital markets, including the commercial paper market. Subsequently, in April, the company entered into a $1.5 billion 364-day term loan and utilized a portion of the proceeds to fully repay the revolver borrowing. These strategic actions bolstered the company's liquidity.

The company expects that second quarter sales volumes will be down 30% to 35%, presuming that demand begins to improve in June. We anticipate that the automotive OEM, automotive refinish, and aerospace coatings businesses along with certain architectural coatings businesses will be most impacted in the second quarter. Our operations in China are now fully operational, and regional economic activity is returning toward pre-crisis levels. We expect that for certain other business, including packaging coatings, do-it-yourself ("DIY") architectural coatings, long-cycle protective coatings and military products, that the impact will be less severe and may in some cases drive greater demand for PPG products.

Due to the heightened level of uncertainty over global economic demand, the company is withdrawing all of its previously communicated full year sales and earnings guidance.

Below are our key financial results for the three months ended March 31, 2020:

- Net sales were approximately $3.4 billion, down 6.8% compared to the prior year.
- Cost of sales, exclusive of depreciation and amortization ("Cost of sales") was $1.9 billion, down 8.0% versus prior year primarily due to lower sales volumes as a result of COVID-19 and foreign currency translation. As a percentage of sales, Cost of sales decreased 0.7%.
- Selling, general and administrative ("SG&A") expense was $905 million, up 1.8% year-over-year due to a $30 million increase in the allowance for uncollectible accounts related to COVID-19 and wage and other cost inflation. As a percentage of sales, SG&A expense increased 2.3%.
- Income before income taxes was $319 million.
- The reported effective tax rate was 22.3%. The adjusted effective tax rate was 22.4%.
- Net income attributable to PPG was $243 million.
- Earnings per diluted share attributable to PPG was $1.02.
- Cash flows used for operating activities was $159 million, an increase of $93 million year-over-year.
- Capital expenditures, including business acquisitions (net of cash acquired), was $81 million.
- The Company paid $120 million in dividends.

Performance in the first quarter of 2020 compared to the first quarter of 2019

Performance Overview

Net Sales by Region

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2020	2019	2020 vs. 2019
United States and Canada	$1,509	$1,566	(3.6) %
Europe, Middle East and Africa ("EMEA")	1,061	1,114	(4.8) %
Asia Pacific	459	583	(21.3) %
Latin America	348	361	(3.6) %
Total	$3,377	$3,624	(6.8) %

Net sales decreased $247 million due to the following:

- *Lower sales volumes (-8%)*
- *Unfavorable foreign currency translation (-2%)*

Partially offset by:

- *Acquisition-related sales (2%)*
- *Higher selling prices (1%)*

As a result of COVID-19 and slowing of the global economy, sales volumes and unfavorable foreign currency translation lowered net sales in each region and in both reportable business segments. Slightly higher selling prices and acquisition-related sales partially offset this downturn.

Foreign currency translation decreased net sales approximately $75 million as the U.S. dollar strengthened against several foreign currencies versus the prior year, most notably the Mexican peso and euro.

For specific business results see the Performance of Reportable Business Segments section within Item 2 of this Form 10-Q.

Cost of Sales, exclusive of depreciation and amortization

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2020	2019	2020 vs. 2019
Cost of sales, exclusive of depreciation and amortization	$1,908	$2,073	(8.0) %
Cost of sales as a percentage of net sales	56.5 %	57.2 %	(0.7) %

Cost of sales, exclusive of depreciation and amortization, decreased $165 million primarily due to the following:

- *Lower sales volumes*
- *Foreign currency translation*

Partially offset by:

- *Cost of sales attributable to acquired businesses*

Selling, general and administrative expenses

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2020	2019	2020 vs. 2019
Selling, general and administrative expenses (SG&A)	$905	$889	1.8 %
Selling, general and administrative expenses as a percentage of net sales	26.8 %	24.5 %	2.3 %

SG&A expense increased $16 million primarily due to the following:

- *Charge for uncollectible accounts related to COVID-19*
- *Wage and other cost inflation*

Partially offset by:

- *Restructuring cash savings*

- *Foreign currency translation*

Other costs and other income

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2020	2019	2020 vs. 2019
Interest expense, net of Interest income	$23	$25	(8.0) %
Other charges	$3	$14	(78.6) %
Other income	($18)	($16)	12.5 %

Other charges

Other charges were lower in the three months ended March 31, 2020 compared to prior year due to lower environmental remediation charges during the quarter.

Effective tax rate and earnings per diluted share

($ in millions, except percentages)	Three Months Ended March 31		Percent Change
	2020	2019	2020 vs. 2019
Income tax expense	$71	$102	(30.4) %
Effective tax rate	22.3 %	24.3 %	(2.0) %
Adjusted effective tax rate*	22.4 %	24.4 %	(2.0) %
Earnings per diluted share	$1.02	$1.31	(22.1) %
Adjusted earnings per diluted share*	$1.19	$1.38	(13.8) %
*See Regulation G Reconciliation below			

The effective tax rate for the three months ending March 31, 2020 and 2019 reflects the impact of certain discrete tax items for the quarter. The Company expects that its full year 2020 adjusted effective tax rate will be between 22% and 24%.

Adjusted earnings per diluted share for the three months ended March 31, 2020 decreased year-over-year due to the mix of pretax earnings and items described further in the Regulation G reconciliation.

Regulation G Reconciliations - Results from Operations

PPG believes investor's understanding of the Company's performance is enhanced by the disclosure of net income, earnings per diluted share and PPG's effective tax rate adjusted for certain items. PPG's management considers this information useful in providing insight into the Company's ongoing 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 ("U.S. 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, adjusted earnings per diluted share and the adjusted 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 is reconciled to the adjusted effective tax rate 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 March 31, 2020				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income (attributable to PPG)	Earnings per diluted share[a]
As reported	$319	$71	22.3 %	$243	$1.02
Adjusted for:					
Increase in allowance for doubtful accounts related to COVID-19	30	7	23.2 %	23	0.10
Business restructuring-related costs, net [b]	13	3	22.4 %	10	0.04
Environmental remediation charges	8	2	24.3 %	6	0.03
Adjusted, excluding certain items	$370	$83	22.4 %	$282	$1.19

	Three Months Ended March 31, 2019				
($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income (attributable to PPG)	Earnings per diluted share[a]
As reported	$419	$102	24.3 %	$312	$1.31
Adjusted for:					
Acquisition-related costs	7	2	23.4 %	5	0.02
Environmental remediation charge	10	2	24.3 %	8	0.03
Litigation matters	4	1	24.3 %	3	0.01
Business restructuring-related costs, net [b]	3	1	24.4 %	2	0.01
Adjusted, excluding certain items	$443	$108	24.4 %	$330	$1.38

(a) Earnings per diluted share is calculated based on unrounded numbers. Figures in the table may not recalculate due to rounding.

(b) For the three months ended March 31, 2020 and 2019, included in business restructuring-related costs, net are business restructuring charges, accelerated depreciation of certain assets and other related costs, offset by releases related to previously approved programs.

Performance of Reportable Business Segments

Performance Coatings

	Three Months Ended March 31		$ Change	% Change
($ in millions, except per share amounts)	**2020**	**2019**	**2020 vs. 2019**	**2020 vs. 2019**
Net sales	$2,008	$2,108	($100)	(4.7) %
Segment income	$272	$297	($25)	(8.4) %

Performance Coatings net sales decreased due to the following:

- *Lower sales volumes (-6%)*
- *Unfavorable foreign currency translation (-2%)*

Partially offset by:

- *Higher selling prices (2%)*
- *Acquisition-related sales (1%)*

Architectural coatings - Americas and Asia Pacific net sales, excluding the impact of currency and acquisitions ("organic sales") increased a low-single-digit percentage with differences by channel and region. Higher selling prices offset lower sales volumes. DIY sales volumes were higher by a mid-single-digit percentage and Mexican PPG Comex organic sales grew by a mid-single-digit percentage.

Architectural coatings – EMEA organic sales decreased by a low-single-digit percentage as positive organic sales trends in the first two months of the quarter were more than offset by lower demand in southern Europe where various countries mandated the closures of retail paint stores in March.

Net sales for automotive refinish coatings were down a low-teen percentage as higher selling prices and acquisition-related sales were more than offset by lower sales volumes in each region reflecting a sharp decline in global miles driven.

Aerospace coatings sales volumes were higher year-over-year through the first two months of the quarter but fell in March due to customer production shutdowns and softening commercial after-market demand resulting in sales volumes being down a low-single-digit percentage for the quarter.

Sales volumes in the protective and marine coatings business were down a low-single-digit percentage driven by lower sales volumes in China related to mandated shutdowns.

Segment income decreased $25 million year-over-year, including unfavorable foreign currency translation impacts of $7 million. Segment income was impacted by lower sales volumes related to the pandemic and unfavorable foreign currency translation partially offset by higher selling prices, execution of cost-mitigation efforts and restructuring initiatives.

Looking Ahead

Looking ahead, industry demand levels in the second quarter are expected to be significantly lower year-over-year especially in the automotive refinish coatings, aerospace coatings, and certain architectural coatings regions. Completed acquisitions are expected to add about $25 million of net sales primarily from Dexmet, Texstars, and ICR. Net sales for the Performance Coatings segment are expected to be lower by 25% to 35% compared to the second quarter of 2019. Based on current exchange rates, foreign currency translation is expected to have an unfavorable impact on segment sales of about $90 million.

Industrial Coatings

	Three Months Ended March 31		$ Change	% Change
($ in millions, except per share amounts)	**2020**	**2019**	**2020 vs. 2019**	**2020 vs. 2019**
Net sales	$1,369	$1,516	($147)	(9.7) %
Segment income	$181	$218	($37)	(17.0) %

Industrial Coatings segment net sales decreased due to the following:

- *Lower sales volumes (-11%)*
- *Unfavorable foreign currency translation (-2%)*

Partially offset by:

- *Acquisition-related sales (3%)*

Automotive OEM coatings sales volumes decreased by a high-teen percentage year-over-year, driven by the significant downturn in global automotive industry production rates.

For the industrial coatings business, net sales decreased by a mid-single-digit percentage. Acquisition-related sales were more than offset by lower industrial production demand in most regions due to customer shutdowns.

Packaging coatings organic sales decreased by a low-single-digit percentage year-over-year as modestly higher selling prices were offset by lower sales volumes stemming from pandemic-related China customer shutdowns.

Segment income decreased $37 million year-over-year, including unfavorable foreign currency translation impacts of about $5 million. Segment income was impacted by lower sales volumes driven by customer shutdowns related to the pandemic, partially offset by cost-mitigation actions, restructuring cost savings, and modestly higher selling prices.

Looking ahead

Looking ahead, industry demand levels are expected to be significantly lower in the second quarter compared to prior year, especially in the automotive OEM coatings and the industrial coatings businesses. Net sales for the Industrial Coatings segment are expected to be lower by about 30% to 35% compared to the second quarter of 2019. Based on current exchange rates, foreign currency translation is expected to have an unfavorable impact on

segment sales of about $50 million. In China, customer demand is expected to continue to recover and turn positive in the second half of 2020.

Liquidity and Capital Resources

PPG had cash and short-term investments totaling $1.9 billion and $1.3 billion at March 31, 2020 and December 31, 2019, respectively.

Cash used for operating activities for the three months ended March 31, 2020 and 2019 was $159 million and $66 million, respectively. Operating cash flow decreased primarily due to lower net sales partially offset by improvement in working capital in the first three months of 2020 compared to the prior year.

Other uses of cash during the three months ended March 31, 2020 included:

- Capital expenditures, excluding acquisitions, of $37 million.
- Business acquisition cash spending of $44 million.
- Cash dividends paid of $120 million.

The Company's commercial paper borrowings are supported by the five-year revolving credit agreement (the "Credit Agreement") entered into in 2019. As a result, the commercial paper borrowings are classified as long-term debt based on PPG's intent and ability to refinance these borrowings on a long-term basis. As of March 31, 2020 and December 31, 2019, there were $307 million and $100 million of commercial paper borrowings outstanding, respectively.

In March 2020, PPG borrowed $800 million under the Credit Agreement, which is classified as short-term based on PPG's intent to repay these borrowings within one year. There were no amounts outstanding under the Credit agreement as of December 31, 2019.

On April 14, 2020, PPG entered into a $1.5 billion 364-Day Term Loan Credit Agreement (the “Term Loan”). The Term Loan contains covenants that are consistent with those in the Credit Agreement and that are usual and customary restrictive covenants for facilities of its type, which include, with specified exceptions, limitations on the Company’s ability to create liens or other encumbrances, to enter into sale and leaseback transactions and to enter into consolidations, mergers or transfers of all or substantially all of its assets. The Term Loan also requires the Company to maintain a ratio of Total Indebtedness to Total Capitalization, as defined in the Term Loan, of 60% or less; provided, that for any fiscal quarter in which the Company has made an acquisition for consideration in excess of $1 billion and for the next five fiscal quarters thereafter, the ratio of Total Indebtedness to Total Capitalization may not exceed 65% at any time. On April 14, 2020, the Company borrowed $1.5 billion under the Term Loan and used a portion of the proceeds to repay in full the Company’s $800 million of borrowings under its revolving Credit Agreement. The Term Loan terminates and all amounts outstanding are payable on April 13, 2021.

Total capital spending in 2020 is expected to be in the range of $200 million to $250 million. The Company has deferred non-essential capital spending in response to lower industry demand conditions. 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 nine months of 2020. PPG may make voluntary contributions to its defined benefit pension plans in 2020 and beyond.

A primary focus for the Company in 2020 will be to maintain appropriate balance sheet flexibility, including cash on hand, due to the uncertain nature and unpredictable timing of the COVID-19 pandemic.

As of March 31, 2020, Total Indebtedness to Total Capitalization as defined under the Credit Agreement and the Term Loan was 53%. The Credit Agreement and Term Loan require the Company to maintain a ratio of Total Indebtedness to Total Capitalization of 60% or less.

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 our working capital management is operating working capital as a percentage of sales (current quarter sales annualized).

($ in millions, except percentages)	March 31, 2020	December 31, 2019	March 31, 2019
Trade receivables, net	$2,436	$2,479	$2,832
Inventories, FIFO	1,979	1,834	2,091
Trade creditors' liabilities	2,141	2,098	2,316
Operating working capital	$2,274	$2,215	$2,607
Operating working capital as a % of Sales	16.8 %	15.1 %	18.0 %
Days sales outstanding	60	56	63
Days payable outstanding	95	94	97

Other Liquidity Information

The Company continues to believe that cash on hand and short-term investments, cash from operations and the Company's access to capital markets will continue to be sufficient to fund our operating activities, capital spending, acquisitions, dividend payments, debt service, share repurchases, contributions to pension plans and PPG's significant contractual obligations.

Environmental

	Three Months Ended March 31	
($ in millions)	2020	2019
Cash outlays for environmental remediation activities	$25	$16

($ in millions)	Remainder of 2020	Annually 2021 - 2024
Projected future cash outlays for environmental remediation activities	$55 - $75	$20 - $50

Restructuring

In April 2018, PPG initiated an $83 million global restructuring program. The program is largely centered around the change in customer assortment related to the U.S. architectural coatings DIY business. PPG recognized $55 million of savings from this program in 2019. We expect to achieve annualized cost savings from the 2018 program of $85 million once fully implemented in 2020.

In June 2019, PPG initiated a $184 million restructuring program. This program is a result of a comprehensive internal operational assessment to identify further opportunities to improve the profitability of the overall business portfolio. PPG recognized $15 million of savings from this program in 2019. The 2019 program is expected to achieve approximately $125 million of annualized cost savings by the expected completion date in 2022.

Total restructuring savings are expected to be between $80 million and $90 million in 2020. In addition, the Company continues to review its cost structure to identify additional cost savings opportunities. See Note 7, "Business Restructuring," to the accompanying condensed consolidated financial statements for further details on the Company's business restructuring programs.

Currency

Comparing spot exchange rates at December 31, 2019 and at March 31, 2020, the U.S. dollar strengthened against currencies of most countries within the regions PPG operates. As a result, consolidated net assets at March 31, 2020 decreased by $696 million compared to December 31, 2019 primarily driven by the Mexican peso.

Comparing average exchange rates during the first three months of 2020 to those of the first three months of 2019, the U.S. dollar strengthened against currencies of most countries within the regions PPG operates, including EMEA, Asia Pacific, and Latin America. This had an unfavorable impact on Income before income taxes for the three months ended March 31, 2020 of $12 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 16, “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 16, 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 16, PPG has significant reserves for environmental contingencies. Please refer to the Environmental Matters section of Note 16 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 in 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

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 ("SEC"). 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 statements related to the expected effects on our business of the COVID-19 pandemic, global economic conditions, increasing price and product competition by foreign and domestic competitors, fluctuations in cost and availability of raw materials, the ability to achieve selling price increases, the ability to recover margins, customer inventory levels, our ability to maintain favorable supplier relationships and arrangements, the timing of and the realization of anticipated cost savings from restructuring initiatives, the ability to identify additional cost savings opportunities, difficulties in integrating acquired businesses and achieving expected synergies therefrom, economic and political conditions in the markets we serve, 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, the effectiveness of our internal control over financial reporting, the results of governmental investigations, and the unpredictability of existing and possible future litigation. However, it is not possible to predict or identify all such factors.

Consequently, while the list of factors presented here and in the 2019 Form 10-K under Item 1A is 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 income, business disruption, operational problems,

financial loss, legal liability to third parties, other factors set forth in Item 1A of the 2019 Form 10-K 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

Foreign Currency Risk

At March 31, 2020 and December 31, 2019, PPG had non-U.S. dollar denominated borrowings outstanding of $2.4 billion and $2.3 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 $267 million at March 31, 2020 and $255 million at December 31, 2019, respectively.

The fair value of foreign currency forward contracts outstanding at March 31, 2020 and December 31, 2019 was a net liability of $11 million and $7 million, respectively. The potential reduction in PPG's Income before income taxes 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 period ended March 31, 2020 was $203 million and $357 million for the period ended December 31, 2019.

PPG has U. S. dollar to euro cross currency swap contracts with a total notional amount of $875 million outstanding, resulting in an asset of $90 million and a net asset of $48 million at March 31, 2020 and December 31, 2019, respectively. A 10% increase in the value of the euro to the U.S. dollar would have had an unfavorable effect on the fair value of these swap contracts by reducing the value of these instruments by $86 million and $87 million at March 31, 2020 and December 31, 2019, respectively.

Interest Rate Risk

The Company manages its interest rate risk of fixed and variable rates while attempting to minimize its interest costs. PPG has interest rate swaps which converted $525 million of fixed rate debt to variable rate debt. The fair value of these contracts was an asset of $76 million and $35 million at March 31, 2020 and December 31, 2019, respectively. An increase in variable interest rates of 10% would lower the fair value of these swaps and increase interest expense by $5 million and $7 million for the periods ended March 31, 2020 and December 31, 2019, respectively. A 10% increase in interest rates in the U.S., Canada, Mexico and Europe and a 20% increase in interest rates in Asia and South America would have an insignificant effect on PPG's variable rate debt obligations and interest expense for the periods ended March 31, 2020 and December 31, 2019. Further a 10% reduction in interest rates would have increased the fair value of the Company's fixed rate debt by approximately $75 million and $67 million at March 31, 2020 and December 31, 2019, respectively; however, such changes would not have had an effect on PPG's income before income taxes or cash flows.

There were no other material changes in the Company's exposure to market risk from December 31, 2019 to March 31, 2020. See Note 14, "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 over financial reporting. 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 ("the Company") is involved in a number of lawsuits and claims, both actual and potential, including some that it has asserted against others, in which substantial monetary damages are sought. These lawsuits and claims may relate to contract, patent, environmental, product liability, asbestos exposure, antitrust, employment, securities and

other matters arising out of the conduct of PPG's current and past business activities. To the extent these lawsuits and claims involve personal injury, property damage and certain other claims, 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.

As previously disclosed, the SEC is conducting a non-public investigation of accounting matters described in the Explanatory Note and in Note 2, "Restatement of Previously Reported Consolidated Annual Financial Statements" under Item 8 of the Company's 2017 Form 10-K/A. On September 26, 2019, PPG announced a final settlement with the SEC as to the Company. Without admitting or denying the findings in the SEC's administrative cease-and-desist order, the Company consented to the entry of the order, which imposed no financial penalty. The Company continues to cooperate fully with the SEC's ongoing investigation relating to these accounting matters. The Company is also cooperating fully with an investigation into the same accounting matters commenced by the U.S. Attorney's Office for the Western District of Pennsylvania ("USAO"). As previously disclosed, the USAO has informed PPG that it will not pursue any action as to the Company.

Between January and early April 2020, the Company, as a nominal defendant, and certain of its current or former officers and directors were named as defendants in four shareholder derivative actions. All of the actions were filed in Pittsburgh, three in the U.S. District Court for the Western District of Pennsylvania and one in the Court of Common Pleas for Allegheny County. The plaintiffs in these actions allege breach of fiduciary duty, unjust enrichment and/or corporate waste arising out of various alleged acts, and alleged failures to act, by the individually named defendants following financial restatements by the Company. One of the federal court actions also alleges breach of fiduciary duty and unjust enrichment claims arising out of certain environmental liabilities the Company incurred, and continues to incur, related to its former Ford City glass plant. The court consolidated the three federal court derivative actions, ordered a stay of any discovery in these actions until further notice and tolled the Company's obligation to respond to the Complaints until May 29, 2020. It is anticipated that a similar stay request will be made in the recently filed state court action.

On May 20, 2018, a putative securities class action lawsuit was filed in the U.S. District Court for the Central District of California against the Company and three of its current and former officers. On September 21, 2018, an Amended Class Action Complaint was filed in the lawsuit. The Amended Complaint, captioned Trevor Mild v. PPG Industries, Inc., Michael H. McGarry, Vincent J. Morales, and Mark C. Kelly, asserted securities fraud claims under Sections 10(b) and 20(a) of the Securities Exchange Act of 1934 on behalf of a putative class of persons who purchased or otherwise acquired stock of the Company between January 19, 2017 and May 10, 2018. The allegations related to, among other things, allegedly false and misleading statements and/or failures to disclose information about the Company's business, operations and prospects. The parties reached a settlement in principal on May 1, 2019. On June 2, 2019, the plaintiff filed with the Court a Petition for Preliminary Approval of the proposed settlement, including the proposed settlement amount of $25 million. On November 22, 2019, the Court entered final judgment approving the settlement. PPG's insurance carriers confirmed to the Company insurance coverage for the full amount of the settlement. Settlement payments are expected to occur in 2020.

From the late 1880's until the early 1970's, PPG owned property located in Cadogan and North Buffalo Townships, Pennsylvania which was used for the disposal of solid waste from PPG's former glass manufacturing facility in Ford City, Pennsylvania. In October 2018, the Pennsylvania Department of Environmental Protection (the "DEP") approved PPG's cleanup plan for the Cadogan Property. In April 2019, PPG and the DEP entered into a consent order and agreement ("CO&A") which incorporated PPG's approved cleanup plan and a draft final permit for the collection and discharge of seeps emanating from the former disposal area. The CO&A includes a civil penalty of $1.2 million for alleged past unauthorized discharges. PPG's former disposal area is also the subject of a citizens' suit filed by the Sierra Club and PennEnvironment seeking remedial measures beyond the measures specified in PPG's approved cleanup plan, a civil penalty in addition to the penalty included in the CO&A and plaintiffs' attorneys fees. PPG believes that the citizen's suit is without merit and intends to defend itself vigorously.

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 16, "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. After having not been named in a new lead-related lawsuit for 15 years, PPG was named as a defendant in two new

Pennsylvania state court lawsuits filed by Montgomery County and Lehigh County in the respective counties on October 4, 2018 and October 12, 2018. Both suits seek declaratory relief arising out of alleged public nuisances in the counties associated with the presence of lead paint on various buildings constructed prior to 1980. The Company believes these actions are without merit and intends to defend itself vigorously.

Item 1A. Risk Factors

Except for the effects of COVID-19 as a result of its negative impact to the global economy as described below, there were no material changes in the Company's risk factors from the risks disclosed in the 2019 Form 10-K.

The effects of the recent COVID-19 outbreak are negatively impacting, and are expected to continue to adversely impact our financial condition and results of operations.

The effects of the public health crisis caused by the COVID-19 outbreak have interfered with the ability of PPG, our suppliers, customers, and others to conduct business and have negatively affected consumer confidence and the global economy. Public health officials have recommended or mandated certain precautions to mitigate the spread of COVID-19, including prohibitions on congregating in groups, shelter-in-place orders or similar measures. Preventative and protective actions that public health officials, governments or PPG have taken with respect to COVID-19 have and will continue to adversely impact our business, suppliers, distribution channels, and customers, including business shutdowns or disruptions for an indefinite period of time, reduced operations, reduced ability to supply products, or reduced demand for our products. Our financial condition, liquidity and results of operations have been and will continue to be adversely impacted by these preventative actions and the disruption to our business and that of our suppliers and customers. As we cannot predict the duration or scope of the COVID-19 pandemic, the negative financial impact to our results cannot be reasonably estimated, but could be material.

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

Issuer Purchases of Equity Securities

No shares were repurchased in the three months ended March 31, 2020 under the current $2.5 billion share repurchase program approved in December 2017. The maximum number of shares that may yet be purchased under this program is 18,066,464 shares as of March 31, 2020. This repurchase program has no expiration date.

Item 6. Exhibits

See the Index to Exhibits on page 35.

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.

3.1	Amended and Restated Bylaws of PPG Industries, Inc., as amended on March 20, 2020, was filed as Exhibit 3.1 to the Registrant's Current Report on Form 8-K filed on March 26, 2020.
†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*	Inline XBRL Instance Document
101.SCH**	Inline XBRL Taxonomy Extension Schema Document
101.CAL**	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF**	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB**	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE**	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Inline XBRL for the cover page of this Quarterly Report on Form 10-Q, included in the Exhibit 101 Inline XBRL Document Set.

† Filed herewith.
†† Furnished herewith.
*The instance document does not appear in the Interactive Data File because its XBRL (Extensible Business Reporting Language) tags are embedded within the Inline XBRL document.
**Attached as Exhibit 101 to this report are the following documents formatted in Inline XBRL: (i) the Condensed Consolidated Statement of Income for the three months ended March 31, 2020 and 2019, (ii) the Condensed Consolidated Balance Sheet at March 31, 2020 and December 31, 2019, (iii) the Condensed Consolidated Statement of Cash Flows for the three months ended March 31, 2020 and 2019, and (iv) Notes to Condensed Consolidated Financial Statements for the three months ended March 31, 2020.

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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: April 28, 2020

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

By: /s/ William E. Schaupp
William E. Schaupp
Vice President and Controller
(Principal Accounting Officer and Duly Authorized Officer)

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: April 28, 2020

/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: April 28, 2020

/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 March 31, 2020 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
April 28, 2020

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 March 31, 2020 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)

April 28, 2020

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.