DXP ENTERPRISES INC
Form 4
July 03, 2014

FORM 4

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. *See* Instruction 1(b).

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

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL

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(Print or Type Responses)

1. Name and Address of Reporting Person *
WIMBERLY BRYAN H

(Last) (First) (Middle)

7272 PINEMONT DRIVE

(Street)

HOUSTON, TX 77040

(City) (State) (Zip)

2. Issuer Name **and** Ticker or Trading Symbol
DXP ENTERPRISES INC [DXPE]

3. Date of Earliest Transaction (Month/Day/Year)
07/01/2014

4. If Amendment, Date Original Filed(Month/Day/Year)

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

__X__ Director _____ 10% Owner
_____ Officer (give title below) _____ Other (specify below)

6. Individual or Joint/Group Filing(Check Applicable Line)
_X_ Form filed by One Reporting Person
___ Form filed by More than One Reporting Person

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1.Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
DXP Common Stock	07/01/2014		M		2,000	A	$ 0	3,600	D	

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

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SEC 1474 (9-02)

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned
(*e.g.*, puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Underlying Securities (Instr. 3 and 4)	
				Code	V	(A)	(D)	Date Exercisable	Expiration Date	Title	Amount or Number of Shares
DXP RESTRICTED STOCK UNITS	$ 0							(1)	(1)	DXP COMMON STOCK	973

Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
WIMBERLY BRYAN H 7272 PINEMONT DRIVE HOUSTON, TX 77040	X			

Signatures

BRYAN H. WIMBERLY	07/03/2014
**Signature of Reporting Person	Date

Explanation of Responses:

* If the form is filed by more than one reporting person, *see* Instruction 4(b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. *See* 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

(1) Award date: 07-01-14 The terms of the grant provide for 100% vesting in one year from the date of the award.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure.
Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number. pan="2" style="vertical-align:bottom;border-bottom:1px solid #336699;padding-left:2px;padding-top:2px;padding-bottom:2px;">
23.7
%
3.1%
3.9%
Adjusted effective tax rate*
24.4
%

24.6
%
23.9
%
(0.2)%
0.7%

Earnings per diluted share

$5.32

$2.05

$4.79

159.5%
(57.2)%
Adjusted earnings per diluted share*

$5.87

$5.67

$5.33

3.5%
6.4%
*See the Regulation G reconciliations - results of operations
The effective tax rate for the year-ended December 31, 2017 was 30.7% and increased 3.1% from the prior year primarily due to recording the net charge triggered by the enactment of the U.S. Tax Cuts and Jobs Act. This charge is approximately $37 million higher than the net charge included in PPG's fourth quarter earnings release and Form 8-K furnished on January 18, 2018, primarily due to new IRS regulations issued and refinements of management estimates.
As reported, earnings per diluted share from continuing operations for the year ended December 31, 2017 increased year-over-year, primarily due to the absence of the pension settlement charge of $616 million after-tax recorded in 2016. Refer to the Regulation G Reconciliations - Results of Operations for additional information. The Company's earnings per diluted share and adjusted earnings per diluted share both benefited from the 7.4 million, 10.7 million and 7.0 million shares of stock repurchased in 2017, 2016 and 2015, respectively.
Regulation G Reconciliations - Results of Operations
PPG Industries believes investors' understanding of the company's operating performance is enhanced by the disclosure of net income, earnings per diluted share and the effective tax rate adjusted for certain charges. PPG's management considers this information useful in providing insight into the company's ongoing operating performance because it

excludes the impact of items that cannot reasonably be expected to recur on a quarterly basis or that are not attributable to our primary operations. Net income and earnings per diluted share adjusted for these items are not recognized financial measures determined in accordance with U.S. generally accepted accounting principles (GAAP) and should not be considered a substitute for net income or earnings per diluted share or other financial measures as computed in accordance with U.S. GAAP. In addition, adjusted net income, earnings per diluted share and the effective tax rate may not be comparable to similarly titled measures as reported by other companies.

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

Year-ended December 31, 2017

($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations	$2,008	$616	30.7 %	$1,371	$5.32
Includes:					
Net tax charge related to U.S. Tax Cuts and Jobs Act	—	(134)	N/A	134	0.52
Charges related to transaction-related costs[1]	9	3	37.9 %	6	0.02
Charges related to pension settlements	60	22	37.9 %	38	0.14
Gain from sale of business	(25)	(1)	3.2 %	(24)	(0.09)
Gain from a legal settlement	(18)	(7)	37.9 %	(11)	(0.04)
Gain from sale of a non-operating asset	(13)	(5)	37.9 %	(8)	(0.03)
Charges related to asset write-downs	7	—	— %	7	0.03
Adjusted, continuing operations, excluding certain charges	$2,028	$494	24.4 %	$1,513	$5.87

Year-ended December 31, 2016

($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable to PPG)	Earnings per diluted share
As reported, continuing operations	$786	$217	27.6 %	$547	$2.05
Includes:					
Charges related to transaction-related costs[1]	8	3	37.6 %	5	0.03
Charges related to pension settlements	968	352	36.4 %	616	2.31
Charge related to business restructuring	195	51	26.2 %	144	0.55
Charge related to environmental remediation	82	31	37.6 %	51	0.20
Net gain from disposals of ownership interests in business affiliates	(46)	(16)	34.8 %	(30)	(0.12)
Net tax effect of asbestos settlement funding	—	(151)	N/A	151	0.57
Charge related to early retirement of debt	8	3	37.6 %	5	0.02
Charges related to asset write-downs	23	7	30.4 %	17	0.06
Adjusted, continuing operations, excluding certain charges	$2,024	$497	24.6 %	$1,506	$5.67

Year-ended December 31, 2015

($ in millions, except percentages and per share amounts)	Income Before Income Taxes	Tax Expense	Effective Tax Rate	Net income from continuing operations (attributable	Earnings per diluted share

					to PPG)	
As reported, continuing operations	$1,745	$413	23.7	%	$1,311	$4.79
Includes:						
Charges related to transaction-related costs[(1)]	44	14	33.3	%	30	0.10
Charge related to business restructuring	136	31	22.8	%	105	0.39
Charge related to pension settlement	7	2	28.6	%	5	0.02
Charge related to equity affiliate debt refinancing	11	4	37.6	%	7	0.03
Adjusted, continuing operations, excluding certain charges	$1,943	$464	23.9	%	$1,458	$5.33

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

Performance of Reportable Business Segments

Performance Coatings

($ in millions, except percentages)	2017	2016	2015	$ Change 2017 vs. 2016	$ Change 2016 vs. 2015	% Change 2017 vs. 2016	% Change 2016 vs. 2015
Net sales	$8,732	$8,580	$8,765	$152	$(185)	1.8%	(2.1)%
Segment income	$1,323	$1,314	$1,302	$9	$12	0.7%	0.9%

2017 vs. 2016

Performance Coatings net sales increased (2%) due to the following:

- Higher selling prices (+1%)
- Net sales from acquisitions (+1%)
- Modest foreign currency translation

Partially offset by:

- Slightly lower sales volumes

Selling prices increased year-over-year primarily due to selling price initiatives across all businesses to combat accelerating raw material cost inflation.

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

Architectural coatings - EMEA net sales increased by a high-single-digit percentage year-over-year, primarily due to acquisition-related sales, principally DEUTEK and Univer, which contributed approximately $85 million to net sales. Sales volumes were down year-over-year primarily driven by continued weak demand in France and eastern Europe, as well as our turning away certain business due to low profitability or lack of customer acceptance of selling price increases. Demand growth continued in Northern Europe, where we continued to outperform the market.

Automotive refinish coatings organic sales grew by a low-single-digit percentage year-over-year, led by above-market performance in U.S. and Canada as customers continued to adopt PPG's industry leading technologies. Organic sales also increased in the Latin American region versus the prior year, reflecting high end-use market demand. In Asia Pacific, net sales increased, largely due to the recent Futian Xinshi acquisition in China.

Aerospace coatings sales volumes grew by a low-single-digit percentage versus the prior year, led by above market performance in Europe and consistent with the overall industry demand.

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

Segment income increased $9 million (1%) year-over-year primarily due to selling price increases, lower overhead and manufacturing costs, including the initial benefits from business restructuring actions, partially offset by increasing raw material costs, wage and other cost inflation, and lower sales volumes.

2016 vs. 2015
Performance Coatings net sales decreased (2%) due to the following:
Unfavorable foreign currency translation of approximately $260 million (3%), most notably the Mexican peso, the British pound, the Chinese yuan and the euro.
Partially offset by:
Net sales from acquisitions (+1%)
Architectural coatings - Americas and Asia Pacific organic sales were flat versus the prior year. In the U.S. and Canada, sales volumes advanced in the company-owned store channel versus the prior year, mainly due to recent growth-related investments and initiatives. The increase in the company-owned stores channel was more than offset by sales volume declines in national retail (DIY) accounts and U.S. independent dealer channel year-over-year, despite DIY channel strengthening in the second half of 2016. Latin America organic sales were up year-over-year, led by Mexico which grew at more than double the Mexican GDP growth rate.
Architectural coatings - EMEA sales volumes were flat year-over-year. Growth in western Europe was offset by reduced demand levels in central Europe and in Africa, where economies are closely linked to depressed commodity prices. Acquisition-related sales from Univer in Italy added about $10 million in the fourth quarter 2016.
Automotive refinish coatings organic sales grew at a low-single-digit percentage rate year-over-year, outperforming end-use market demand levels in the U.S. and Canada and Asia Pacific, as customers continued to adopt PPG’s industry leading technologies.
Aerospace coatings sales volumes increased modestly year-over-year, in line with industry growth rates. Sales growth occurred in all major regions.
Protective and marine coatings net sales volumes declined a low-to-mid-single-digit-percentage year-over-year as growth in protective coatings was offset by declines in marine coatings, primarily due to lower shipbuilding activity in the Asia Pacific region and the ongoing impact of decreased capital investment and maintenance in the oil and gas sector. Protective coatings sales volumes grew versus the prior year, led by the U.S. and Canada and Latin America regions, including benefits from expanded distribution through the PPG-Comex concessionaire network.
Segment income increased $12 million (+1%) primarily due to the benefits from prior year business restructuring initiatives, modestly higher selling prices, lower manufacturing costs, acquisition-related income (Cumings Microwave, Le Joint Francais, Univer), partially offset by unfavorable foreign currency translation and higher growth-related spending in the U.S. architectural coatings business. Segment income margins expanded, increasing 40 basis points year-over-year.
Looking Ahead
In the first quarter 2018, we expect sales volumes in the architectural coatings - Americas and Asia Pacific business to be seasonally lower than the fourth quarter 2017. In addition, overall volume trends by customer channel are anticipated to be consistent with the fourth quarter 2017. The PPG TIMELESS® product, launched in certain HOME DEPOT® stores in 2017, is projected to continue to meet our sales targets and is being expanded to more locations during 2018. We also anticipate additional growth-related spending of up to $5 million in the first quarter to support the continued momentum in the region. The volume growth trend for architectural coatings - EMEA is expected to improve modestly in the first quarter 2018, with results remaining uneven by country. We expect continued, high end-use demand in our automotive refinish coatings business as customers continue to adopt PPG’s industry leading technologies. In aerospace coatings, we anticipate continued improvement in industry demand growth. The protective and marine coatings business is expected to perform in-line with the market in the first quarter 2018.
We expect raw material costs to remain elevated in the first-quarter 2018 at similar levels experienced in the fourth quarter. Further selling price increases in 2018 will be needed to offset more recent raw material inflation. There will be no material benefit from acquisition-related sales in the segment, and, based on mid-January exchange rates, foreign currency translation is expected to have a similar sequential favorable impact on segment sales and income in the first quarter 2018.
Due to the timing of the Easter holiday, there is one fewer ship day in the first-quarter 2018 compared to first-quarter 2017, which is expected to unfavorably impact global architectural coatings sales volumes by about $20 million to $25 million in net sales. This unfavorable impact will reverse in the second quarter.

Industrial Coatings

				$ Change		% Change	
($ in millions, except percentages)	2017	2016	2015	2017 vs. 2016	2016 vs. 2015	2017 vs. 2016	2016 vs. 2015
Net sales	$6,018	$5,690	$5,476	$328	$214	5.8%	3.9%
Segment income	$972	$1,042	$985	$(70)	$57	(6.7)%	5.8%

2017 vs. 2016

Industrial Coatings segment net sales increased (6%) due to the following:

Higher sales volumes (+4%)

Acquisition-related sales (+3%)

Partially offset by:

Lower selling prices (1%)

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

General industrial coatings and specialty coatings and materials sales volumes, in aggregate, grew by a mid-single-digit percentage year-over-year. Sales volumes grew year-over-year in every major region with mixed demand by end-use market and geography. This growth was led by Asia Pacific and the U.S., which outpaced regional industrial production demand growth. Sales volumes grew across most sub-segments, including year-over-year increases in electronics materials, heavy duty equipment and organic light emitting diode (OLED) materials. Acquisition-related sales, primarily MetoKote, added approximately $155 million.

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

Segment income decreased $70 million (-7%) year-over-year primarily due to increasing raw material costs, lower selling prices and wage and other cost inflation. These cost increases were partially offset by income from higher sales volumes, lower manufacturing and overhead costs, including the initial benefits from business restructuring actions, and acquisition-related income.

2016 vs. 2015

Industrial Coatings segment net sales increased (4%) due to the following:

Net sales from acquired businesses (+4%)

Higher sales volumes (+3%)

Partially offset by:

Unfavorable foreign currency translation of approximately $125 million (2%), most notably the Mexican peso, the British pound, the Chinese yuan and the euro.

Lower selling prices (1%)

PPG's automotive OEM coatings business sales volumes increased a low-single-digit-percentage over the prior year, consistent with global automotive industry production growth. PPG's sales volumes differed by region, led by year-over-year growth in Europe and Asia Pacific, while U.S. and Canada sales volumes lagged industry demand levels due to a customer-driven market-share shift away from PPG that was offset in other regions of the world.

General industrial coatings and specialty coatings and materials sales volumes, in aggregate, increased a mid-single-digit percentage year-over-year. Sales volume growth was led by Asia Pacific and EMEA, and was driven by strong end-market demand for automotive components, electronic materials, and coil and extrusion products. Latin America sales volumes advanced moderately, while volumes in the U.S. and Canada declined modestly.

Packaging coatings sales volumes were up a mid-to-high single-digit percentage year-over-year, primarily driven by continued strong sales growth momentum related to the adoption of PPG's new can coatings technologies. This above market sales volume growth was led by U.S. and Canada and Asia Pacific regions.

Segment income increased $57 million (+6%) primarily due to lower manufacturing costs, higher sales volumes, acquisition-related income (MetoKote, IVC Industrial Coatings, Revocoat) and the benefits from prior year restructuring initiatives, partially offset by unfavorable foreign currency translation and modestly lower selling prices. PPG experienced higher transportation and logistics costs required to meet increasing customer demand in Asia.

Segment income margins continued to improve, increasing 30 basis points year-over-year.

Looking ahead
In the first quarter of 2018, we expect global automotive industry production growth to be about 1% led by Europe and Mexico. In China, automotive production is expected to modestly decrease in the first quarter of 2018, reflecting the expiration of a small engine subsidy that had been in effect the past several years. We anticipate solid general industrial demand growth trends to continue in aggregate, but remain mixed by geography and end-use market. PPG's market outperformance is expected to continue. In our packaging coatings business, we anticipate volume growth will continue due to the ongoing industry conversion to BPA non-intent interior can coatings, with PPG's year-over-year growth rates continuing at an above market level in 2018. We expect acquisition-related sales to add approximately $30 million to first quarter 2018 segment sales and, based on mid-January exchange rates, foreign currency translation is expected to have a similar sequential favorable impact on segment sales and income in the first quarter 2018. Segment margin recovery continues to be a priority for 2018. Based on recent raw material inflation, segment margin recovery is expected to continue through the first half of 2018. All businesses in the segment have made progress with selling price initiatives and additional price increases have been announced for early 2018. Also, efforts to reduce costs remain a key focus in 2018.
Review and Outlook
During 2017, economic conditions improved in all of our major geographical regions while remaining mixed by end-use market. PPG's aggregate organic sales grew 1.5% versus the prior year and were higher in the second half of 2017 compared to the first half of 2017. Acquisition-related sales from two acquisitions completed in 2016 and the four completed in 2017 contributed over 1% to net sales growth year-over-year. Foreign currency translation was modestly favorable to net sales year-over-year. Favorable foreign currency translation experienced in the second half of 2017 slightly offset unfavorable impacts during the first half of the year. Raw material inflation rose by a mid-single-digit percentage driven mostly by supply related factors, including an unusual high number of supplier force majeure events in Europe, government mandated production curtailments in China to help improve pollution, and severe hurricanes in the U.S. In addition, oil prices moved sharply higher in the second half of the year also contributing to raw material inflation.
U.S. and Canada
During 2017, the pace of economic activity improved in the U.S. and Canada region versus the prior year, with higher industrial production despite lower automotive industry builds. Demand in the residential and commercial construction markets were modestly higher in 2017 compared to 2016. New home starts advanced about 2% in 2017 versus approximately 6% in 2016. Residential remodeling declined 1% in 2017 versus 2016, while commercial construction was flat compared to 7% growth in 2016. Market demand for architectural paint shifted more to trade paint as U.S. unemployment continued to decline. Demand in the overall U.S. DIY paint market remained soft throughout the year. PPG's architectural coatings performance in the U.S. followed market trends with solid improvement in company-owned same store sales throughout the year. The automotive refinish coatings business benefited from higher miles driven and more congestion on the roads due to lower unemployment. PPG's packaging coatings business continued to expand well ahead of the industry end-use market growth driven by continued strong sales growth momentum related to customer adoption of PPG's new interior can coatings technologies. Similar to 2016, PPG's automotive OEM coatings business lagged industry demand levels due to a customer-driven market-share shift away from PPG that was offset in other regions of the world. The U.S. and Canada region remained PPG's largest, representing approximately 43% of 2017 sales, although a smaller percentage of total sales than in the prior year.
Europe, Middle East and Africa
European economic activity improved in 2017 despite continued regional uncertainty over the United Kingdom's exit from the European Union. Overall GDP and industrial production improved in the region. Regional demand continued to be mixed by country and end-use market. Demand for PPG's products in several end-use markets drove the regional growth rate, including above market performance in automotive OEM coatings, aerospace coatings and specialty coatings and materials. PPG's architectural coatings - EMEA business sales volumes decreased year-over-year, driven by soft market demand in France and more competitive pressures in Northern and Eastern Europe.
EMEA represented approximately 30% of PPG's 2017 sales, similar to prior year levels. Regional coatings volumes remain approximately 13% below their pre-recession levels in 2008. The modest volume recovery reflects the slow

pace of economic growth in the region. PPG expects continued volume growth over time at attractive incremental margins due to significant cost structure improvements and available capacity to satisfy additional demand. In the second half of the year, the euro appreciated approximately 5% against the U.S. dollar. The British pound recovered some of its 2016 declines versus the U.S. dollar gaining about 10% from the start of 2017.

Asia Pacific and Latin America
The emerging regional markets of Asia Pacific and Latin America represented 27% of PPG's 2017 sales in aggregate, 200 basis points higher than the prior year.
Asia remained the largest emerging region, with sales of approximately $2.5 billion, led by China, which continued as PPG's second largest country by revenue. Sales volume growth in Asia was led by the Industrial Coatings segment, in part due to strong sales volume growth in general industrial and automotive OEM. These increases were partially offset by the continued demand decline in the marine shipbuilding industry.
Overall, demand in Latin America improved year-over-year, with continued above market growth in Mexico and Central America. Economic conditions modestly improved in South America, primarily led by Brazil. In Mexico, the PPG-Comex business added over 200 new concessionaire locations, and strong growth continued in the automotive industry due to the opening of new automotive assembly plants within the country in the past 18 months. Foreign currency translation turned favorable in the second half of the year, principally the Mexican peso and Chinese yuan. In Central America, the Company continued to grow organically following a 2015 acquisition to expand its presence in the architectural end-use market.
Regional Outlook
Looking ahead to 2018, we expect to continue to operate in a more balanced global growth environment. We anticipate the positive economic trends in 2017 to mostly continue. We expect economic growth rates to remain consistent with 2017 for the U.S. and Canada, Europe, and Asia Pacific regions, and we expect the Latin America region will increase its economic growth year-over-year, when compared to 2017.
We anticipate PPG's U.S. and Canada regional growth will be led by general industrial coatings and packaging coatings, with flat automotive industry builds. We expect growth in the housing and commercial construction markets to be better than 2017.
We expect growth rates in Europe to stay at similar levels as 2017 but will remain mixed by sub-region and country. Favorable end-use market trends are expected to continue, particularly in automotive OEM coatings as industry build growth rates are anticipated to remain positive. Market demand is expected to improve in the architectural coatings business. There is greater risk to the economic environment in the U.K. as their exit from the European Union progresses.
In Asia Pacific, we expect continued industrial production growth in China as well as gains in Southeast Asia and India. In China, we see continued above global average growth with heightened risk as the Chinese economy continues to shift and rely more on domestic consumption. The regional declines in marine coatings sales volumes were less severe in the second half of 2017, and we expect a moderate recovery in sales volumes starting in the second half of 2018. Automotive build growth is expected to remain modestly positive.
In Latin America, we anticipate economic expansion will be led by Brazil and that Mexico's economic conditions will modestly improve.
Significant other factors
During 2017, PPG finalized the divestiture of its North American fiber glass business. This is a transformational milestone for the Company as it completed the culmination of a multi-year strategic shift in the company's business portfolio. The pre-tax cash proceeds from the sale were approximately $540 million.
In December 2016, PPG initiated a $195 million global restructuring program, with anticipated annual savings of approximately $125 million once fully implemented. The expected cost savings are broadly spread across all regions and all business units. The company achieved approximately $50 million of savings in 2017 and expects to achieve the full annualized target of $125 million by 2019. PPG will continue to aggressively manage the company's cost structure to ensure alignment with the overall demand environment and make adjustments as required to remain competitive in the marketplace.
Raw materials are a significant input cost to the process of manufacturing coatings. PPG experiences fluctuating energy and raw material costs driven by various factors, including changes in supplier feedstock costs and inventories, global industry activity levels, foreign currency exchange rates, and global supply and demand factors. In aggregate, average raw material costs were higher in 2017 versus 2016, due to supplier force majeure, natural disasters and environmental regulation enforcement. PPG currently expects overall coatings raw material prices to increase a mid-single-digit percentage in the first half of 2018, with impacts varied by region and commodity.

In 2017, aggregate selling prices were modestly higher year-over-year, reflecting the company's efforts to offset higher raw material costs. We expect to see further benefits from selling price actions taken in 2017 and other actions planned in 2018 to recover profit contribution margins. The Company will carefully monitor raw material costs during 2018 and assess the need for additional increases to selling prices to compensate for increases in raw material costs.

Pension and postretirement benefit costs, excluding settlements, curtailments and special termination benefits, totaled approximately $50 million in 2017, down approximately $70 million from 2016. In 2018, we expect pension and other postretirement benefit costs to decrease by approximately $15 million to $20 million due to strong 2017 asset performance improving the expected return on assets component of net periodic benefit cost as well as certain U.S. plan changes made in 2017.

PPG contributed $54 million to its U.S. defined benefit pension plans in 2017 and an additional $25 million in January 2018. In 2017, the Company made contributions aggregating $33 million to its non-U.S. defined benefit pension plans. In 2018, mandatory contributions to PPG's non-U.S. defined benefit pension plans are expected to be between $20 million and $30 million.

In 2017, unfavorable foreign currency translation experienced in the first half was completely offset by favorable foreign currency translation experienced in the second half of the year. Based on mid-January 2018 exchange rates, the Company expects year-over-year favorable foreign currency translation to increase 2018 sales by $250 million to $300 million and 2018 income before income taxes by $25 million to $30 million. We expect the foreign currency translation impact to be more prevalent during the first half of 2018, due to prior year foreign exchange rate trends. The foreign currency environment continues to be volatile and the impact on 2018 net sales and income before income taxes could differ from the guidance provided above. The Company generally purchases raw materials, incurs manufacturing costs and sells finished goods in the same currency, so we typically incur only modest foreign currency transaction costs.

With the enactment of the U.S. Tax Cuts and Jobs Act, the Company's 2018 effective tax rate from continuing operations is expected to be in the range of 23.0% and 24.0%. This range represents the Company's best estimate, including the new legislation, however, our estimate is subject to revision as the Company completes its assessment of the new law and as additional regulations and interpretations are issued. Other factors may affect the expected 2018 effective tax rate positively or negatively throughout the year, including changes to various statutory tax rates and regulations around the world.

Over the past four years, the Company used $3.4 billion of cash to repurchase about 33 million shares of PPG stock, including over $800 million in 2017. The Company ended the year with approximately $3.6 billion remaining under its current share repurchase authorizations. During 2017, the Company deployed approximately $325 million for acquisitions and $434 million for dividends. PPG increased its per-share dividend in July 2017, marking the 46th annual increase and the 118th consecutive year of dividend payments. The Company is committed to deploying a minimum of $2.4 billion of cash during 2018 on acquisitions and share repurchases as part of our previously communicated commitment to deploy $3.5 billion in 2017 and 2018 combined. In 2017, PPG deployed $1.1 million for acquisitions and share repurchases.

PPG ended 2017 with approximately $1.5 billion in cash and short-term investments. The Company expects continued strong cash generation in 2018.

Accounting Standards Adopted in 2017

Note 1, "Summary of Significant Accounting Policies," under Item 8 of this Form 10-K describes the Company's recently adopted accounting pronouncements.

Accounting Standards to be Adopted in Future Years

Note 1, "Summary of Significant Accounting Policies," under Item 8 of this Form 10-K describes accounting pronouncements that have been promulgated prior to December 31, 2017 but are not effective until a future date.

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 Item 3. "Legal Proceedings" and Note 13, "Commitments and Contingent Liabilities," under Item 8 of this Form 10-K for a description of certain of these lawsuits. As discussed in Item 3 and Note 13, 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.

It is PPG's policy to accrue expenses for 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.

The Company continues to analyze, assess and remediate the environmental issues associated with PPG's former chromium manufacturing plant in Jersey City, N.J. and associated sites ("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 2021.

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

Liquidity and Capital Resources

During the past three years, PPG has had sufficient financial resources to meet its operating requirements, to fund our capital spending, including acquisitions, share repurchases and pension plans and to pay increasing dividends to shareholders.

Cash and cash equivalents and short-term investments

($ in millions)	2017	2016
Cash and cash equivalents	$1,436	$1,820
Short-term investments	55	43
Total	$1,491	$1,863

Cash from operating activities - continuing operations

($ in millions, except percentages)				% Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Cash from operating activities	$1,556	$1,218	$1,759	27.8%	(30.8)%

2017 vs. 2016

The $338 million increase in cash from operating activities - continuing operations, was primarily due to the absence of the prior year funding of the Pittsburgh Corning asbestos trust (the "Trust"), lower defined benefit pension contributions, lower restructuring payments and lower interest payments, partially offset by higher cash taxes paid in 2017 and higher working capital.

2016 vs. 2015

The $541 million decrease in cash from operating activities - continuing operations, was primarily due to the after-tax funding of the Trust, partially offset by lower working capital and lower defined benefit pension contributions.

Operating working capital

Operating Working Capital is a subset of total working capital and represents (1) receivables from customers, net of allowance for doubtful accounts, (2) inventories, and (3) trade liabilities. See Note 3, "Working Capital Detail" under Item 8 of this Form 10-K for further information related to the components of the Company's Operating Working Capital. 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 (fourth quarter sales annualized).

($ in millions, except percentages)	2017	2016
Trade Receivables, net	$2,559	$2,288
Inventories, FIFO	1,833	1,620
Trade Creditor's Liabilities	2,321	1,907
Operating Working Capital	$2,071	$2,001
Operating Working Capital as a % of fourth quarter sales, annualized	14.1 %	14.6 %
Trade Receivables, net as a % of fourth quarter sales, annualized	17.4 %	16.7 %
Days sales outstanding	57	54
Inventories, FIFO as a % of fourth quarter sales, annualized	12.4 %	11.9 %

Inventory turnover	4.8	4.6

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Environmental expenditures

($ in millions)	2017	2016	2015
Cash outlays related to environmental remediation activities	$44	$47	$109

We expect cash outlays for environmental remediation activities in 2018 to be between $25 million and $75 million.

Defined benefit pension plan contributions

($ in millions)	2017	2016	2015
U.S. defined benefit pension plans	$54	$134	$224
Non-U.S. defined benefit pension plans	$33	$54	$39

PPG contributed $54 million and $25 million to its U.S. defined benefit pension plans during 2017 and in January 2018, respectively. Some contributions to PPG's non-U.S. defined benefit pension plans in 2017 were required by local funding requirements. PPG expects to make mandatory contributions to its non-U.S. defined benefit pension plans in the range of $20 million to $30 million in 2018. PPG may make voluntary contributions to its defined benefit pension plans in 2018 and beyond.

Asbestos settlement trust funding

In June 2016, PPG fully funded its portion of the trust that was established by the U.S. Bankruptcy Court for the Western District of Pennsylvania in May 2016. PPG's total cash obligations to fund the Trust totaled $813 million (pre-tax). All payments were applied against a previously established PPG reserve for the total asbestos trust obligation. The company utilized cash on hand for the payments, and this funding had no impact on PPG's previously stated cash-deployment targets. Refer to Note 13, "Commitments and Contingent Liabilities" under Item 8 of this Form 10-K for additional information.

Cash used for investing activities - continuing operations

($ in millions, except percentages)				% Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Cash (used for)from investing activities	($63)	$472	($349)	(113.3)%	235.2%

2017 vs. 2016

The $535 million decrease in cash used for investing activities - continuing operations, was primarily due to the absence of the prior year proceeds from the sale of the flat glass business, European fiber glass business and two Asian joint ventures, as well as lower capital expenditures, including business acquisitions, partially offset by the current year proceeds from the sale of the North American fiber glass business.

2016 vs. 2015

The $821 million increase in cash from investing activities - continuing operations, was primarily due to the proceeds received from the divestiture of the flat glass business, European fiber glass business and two Asian joint ventures, partially offset by lower cash received from the maturity of short-term investments.

Capital expenditures, including business acquisitions

($ in millions, except percentages)				% Change	
	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Capital expenditures (1)	$360	$380	$430	(5.3)%	(11.6)%
Business acquisitions, net of cash acquired (2)	$325	$349	$320	(6.9)%	9.1%
Total capital expenditures, including acquisitions	$685	$729	$750	(6.0)%	(2.8)%
Capital expenditures, excluding acquisitions as a % of sales	2.4 %	2.7 %	3.0 %	(11.1)%	(10.0)%

(1) Includes modernization and productivity improvements, expansion of existing businesses and environmental control projects.

(2) Excluding cash acquired, business acquisitions totaled $332 million, $362 million, and $440 million in 2017, 2016 and 2015, respectively.

Capital expenditures related to modernization and productivity improvements, expansion of existing businesses and environmental control projects is expected to be in the range of 2.5% to 3.0% of sales during 2018.

A primary focus for the Company in 2018 will continue to be cash deployment focused on profitable income growth, including pursuing opportunities for additional strategic acquisitions.

Explanation of Responses:

Cash proceeds from divestitures

In September 2017, PPG completed the sale of its North American fiber glass business to Nippon Electric Glass Co. and received approximately $540 million in pre-tax cash proceeds.

During 2016, PPG finalized the sale of its flat glass business and several other businesses and business affiliates. The Company received total pre-tax cash proceeds of approximately $1.1 billion from these business divestitures. Refer to Note 2, “Acquisitions and Divestitures” under Item 8 of this Form 10-K for additional information.

Cash used for financing activities - continuing operations

				% Change	
($ in millions, except percentages)	2017	2016	2015	2017 vs. 2016	2016 vs. 2015
Cash used for financing activities	($1,954)	($1,210)	($812)	61.5%	49.0%

2017 vs. 2016

The $744 million increase in cash used for financing activities - continuing operations, was primarily due to repayment of long term debt and higher dividends in 2017, partially offset by issuance of long term debt in 2016 and lower net purchases of treasury stock year-over-year.

2016 vs. 2015

The $398 million increase in cash used for financing activities - continuing operations, was primarily due to higher dividends in 2016, higher net purchases of treasury stock year-over-year, lower net issuance of long term debt in 2016, partially offset by lower taxes withheld for share-based payments.

Share repurchase activity

($ in millions, except number of shares)	2017	2016	2015
Number of shares repurchased (millions)	7.4	10.7	7.0
Cost of shares repurchased	$813	$1,050	$751

We anticipate completing additional share repurchases during 2018. The Company has approximately $3.6 billion remaining under the current authorizations from the Board of Directors, the latest of which was approved in December 2017. The current authorized repurchase programs have no expiration date.

Dividends paid to shareholders

($ in millions)	2017	2016	2015
Dividends paid to shareholders	$434	$414	$383

PPG has paid uninterrupted annual dividends since 1899, and 2017 marked the 46th consecutive year of increased annual per-share dividend payments to shareholders. The Company raised its per-share dividend by 13% to $0.45 per share in July 2017.

Debt issued and repaid

Debt Issued	Year	$ in millions
€300 million 0.000% Notes due 2019 and €600 million 0.875% Notes due 2025	2016	$987
€600 million 0.875% Notes due 2022 and €600 million 1.400% Notes due 2027	2015	1,240

Debt Repaid	Year	$ in millions
3-year variable rate bank loan due 2017	2017	$587
$125 million 6.65% notes due 2018	2016	133
Two $250 million Term Loan Credit Agreements	2016	500
$250 million 1.9% notes	2016	250
€300 million 3.875% notes	2015	336

The ratio of total debt, including capital leases, to total debt and equity was 43% at December 31, 2017 down from 47% in 2016.

Credit agreements and lines of credit

In December 2015, PPG entered into a five-year credit agreement (the "Credit Agreement") with several banks and financial institutions as further discussed in Note 8, "Borrowings and Lines of Credit" under Item 8 of this Form 10-K. The Credit Agreement provides for a $1.8 billion unsecured revolving credit facility. The Credit Agreement will terminate on December 18, 2020. During the years ended December 31, 2017 and 2016, there were no borrowings outstanding under the existing or the prior Credit Agreement.

In addition to the amounts available under the lines of credit, the Company has an automatic shelf registration statement on file with the SEC pursuant to which it may issue, offer and sell from time to time on a continuous or delayed basis any combination of securities in one or more offerings.

See Note 8, "Borrowings and Lines of Credit," under Item 8 of this Form 10-K for information regarding notes entered into and repaid as well as details regarding the use and availability of committed and uncommitted lines of credit, letters of credit, guarantees and debt covenants.

Contractual obligations

We continue to believe that our 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. These significant contractual obligations are presented in the following table.

($ in millions)		Obligations Due In:			
	Total	2018	2019-2020	2021-2022	Thereafter
Contractual Obligations					
Long-term debt	$4,123	$—	$1,151	$849	$2,123
Short-term debt	8	8	—	—	—
Capital lease obligations	15	4	5	2	4
Operating leases	840	212	305	149	174
Interest payments(1)	1,004	94	179	115	616
Pension contributions(2)	55	55	—	—	—
Unconditional purchase commitments(3)	124	55	39	11	19
Other commitments	136	6	56	13	61
Total	$6,305	$434	$1,735	$1,139	$2,997

(1) Includes interest on all outstanding debt.

(2) Includes the high end of the range of the expected mandatory pension contributions for 2018 only and U.S. contributions made in January 2018, as PPG is unable to estimate the pension contributions beyond 2018.

(3) The unconditional purchase commitments are principally take-or-pay obligations related to the purchase of certain materials, including industrial gases and electricity, consistent with customary industry practice.

Other liquidity matters

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act") which, among other things lowered the U.S. corporate statutory income tax rate from 35% to 21%, eliminated certain deductible items and added other deductible items for corporations, imposed a tax on unrepatriated foreign earnings and eliminated U.S. taxes on most future foreign earnings. In December 2017, the Company recorded a net tax charge of $134 million related to the Act. The net charge consists of the tax on unrepatriated foreign earnings of approximately $250 million and a charge of approximately $125 million related to the remeasurement of PPG's U.S. deferred tax assets and liabilities at the new enacted statutory rate. These charges were partially offset by a benefit from the reversal of an existing deferred tax liability on repatriated foreign earnings of approximately $150 million and a benefit resulting from PPG's decision to accelerate recognition of certain U.S. tax attributes during the fourth quarter.

This net charge is $37 million higher than the net charge included in PPG's fourth quarter earnings release and Form 8-K furnished on January 18, 2018, primarily due to new IRS regulations issued and refinements of management estimates. The net charge recorded as a provisional amount as of December 31, 2017 represents the Company's best estimate using information available as of February 1, 2018. The Company anticipates U.S. regulatory agencies will issue further regulations during 2018, which may alter this estimate. The Company is still evaluating among other things, its position with respect to permanent reinvestment of foreign earnings overseas and other related outside basis difference considerations and the amount of tax owed on unrepatriated earnings by subsidiaries. The Company believes its remeasurement of the U.S deferred tax assets and liabilities is complete, except for changes in estimates that can result from finalizing the filing of our 2017 U.S.

income tax return, which are not anticipated to be material, and changes that may be a direct impact of other provisional amounts recorded due to the enactment of the Act. The Company will refine its estimates to incorporate new or better information as it comes available through the filing date of its 2017 U.S. income tax returns in the fourth quarter of 2018.

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

The Company currently expects its 2018 on-going effective tax rate from continuing operations to be in the range of 23% to 24%.

At December 31, 2017, the total amount of unrecognized tax benefits for uncertain tax positions, including an accrual of related interest and penalties along with positions only impacting the timing of tax benefits, was $163 million. The timing of payments will depend on the progress of examinations with tax authorities. PPG does not expect a significant tax payment related to these obligations within the next year. The Company is unable to make a reasonably reliable estimate as to when any significant cash settlements with taxing authorities may occur.

Off-Balance Sheet Arrangements

The Company's off-balance sheet arrangements include the operating leases and unconditional purchase commitments disclosed in the "Liquidity and Capital Resources" section in the contractual obligations table as well as letters of credit and guarantees as discussed in Note 8, "Borrowings and Lines of Credit," under Item 8 of this Form 10-K.

Critical Accounting Estimates

Management has evaluated the accounting policies used in the preparation of the financial statements and related notes presented under Item 8 of this Form 10-K and believes those policies to be reasonable and appropriate. We believe that the most critical accounting estimates made in the preparation of our financial statements are those related to accounting for contingencies, under which we accrue a loss when it is probable that a liability has been incurred and the amount can be reasonably estimated, and to accounting for pensions, other postretirement benefits, business combinations, goodwill and other identifiable intangible assets with indefinite lives because of the importance of management judgment in making the estimates necessary to apply these policies.

Contingencies

Contingencies, by their nature, relate to uncertainties that require management to exercise judgment both in assessing the likelihood that a liability has been incurred as well as in estimating the amount of potential loss. The most important contingencies impacting our financial statements are those related to the collectability of accounts receivable, to environmental remediation, to pending, impending or overtly threatened litigation against the Company and to the resolution of matters related to open tax years. For more information on these matters, see Note 3, "Working Capital Detail," Note 11, "Income Taxes" and Note 13, "Commitments and Contingent Liabilities" under Item 8 of this Form 10-K.

Defined Benefit Pension and Other Postretirement Benefit Plans

Accounting for pensions and other postretirement benefits involves estimating the cost of benefits to be provided well into the future and attributing that cost over the time period each employee works. To accomplish this, we make extensive use of assumptions about inflation, investment returns, mortality, turnover, medical costs and discount rates. The Company has established a process by which management reviews and selects these assumptions annually. See Note 12, "Employee Benefit Plans," under Item 8 of this Form 10-K for information on these plans and the assumptions used.

Business Combinations

In accordance with the accounting guidance for business combinations, the Company uses the acquisition method of accounting to allocate costs of acquired businesses to the assets acquired and liabilities assumed based on their estimated fair values at the dates of acquisition. The excess costs of acquired businesses over the fair values of the assets acquired and liabilities assumed were recognized as goodwill. The valuations of the acquired assets and liabilities will impact the determination of future operating results. In addition to using management estimates and negotiated amounts, the Company uses a variety of information sources to determine the estimated fair values of acquired assets and liabilities including: third-party appraisals for the estimated value and lives of identifiable intangible assets and property, plant and equipment; third-party actuaries for the estimated obligations of defined benefit pension plans and similar benefit obligations; and legal counsel or other experts to assess the obligations associated with legal, environmental and other contingent liabilities. The business and technical judgment of management was used in determining which intangible assets have indefinite lives and in determining the useful lives of finite-lived intangible assets in accordance with the accounting guidance for goodwill and other intangible assets.

Goodwill and Intangible Assets

The Company tests indefinite-lived intangible assets and goodwill for impairment annually by either performing a qualitative evaluation or a quantitative test. The qualitative evaluation is an assessment of factors to determine whether it is more likely than not that the fair values of a reporting unit or asset is less than its carrying amount. Fair values under the quantitative test are estimated using discounted cash flow methodologies that are based on projections of the amounts and timing of future revenues and cash flows. For more information on these matters, see Note 1, “Summary of Significant Accounting Policies,” under Item 8 of this Form 10-K.

We believe that the amounts recorded in the financial statements under Item 8 of this Form 10-K related to these contingencies, pensions, other postretirement benefits, business combinations, goodwill and other identifiable intangible assets with indefinite lives are based on the best estimates and judgments of the appropriate PPG management, although actual outcomes could differ from our estimates.

Currency

Comparing exchange rates from December 31, 2016 to December 31, 2017, the U.S. dollar weakened against the currencies in most countries in which PPG operates, most notably the Mexican peso, British pound, Chinese yuan and euro. As a result, consolidated net assets at December 31, 2017 increased by approximately $231 million from December 31, 2016.

Comparing exchange rates from December 31, 2015 to December 31, 2016, the U.S. dollar strengthened against the currencies in most countries in which PPG operates, most notably the Mexican peso, British pound, Chinese yuan and euro. As a result, consolidated net assets at December 31, 2016 decreased by approximately $465 million from December 31, 2015.

Comparing exchange rates during 2017 to those of 2016, in the countries in which PPG operates, the U.S. dollar was stronger overall, which had an unfavorable impact of approximately $7 million on full year 2017 income before income taxes from the translation of this foreign income into U.S. dollars.

Comparing exchange rates during 2016 to those of 2015, in the countries in which PPG operates, the U.S. dollar was stronger overall, which had an unfavorable impact of approximately $70 million on full year 2016 income before income taxes from the translation of this foreign income into U.S. dollars.

Forward-Looking Statements

The Private Securities Litigation Reform Act of 1995 provides a safe harbor for forward-looking statements made by or on behalf of the Company. Management’s Discussion and Analysis and other sections of this Annual Report contain forward-looking statements that reflect the Company’s current views with respect to future events and financial performance.

You can identify forward-looking statements by the fact that they do not relate strictly to current or historic facts. Forward-looking statements are identified by the use of the words “aim,” “believe,” “expect,” “anticipate,” “intend,” “estimate, “project,” “outlook,” “forecast” and other expressions that indicate future events and trends. Any forward-looking statement speaks only as of the date on which such statement is made, and the Company undertakes no obligation to update any forward looking statement, whether as a result of new information, future events or otherwise. You are advised, however, to consult any further disclosures we make on related subjects in our reports to the Securities and Exchange Commission. Also, note the following cautionary statements.

Many factors could cause actual results to differ materially from the Company’s forward-looking statements. Such factors include the impacts of the natural disasters in Mexico, Puerto Rico and the U.S., and their length and severity, any currently unanticipated future impacts from the natural disasters, global economic conditions, increasing price and product competition by foreign and domestic competitors, fluctuations in cost and availability of raw materials, the ability to increase selling price, the ability to recover margins, our ability to maintain favorable supplier relationships and arrangements, the timing of and the realization of anticipated cost savings from restructuring initiatives, difficulties in integrating acquired businesses and achieving expected synergies therefrom, economic and political conditions in 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 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 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 this 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 7A. Quantitative and Qualitative Disclosures About Market Risk

PPG is exposed to market risks related to changes in foreign currency exchange rates, interest rates, and was exposed to changes in PPG’s stock price. The Company may enter into derivative financial instrument transactions in order to manage or reduce these market risks. A detailed description of these exposures and the Company’s risk management policies are provided in Note 9, “Financial Instruments, Hedging Activities and Fair Value Measurements,” under Item 8 of this Form 10-K.

The following disclosures summarize PPG’s exposure to market risks and information regarding the use of and fair value of derivatives employed to manage its exposure to such risks. Quantitative sensitivity analyses have been provided to reflect how reasonably possible, unfavorable changes in market rates can impact PPG’s consolidated results of operations, cash flows and financial position.

Foreign Currency Risk

We conduct operations in many countries around the world. Our results of operations are subject to both currency transaction and currency translation risk. Foreign currency forward contracts outstanding during 2017 and 2016 were generally designated as a hedge of PPG’s exposure to foreign currency transaction risk. As of December 31, 2017 and 2016, the fair value of these contracts was a net liability of $19 million and a net asset of $16 million, respectively. The potential reduction in PPG’s income from continuing operations resulting from the impact of adverse changes in exchange rates on the fair value of its outstanding foreign currency hedge contracts of 10% for European and Canadian currencies and 20% for Asian and Latin American currencies for the years ended December 31, 2017 and 2016 would have been $255 million and $105 million, respectively.

As of December 31, 2017 and 2016, PPG had U.S. dollar to Euro cross currency swap contracts with a total notional amount of $560 million outstanding. As of December 31, 2017 and 2016, the fair value of these contracts was a net asset of $2 million and $65 million, 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 $58 million and by $54 million at December 31, 2017 and 2016, respectively.

As of December 31, 2017 and 2016, PPG had non-U.S. dollar denominated debt outstanding of $2.8 billion and $3.1 billion, respectively. A weakening of the U.S. dollar by 10% against European currencies and by 20% against Asian and South American currencies would have resulted in unrealized translation losses of $314 million and $344 million as of December 31, 2017 and 2016, respectively.

Interest Rate Risk

The Company manages its interest rate risk by balancing its exposure to fixed and variable rates while attempting to minimize its interest costs. 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 years ended December 31, 2017 and 2016, respectively. Further, a 10% reduction in interest rates would have increased the present value of the Company’s fixed rate debt by approximately $61 million and $65 million as of December 31, 2017 and 2016, respectively; however, such changes would not have had an effect on PPG’s annual income from continuing operations or cash flows.

Equity Price Risk

In prior years, PPG entered into equity forward arrangements to hedge the Company’s exposure to changes in the fair value of its future obligation to contribute PPG stock to the Trust (see Note 9, “Financial Instruments, Hedging Activities and Fair Value Measurements” and Note 13, “Commitments and Contingent Liabilities,” under Item 8 of this Form 10-K). In June 2016, PPG satisfied its funding obligation to the Trust and the equity forward arrangements were settled. At settlement, the aggregated fair value of the equity forward arrangements was an asset of $258 million.

Item 8. Financial Statements and Supplementary Data
Report of Independent Registered Public Accounting Firm
To the Board of Directors and Shareholders of PPG Industries, Inc.
Opinions on the Financial Statements and Internal Control over Financial Reporting
We have audited the accompanying consolidated balance sheets of PPG Industries, Inc. and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of income, comprehensive income, shareholders' equity, and cash flows for each of the three years in the period ended December 31, 2017, including the related notes and schedule of valuation and qualifying accounts for each of the three years in the period ended December 31, 2017 appearing under item 15(a)(2)(collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).
In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO.
Basis for Opinions
The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management Report on Establishing and Maintaining Adequate Internal Control Over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.
We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.
Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.
Definition and Limitations of Internal Control over Financial Reporting
A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding

prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

/s/ PricewaterhouseCoopers LLP
Pittsburgh, Pennsylvania
February 15, 2018

We have served as the Company's auditor since 2013.

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Management Report

Responsibility for Preparation of the Financial Statements and Establishing and Maintaining Adequate Internal Control Over Financial Reporting

We are responsible for the preparation of the consolidated financial statements included in this Annual Report. The consolidated financial statements were prepared in accordance with accounting principles generally accepted in the United States of America and include amounts that are based on the best estimates and judgments of management.

We are also responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. Internal control over financial reporting, no matter how well designed, have inherent limitations. Therefore, a system of internal control over financial reporting can provide only reasonable assurance and may not prevent or detect misstatements. In addition, because of changing conditions, there is risk in projecting any evaluation of internal controls to future periods.

We conducted an evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2017. In making this evaluation, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control - Integrated Framework (2013). Our evaluation included reviewing the documentation of our controls, evaluating the design effectiveness of our controls and testing their operating effectiveness. Based on this evaluation we have concluded that, as of December 31, 2017, the Company's internal controls over financial reporting were effective.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, has issued their report, included on page 40 of this Form 10-K, regarding the Company's internal control over financial reporting.

/s/ Michael H. McGarry	/s/ Vincent J. Morales
Michael H. McGarry	Vincent J. Morales
Chairman and Chief Executive Officer	Senior Vice President and Chief Financial Officer
February 15, 2018	February 15, 2018

Consolidated Statement of Income

	For the Year		
($ in millions, except per share amounts)	2017	2016	2015
Net sales	$14,750	$14,270	$14,241
Cost of sales, exclusive of depreciation and amortization	8,204	7,693	7,786
Selling, general and administrative	3,570	3,581	3,584
Depreciation	331	319	314
Amortization	129	121	132
Research and development, net	453	459	466
Interest expense	105	125	125
Interest income	(20)	(26)	(39)
Asbestos settlement, net	—	5	12
Business restructuring	—	195	136
Pension settlement charges	60	968	—
Other charges	64	175	90
Other income	(154)	(131)	(110)
Income before income taxes	$2,008	$786	$1,745
Income tax expense	616	217	413
Income from continuing operations	$1,392	$569	$1,332
Income from discontinued operations, net of tax	220	330	95
Net income attributable to the controlling and noncontrolling interests	$1,612	$899	$1,427
Less: net income attributable to noncontrolling interests	21	22	21
Net income (attributable to PPG)	$1,591	$877	$1,406
Amounts Attributable to PPG			
Continuing operations	$1,371	$547	$1,311
Discontinued operations	220	330	95
Net income	$1,591	$877	$1,406
Earnings per common share			
Continuing operations	$5.35	$2.06	$4.83
Discontinued operations	0.86	1.24	0.35
Net income (attributable to PPG)	$6.21	$3.30	$5.18
Earnings per common share - assuming dilution			
Continuing operations	$5.32	$2.05	$4.79
Discontinued operations	0.85	1.23	0.35
Net income (attributable to PPG)	$6.17	$3.28	$5.14

Consolidated Statement of Comprehensive Income

	For the Year		
($ in millions)	2017	2016	2015
Net income attributable to the controlling and noncontrolling interests	$1,612	$899	$1,427
Unrealized foreign currency translation gains/(losses)	248	(476)	(717)
Defined benefit pension and other postretirement benefit adjustments	78	808	113
Unrealized (losses)/gains – derivative financial instruments	(10)	4	5
Other comprehensive income/(loss), net of tax	316	336	(599)
Total comprehensive income	$1,928	$1,235	$828
Less: amounts attributable to noncontrolling interests:			
Net income	(21)	(22)	(21)
Unrealized foreign currency translation (losses)/gains	(17)	10	13
Comprehensive income attributable to PPG	$1,890	$1,223	$820

The accompanying notes to the consolidated financial statements are an integral part of these consolidated statements.

Consolidated Balance Sheet

	December 31	
($ in millions)	2017	2016
Assets		
Current assets		
Cash and cash equivalents	$1,436	$1,820
Short-term investments	55	43
Receivables	2,903	2,654
Inventories	1,730	1,514
Assets held for sale	—	223
Other	353	320
Total current assets	$6,477	$6,574
Property, plant and equipment, net	2,824	2,608
Goodwill	3,942	3,572
Identifiable intangible assets, net	2,045	1,983
Deferred income taxes	305	184
Investments	268	179
Other assets	677	669
Total	$16,538	$15,769
Liabilities and Shareholders' Equity		
Current liabilities		
Accounts payable and accrued liabilities	$3,780	$3,460
Restructuring reserves	102	100
Short-term debt and current portion of long-term debt	12	629
Liabilities held for sale	—	64
Total current liabilities	$3,894	$4,253
Long-term debt	4,134	3,787
Accrued pensions	729	740