CATERPILLAR INC
Form 10-K
February 15, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)
ý ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2017

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to .

Commission File No. 1-768

CATERPILLAR INC.
(Exact name of Registrant as specified in its charter)

Delaware	37-0602744
(State or other jurisdiction of incorporation)	(IRS Employer I.D. No.)
510 Lake Cook Road, Suite 100, Deerfield, Illinois	60015
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: (224) 551-4000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock ($1.00 par value) [1]	New York Stock Exchange
9 3/8% Debentures due March 15, 2021	New York Stock Exchange
8% Debentures due February 15, 2023	New York Stock Exchange
5.3% Debentures due September 15, 2035	New York Stock Exchange

(1) In addition to the New York Stock Exchange, Caterpillar common stock is also listed on stock exchanges in France and Switzerland.

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ý No o

Indicate by check mark if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No ý

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 ý No o

Indicate by check mark whether the Registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ý No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

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

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

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. o
Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).
Yes o No ý

As of June 30, 2017, there were 590,972,792 shares of common stock of the Registrant outstanding, and the aggregate market value of the voting stock held by non-affiliates of the Registrant (assuming only for purposes of this computation that directors and executive officers may be affiliates) was approximately $63.4 billion.

As of December 31, 2017, there were 597,625,772 shares of common stock of the Registrant outstanding.

Documents Incorporated by Reference

Portions of the documents listed below have been incorporated by reference into the indicated parts of this Form 10-K, as specified in the responses to the item numbers involved.

Part III	2018 Annual Meeting Proxy Statement (Proxy Statement) to be filed with the Securities and Exchange Commission (SEC) within 120 days after the end of the calendar year.

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PART I

Item 1. Business.

General

Originally organized as Caterpillar Tractor Co. in 1925 in the State of California, our company was reorganized as Caterpillar Inc. in 1986 in the State of Delaware. As used herein, the term “Caterpillar,” “we,” “us,” “our” or “the company” refers to Caterpillar Inc. and its subsidiaries unless designated or identified otherwise.

Overview

With 2017 sales and revenues of $45.462 billion, Caterpillar is the world’s leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. The company principally operates through its three primary segments - Construction Industries, Resource Industries and Energy & Transportation - and also provides financing and related services through its Financial Products segment. Caterpillar is also a leading U.S. exporter. Through a global network of independent dealers and direct sales of certain products, Caterpillar builds long-term relationships with customers around the world.

Currently, we have six operating segments, of which four are reportable segments and are described below. Further information about our reportable segments, including geographic information, appears in Note 23 — “Segment information” of Part II, Item 8 "Financial Statements and Supplementary Data."

Categories of Business Organization

1. Machinery, Energy & Transportation — Represents the aggregate total of Construction Industries, Resource Industries, Energy & Transportation and All Other operating segments and related corporate items and eliminations.

2. Financial Products — Primarily includes the company’s Financial Products Segment. This category includes Caterpillar Financial Services Corporation (Cat Financial), Caterpillar Insurance Holdings Inc. (Insurance Services) and their respective subsidiaries.

Other information about our operations in 2017, including certain risks associated with our operations, is included in Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

Construction Industries

Our Construction Industries segment is primarily responsible for supporting customers using machinery in infrastructure, forestry and building construction. The majority of machine sales in this segment are made in the heavy and general construction, rental, quarry and aggregates markets and mining.

Nature of customer demand for construction machinery varies around the world. Customers in developing economies often prioritize purchase price in making their investment decisions, while customers in developed economies generally weigh productivity and other performance criteria that contribute to lower owning and operating costs over the lifetime of the machine. To meet customer expectations in developing economies, Caterpillar developed differentiated product offerings that target customers in those markets, including our SEM brand machines. We believe that these customer-driven product innovations enable us to compete more effectively in developing economies. The majority of Construction Industries' research and development spending in 2017 focused on the next generation of construction machines.

The competitive environment for construction machinery is characterized by some global competitors and many regional and specialized local competitors. Examples of global competitors include Komatsu Ltd., Volvo Construction Equipment (part of the Volvo Group), CNH Industrial N.V., Deere & Company, Hitachi Construction Machinery Co., Ltd., J.C. Bamford Excavators Ltd., Doosan Infracore Co., Ltd., Hyundai Construction Equipment Co., Ltd. and Kubota Farm & Industrial Machinery (part of Kubota Corporation). As an example of regional and local competitors, our competitors in China also include Guangxi LiuGong Machinery Co., Ltd., Longking Holdings Ltd., Sany Heavy Industry Co., Ltd., XCMG Group, Shantui Construction Machinery Co., Ltd., (part of Shandong Heavy Industry Group Co.) and Shandong Lingong Construction Machinery Co., Ltd. (SDLG, part of Volvo Group). Each of these companies has varying product lines that compete with Caterpillar products, and each has varying degrees of regional focus.

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The Construction Industries product portfolio includes the following machines and related parts and work tools:

· asphalt pavers	· feller bunchers	· telehandlers
· backhoe loaders	· harvesters	· small and medium track-type tractors
· compactors	· knuckleboom loaders	· track-type loaders
· cold planers	· motorgraders	· wheel excavators
· compact truck and multi-terrain loaders	· pipelayers	· compact, small and medium wheel loaders
· mini, small, medium and large excavators	· road reclaimers	
·· forestry excavators	· site prep tractors	
	· skidders	
	· skid steer loaders	

Resource Industries

The Resource Industries segment is primarily responsible for supporting customers using machinery in mining, quarry, waste and material handling applications. Caterpillar offers a broad product range and services to deliver comprehensive solutions for our mining customers. We manufacture high productivity equipment for both surface and underground mining operations around the world. Our equipment is used to extract and haul copper, iron ore, coal, oil sands, aggregates, gold and other minerals and ores. In addition to equipment, Resource Industries also develops and sells technology products and services to provide customers fleet management systems, equipment management analytics and autonomous machine capabilities.

Customers in most markets place an emphasis on equipment that is highly productive, reliable and provides the lowest total cost of ownership over the life of the equipment. In some developing markets, customers often prioritize purchase price in making their investment decisions. We believe our ability to control the integration and design of key machine components represents a competitive advantage. Our research and development efforts remain focused on providing mining and quarry customers the lowest total cost of ownership enabled through the highest quality, most productive products in the industry.

The competitive environment for Resource Industries consists of a few larger global competitors that compete in several of the markets that we serve and a substantial number of smaller companies that compete in a more limited range of products, applications, and regional markets. Our global surface competitors include Komatsu Ltd., Hitachi Construction Machinery Co., Ltd., Volvo Construction Equipment, Atlas Copco AB, Deere & Company, Sandvik AB and Liebherr-International AG. Our global underground competitors include Atlas Copco AB, Liebherr-International AG, Sandvik AB, Komatsu Ltd., and Zhengzhou Coal Mining Machinery Group Co., Ltd.

The Resource Industries product portfolio includes the following machines and related parts:

· electric rope shovels	· longwall miners	· landfill compactors
· draglines	· large wheel loaders	· soil compactors
· hydraulic shovels	· off-highway trucks	· machinery components
· rotary drills	· articulated trucks	· electronics and control systems
· hard rock vehicles	· wheel tractor scrapers	· select work tools
· large track-type tractors	· wheel dozers	· hard rock continuous mining systems
· large mining trucks		

Energy & Transportation

Our Energy & Transportation segment supports customers in oil and gas, power generation, marine, rail and industrial applications, including Cat® machines. The product and services portfolio includes reciprocating engines, generator sets, marine propulsion systems, gas turbines and turbine-related services, the remanufacturing of Cat engines and components and remanufacturing services for other companies, diesel-electric locomotives and other rail-related products and services and product support of on-highway vocational trucks for North America.

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Regulatory emissions standards of the U.S. Environmental Protection Agency (EPA) and comparable standards in other developed economies have required us to make significant investments in research and development that will continue as new products and similar regulations are introduced over the next several years. We believe that our emissions technology provides a competitive advantage in connection with emissions standards compliance and performance.

The competitive environment for reciprocating engines in marine, oil and gas, industrial and electric power generation systems along with turbines in oil and gas and electric power generation consists of a few larger global competitors that compete in a variety of markets that Caterpillar serves, and a substantial number of smaller companies that compete in a limited-size product range, geographic region and/or application. Principal global competitors include Cummins Inc., Rolls-Royce Power Systems, GE Power, Siemens Power and Gas, Deutz AG and Wärtsilä Corp. Other competitors, such as MAN Diesel & Turbo SE, Baker Hughes, a GE company, Rolls-Royce Marine, Mitsubishi Heavy Industries Ltd., Volvo Penta, Weichai Power Co., Ltd., Kirloskar Oil Engines Limited and other emerging market competitors compete in certain markets in which Caterpillar competes. An additional set of competitors, including Generac Power Systems, Inc., Kohler Co., Inc., Aggreko plc and others, are primarily packagers who source engines and/or other components from domestic and international suppliers and market products regionally and internationally through a variety of distribution channels. In rail-related businesses, our global competitors include GE Transportation, Vossloh AG, Siemens Akteingesellschaft, Alstom Transport SA, and Voestalpine AG. We also compete with other companies on a more limited range of products, services and/or geographic regions.

The Energy & Transportation portfolio includes the following products and related parts:

- reciprocating engine powered generator sets
- reciprocating engines supplied to the industrial industry as well as Caterpillar machinery
- integrated systems used in the electric power generation industry
- turbines, centrifugal gas compressors and related services
- reciprocating engines and integrated systems and solutions for the marine and oil and gas industries
- remanufactured reciprocating engines and components
- diesel-electric locomotives and components and other rail-related products and services

Financial Products Segment

The business of our Financial Products segment is primarily conducted by Cat Financial, a wholly owned finance subsidiary of Caterpillar. Cat Financial’s primary business is to provide retail and wholesale financing alternatives for Caterpillar products to customers and dealers around the world. Retail financing is primarily comprised of the financing of Caterpillar equipment, machinery and engines. Cat Financial also provides financing for vehicles, power generation facilities and marine vessels that, in most cases, incorporate Caterpillar products. In addition to retail financing, Cat Financial provides wholesale financing to Caterpillar dealers and purchases short-term trade receivables from Caterpillar and its subsidiaries. The various financing plans offered by Cat Financial are primarily designed to increase the opportunity for sales of Caterpillar products and generate financing income for Cat Financial. A significant portion of Cat Financial’s activity is conducted in North America, with additional offices and subsidiaries in Latin America, Asia/Pacific, Europe, Africa and Middle East.

For over 35 years, Cat Financial has been providing financing in the various markets in which it participates, contributing to its knowledge of asset values, industry trends, product structuring and customer needs.

In certain instances, Cat Financial’s operations are subject to supervision and regulation by state, federal and various foreign governmental authorities, and may be subject to various laws and judicial and administrative decisions imposing various requirements and restrictions which, among other things, (i) regulate credit granting activities and the administration of loans, (ii) establish maximum interest rates, finance charges and other charges, (iii) require disclosures to customers and investors, (iv) govern secured transactions, (v) set collection, foreclosure, repossession and other trade practices and (vi) regulate the use and reporting of information related to a borrower’s credit experience. Cat Financial’s ability to comply with these and other governmental and legal requirements and restrictions affects its operations.

Cat Financial’s retail leases and installment sale contracts (totaling 56 percent*) include:

- Tax leases that are classified as either operating or finance leases for financial accounting purposes, depending on the characteristics of the lease. For tax purposes, Cat Financial is considered the owner of the equipment (12 percent*).

- Finance (non-tax) leases, where the lessee for tax purposes is considered to be the owner of the equipment during the term of the lease, that either require or allow the customer to purchase the equipment for a fixed price at the end of the term (21 percent*).

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- Installment sale contracts, which are equipment loans that enable customers to purchase equipment with a down payment or trade-in and structure payments over time (22 percent*).

- Governmental lease-purchase plans in the U.S. that offer low interest rates and flexible terms to qualified non-federal government agencies (1 percent*).

Cat Financial's wholesale notes receivable, finance leases and installment sale contracts (totaling 14 percent*) include:

- Inventory/rental programs, which provide assistance to dealers by financing their new Caterpillar inventory and rental fleets (3 percent*).

- Short-term receivables Cat Financial purchased from Caterpillar at a discount (11 percent*).

Cat Financial's retail notes receivables (30 percent*) include:

- Loans that allow customers and dealers to use their Caterpillar equipment or other assets as collateral to obtain financing.

*Indicates the percentage of Cat Financial's total portfolio at December 31, 2017. We define total portfolio as total finance receivables (net of unearned income and allowance for credit losses) plus equipment on operating leases, less accumulated depreciation. For more information on the above and Cat Financial's concentration of credit risk, please refer to Note 6 — "Cat Financial Financing Activities" of Part II, Item 8 "Financial Statements and Supplementary Data."

Cat Financial operates in a highly competitive environment, with financing for users of Caterpillar equipment available through a variety of sources, principally commercial banks and finance and leasing companies. Cat Financial's competitors include Wells Fargo Equipment Finance Inc. and various other banks and finance companies. In addition, many of our manufacturing competitors own financial subsidiaries, such as Volvo Financial Services, Komatsu Financial L.P. and John Deere Capital Corporation, that utilize below-market interest rate programs (funded by the manufacturer) to assist machine sales. Caterpillar and Cat Financial work together to provide a broad array of financial merchandising programs around the world to meet these competitive offers.

Cat Financial's financial results are largely dependent upon the ability of Caterpillar dealers to sell equipment and customers' willingness to enter into financing or leasing agreements. It is also affected by, among other things, the availability of funds from its financing sources, general economic conditions such as inflation and market interest rates and its cost of funds relative to its competitors.

Cat Financial has a match-funding policy that addresses interest rate risk by aligning the interest rate profile (fixed or floating rate) of its debt portfolio with the interest rate profile of its receivables portfolio within predetermined ranges on an ongoing basis. In connection with that policy, Cat Financial uses interest rate derivative instruments to modify the debt structure to match assets within the receivables portfolio. This matched funding reduces the volatility of margins between interest-bearing assets and interest-bearing liabilities, regardless of which direction interest rates move. For more information regarding match funding, please see Note 3 — "Derivative financial instruments and risk management" of Part II, Item 8 "Financial Statements and Supplementary Data." See also the risk factors associated with our financial products business included in Item 1 A. of this Form 10-K.

In managing foreign currency risk for Cat Financial's operations, the objective is to minimize earnings volatility resulting from conversion and the remeasurement of net foreign currency balance sheet positions, and future transactions denominated in foreign currencies. This policy allows the use of foreign currency forward, option and cross currency contracts to offset the risk of currency mismatch between the receivable and debt portfolios, and exchange rate risk associated with future transactions denominated in foreign currencies.

Cat Financial provides financing only when certain criteria are met. Credit decisions are based on a variety of credit quality factors including prior payment experience, customer financial information, credit-rating agency ratings, loan-to-value ratios and other internal metrics. Cat Financial typically maintains a security interest in retail-financed equipment and requires physical damage insurance coverage on financed equipment. Cat Financial finances a significant portion of Caterpillar dealers' sales and inventory of Caterpillar equipment throughout the world. Cat Financial's competitive position is improved by marketing programs offered in conjunction with Caterpillar and/or Caterpillar dealers. Under these programs, Caterpillar, or the

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dealer, funds an amount at the outset of the transaction, which Cat Financial then recognizes as revenue over the term of the financing. We believe that these marketing programs provide Cat Financial a significant competitive advantage in financing Caterpillar products.

Caterpillar Insurance Company, a wholly owned subsidiary of Caterpillar Insurance Holdings Inc., is a U.S. insurance company domiciled in Missouri and primarily regulated by the Missouri Department of Insurance. Caterpillar Insurance Company is licensed to conduct property and casualty insurance business in 50 states, the District of Columbia and Guam, and as such, is also regulated in those jurisdictions. The State of Missouri acts as the lead regulatory authority and monitors Caterpillar Insurance Company's financial status to ensure that it is in compliance with minimum solvency requirements, as well as other financial ratios prescribed by the National Association of Insurance Commissioners. Caterpillar Insurance Company is also licensed to conduct insurance business through a branch in Zurich, Switzerland and, as such, is regulated by the Swiss Financial Market Supervisory Authority.

Caterpillar Life Insurance Company, a wholly owned subsidiary of Caterpillar, is a U.S. insurance company domiciled in Missouri and primarily regulated by the Missouri Department of Insurance. Caterpillar Life Insurance Company is licensed to conduct life and accident and health insurance business in 26 states and the District of Columbia and, as such, is also regulated in those jurisdictions. The State of Missouri acts as the lead regulatory authority and it monitors the financial status to ensure that it is in compliance with minimum solvency requirements, as well as other financial ratios prescribed by the National Association of Insurance Commissioners. Caterpillar Life Insurance Company provides stop loss insurance protection to a Missouri Voluntary Employees' Beneficiary Association (VEBA) trust used to fund medical claims of salaried retirees of Caterpillar under the VEBA.

Caterpillar Insurance Co. Ltd., a wholly owned subsidiary of Caterpillar Insurance Holdings Inc., is a captive insurance company domiciled in Bermuda and regulated by the Bermuda Monetary Authority. Caterpillar Insurance Co. Ltd. is a Class 2 insurer (as defined by the Bermuda Insurance Amendment Act of 1995), which primarily insures its parent and affiliates. The Bermuda Monetary Authority requires an Annual Financial Filing for purposes of monitoring compliance with solvency requirements.

Caterpillar Product Services Corporation (CPSC), a wholly owned subsidiary of Caterpillar, is a warranty company domiciled in Missouri. CPSC previously conducted a machine extended service contract program in Germany and France by providing machine extended warranty reimbursement protection to dealers in Germany and France. The program was discontinued effective January 1, 2013, though CPSC continues to provide extended warranty reimbursement protection under existing contracts.

Caterpillar Insurance Services Corporation, a wholly owned subsidiary of Caterpillar Insurance Holdings Inc., is a Tennessee insurance brokerage company licensed in all 50 states, the District of Columbia and Guam. It provides brokerage services for all property and casualty and life and health lines of business.

Caterpillar's insurance group provides protection for claims under the following programs:

- Contractual Liability Insurance to Caterpillar and its affiliates, Caterpillar dealers and original equipment manufacturers (OEMs) for extended service contracts (parts and labor) offered by Caterpillar, third party dealers and OEMs.

- Cargo insurance for the worldwide cargo risks of Caterpillar products.

- Contractors' Equipment Physical Damage Insurance for equipment manufactured by Caterpillar or OEMs, which is leased, rented or sold by third party dealers to customers.

- General liability, employer’s liability, auto liability and property insurance for Caterpillar.
- Retiree Medical Stop Loss Insurance for medical claims under the VEBA.
- Brokerage services for property and casualty and life and health business.

Acquisitions

Information related to acquisitions appears in Note 24 — “Acquisitions” of Part II, Item 8 "Financial Statements and Supplementary Data."

Competitive Environment

Caterpillar products and product support services are sold worldwide into a variety of highly competitive markets. In all markets, we compete on the basis of product performance, customer service, quality and price. From time to time, the intensity of competition results in price discounting in a particular industry or region. Such price discounting puts pressure on margins and can negatively impact operating profit. Outside the United States, certain competitors enjoy competitive advantages inherent to operating in their home countries or regions.

Raw Materials and Component Products

We source our raw materials and manufactured components from suppliers both domestically and internationally. These purchases include unformed materials and rough and finished parts. Unformed materials include a variety of steel products, which are then cut or formed to shape and machined in our facilities. Rough parts include various sized steel and iron castings and forgings, which are machined to final specification levels inside our facilities. Finished parts are ready to assemble components, which are made either to Caterpillar specifications or to supplier developed specifications. We machine and assemble some of the components used in our machines, engines and power generation units and to support our after-market dealer parts sales. We also purchase various goods and services used in production, logistics, offices and product development processes. We maintain global strategic sourcing models to meet our global facilities' production needs while building long-term supplier relationships and leveraging enterprise spend. We expect our suppliers to maintain, at all times, industry-leading levels of quality and the ability to timely deliver raw materials and component products for our machine and engine products. However, increases in demand have led to parts and components constraints across some products. We use a variety of agreements with suppliers to protect our intellectual property and processes to monitor and mitigate risks of the supply base causing a business disruption. The risks monitored include supplier financial viability, the ability to increase or decrease production levels, business continuity, quality and delivery.

Patents and Trademarks

We own a number of patents and trademarks, which have been obtained over a period of years and relate to the products we manufacture and the services we provide. These patents and trademarks are generally considered beneficial to our business. We do not regard our business as being dependent upon any single patent or group of patents.

Order Backlog

The dollar amount of backlog believed to be firm was approximately $15.8 billion at December 31, 2017 and $12.1 billion at December 31, 2016. Compared with year-end 2016, the order backlog increased about $3.7 billion. The increase was across all segments, most significantly in Resource Industries and Construction Industries. Of the total backlog at December 31, 2017, approximately $2.9 billion was not expected to be filled in 2018.

Dealers and Distributors

Our machines are distributed principally through a worldwide organization of dealers (dealer network), 48 located in the United States and 123 located outside the United States, serving 192 countries. Reciprocating engines are sold principally through the dealer network and to other manufacturers for use in products. Some of the reciprocating engines manufactured by our subsidiary Perkins Engines Company Limited, are also sold through its worldwide network of 93 distributors covering 182 countries. The FG Wilson branded electric power generation systems primarily manufactured by our subsidiary Caterpillar Northern Ireland Limited are sold through its worldwide network of 154 distributors covering 131 countries. Some of the large, medium speed reciprocating engines are also sold under the MaK brand through a worldwide network of 20 distributors covering 130 countries.

Our dealers do not deal exclusively with our products; however, in most cases sales and servicing of our products are the dealers' principal business. Some products, primarily turbines and locomotives, are sold directly to end customers through sales forces employed by the company. At times, these employees are assisted by independent sales representatives.

While the large majority of our worldwide dealers are independently owned and operated, we own and operate a dealership in Japan that covers approximately 80% of the Japanese market: Nippon Caterpillar Division. We are currently operating this Japanese dealer directly and its results are reported in the All Other operating segments. There are also three independent dealers in the Southern Region of Japan.

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For Caterpillar branded products, the company's relationship with each of its independent dealers is memorialized in standard sales and service agreements. Pursuant to this agreement, the company grants the dealer the right to purchase and sell its products and to service the products in a specified geographic service territory. Prices to dealers are established by the company after receiving input from dealers on transactional pricing in the marketplace. The company also agrees to defend its intellectual property and to provide warranty and technical support to the dealer. The agreement further grants the dealer a non-exclusive license to use the company's trademarks, service marks and brand names. In some instances, a separate trademark agreement exists between the company and a dealer.

In exchange for these rights, the agreement obligates the dealer to develop and promote the sale of the company's products to current and prospective customers in the dealer's service territory. Each dealer agrees to employ adequate sales and support personnel to market, sell and promote the company's products, demonstrate and exhibit the products, perform the company's product improvement programs, inform the company concerning any features that might affect the safe operation of any of the company's products and maintain detailed books and records of the dealer's financial condition, sales and inventories and make these books and records available at the company's reasonable request.

These sales and service agreements are terminable at will by either party primarily upon 90 days written notice.

Research and Development

We place strong emphasis on product-oriented research and development relating to the development of new or improved machines, engines and major components. In 2017, 2016 and 2015, we spent $1,905 million, $1,951 million and $2,119 million, or 4.2, 5.1 and 4.5 percent of our sales and revenues, respectively, on our research and development programs.

Employment

As of December 31, 2017, we employed about 98,400 full-time persons of whom approximately 56,200 were located outside the United States. In the United States, we employed approximately 42,200 employees, most of whom are at-will employees and, therefore, not subject to any type of employment contract or agreement. At select business units, certain highly specialized employees have been hired under employment contracts that specify a term of employment, pay and other benefits.

Full-Time Employees at Year-End

	2017	2016
Inside U.S.	42,200	40,900
Outside U.S.	56,200	54,500
Total	98,400	95,400
By Region:		
North America	42,400	41,200
EAME	18,100	20,000
Latin America	15,000	11,400
Asia/Pacific	22,900	22,800
Total	98,400	95,400

As of December 31, 2017, there were approximately 8,740 U.S. hourly production employees who were covered by collective bargaining agreements with various labor unions, including The United Automobile, Aerospace and Agricultural Implement Workers of America (UAW), The International Association of Machinists and The United

Steelworkers. Approximately 7,030 of such employees are covered by collective bargaining agreements with the UAW that expire on December 17, 2018 and March 1, 2023. Outside the United States, the company enters into employment contracts and agreements in those countries in which such relationships are mandatory or customary. The provisions of these agreements generally correspond in each case with the required or customary terms in the subject jurisdiction.

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Sales and Revenues

Sales and revenues outside the United States were 59 percent of consolidated sales and revenues for 2017, 2016 and 2015. Additional information related to total sales and revenues and long-lived assets aggregated by our U.S. and non-U.S. operations appears in Note 23 – “Segment information” of Part II, Item 8 “Financial Statements and Supplementary Data”.

Environmental Matters

The company is regulated by federal, state and international environmental laws governing our use, transport and disposal of substances and control of emissions. In addition to governing our manufacturing and other operations, these laws often impact the development of our products, including, but not limited to, required compliance with air emissions standards applicable to internal combustion engines. We have made, and will continue to make, significant research and development and capital expenditures to comply with these emissions standards.

We are engaged in remedial activities at a number of locations, often with other companies, pursuant to federal and state laws. When it is probable we will pay remedial costs at a site, and those costs can be reasonably estimated, the investigation, remediation, and operating and maintenance costs of the remedial action are accrued against our earnings. Costs are accrued based on consideration of currently available data and information with respect to each individual site, including available technologies, current applicable laws and regulations, and prior remediation experience. Where no amount within a range of estimates is more likely, we accrue the minimum. Where multiple potentially responsible parties are involved, we consider our proportionate share of the probable costs. In formulating the estimate of probable costs, we do not consider amounts expected to be recovered from insurance companies or others. We reassess these accrued amounts on a quarterly basis. The amount recorded for environmental remediation is not material and is included in the line item "Accrued expenses" in Statement 3 — "Consolidated Financial Position at December 31" of Part II, Item 8 "Financial Statements and Supplementary Data." There is no more than a remote chance that a material amount for remedial activities at any individual site, or at all the sites in the aggregate, will be required.

Available Information

The company files electronically with the Securities and Exchange Commission (SEC) required reports on Form 8-K, Form 10-Q, Form 10-K and Form 11-K; proxy materials; ownership reports for insiders as required by Section 16 of the Securities Exchange Act of 1934 (Exchange Act); registration statements on Forms S-3 and S-8, as necessary; and other forms or reports as required. The SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The company maintains a website (www.Caterpillar.com) and copies of our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any amendments to these reports filed or furnished with the SEC are available free of charge through our website (www.Caterpillar.com/secfilings) as soon as reasonably practicable after filing with the SEC. Copies of our board committee charters, our board’s Guidelines on Corporate Governance Issues, Worldwide Code of Conduct and other corporate governance information are available on our website (www.Caterpillar.com/governance). The information contained on the company’s website is not included in, or incorporated by reference into, this annual report on Form 10-K.

Additional company information may be obtained as follows:

Current information -

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- phone our Information Hotline - (800) 228-7717 (U.S. or Canada) or (858) 764-9492 (outside U.S. or Canada) to request company publications by mail, listen to a summary of Caterpillar's latest financial results and current outlook, or to request a copy of results
- request, view or download materials on-line or register for email alerts at www.Caterpillar.com/materialsrequest

Historical information -

- view/download on-line at www.Caterpillar.com/historical

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Item 1A. Risk Factors.

The statements in this section describe the most significant risks to our business and should be considered carefully in conjunction with Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and the “Notes to Consolidated Financial Statements” of Part II, Item 8 "Financial Statements and Supplementary Data" to this Form 10-K. In addition, the statements in this section and other sections of this Form 10-K, including in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" include “forward-looking statements” as that term is defined in the Private Securities Litigation Reform Act of 1995 and involve uncertainties that could significantly impact results. Forward-looking statements give current expectations or forecasts of future events about the company or our outlook. You can identify forward-looking statements by the fact they do not relate to historical or current facts and by the use of words such as “believe,” “expect,” “estimate,” “anticipate,” “will be,” “should,” “plan,” “project,” “intend,” “could” and similar words or expressions.

Forward-looking statements are based on assumptions and on known risks and uncertainties. Although we believe we have been prudent in our assumptions, any or all of our forward-looking statements may prove to be inaccurate, and we can make no guarantees about our future performance. Should known or unknown risks or uncertainties materialize or underlying assumptions prove inaccurate, actual results could materially differ from past results and/or those anticipated, estimated or projected.

We undertake no obligation to publicly update forward-looking statements, whether as a result of new information, future events or otherwise. You should, however, consult any subsequent disclosures we make in our filings with the SEC on Form 10-Q or Form 8-K.

The following is a cautionary discussion of risks, uncertainties and assumptions that we believe are significant to our business. In addition to the factors discussed elsewhere in this report, the following are some of the important factors that, individually or in the aggregate, we believe could make our actual results differ materially from those described in any forward-looking statements. It is impossible to predict or identify all such factors and, as a result, you should not consider the following factors to be a complete discussion of risks, uncertainties and assumptions.

MACROECONOMIC RISKS

Our business and the industries we serve are highly sensitive to global and regional economic conditions.

Our results of operations are materially affected by economic conditions globally and regionally and in the particular industries we serve. The demand for our products and services tends to be cyclical and can be significantly reduced in periods of economic weakness characterized by lower levels of government and business investment, lower levels of business confidence, lower corporate earnings, high real interest rates, lower credit activity or tighter credit conditions, perceived or actual industry overcapacity, higher unemployment and lower consumer spending. A prolonged period of economic weakness may also result in increased expenses due to higher allowances for doubtful accounts and potential goodwill and asset impairment charges. Economic conditions vary across regions and countries, and demand for our products and services generally increases in those regions and countries experiencing economic growth and investment. Slower economic growth or a change in the global mix of regions and countries experiencing economic growth and investment could have an adverse effect on our business, results of operations and financial condition.

The energy, transportation and mining industries are major users of our products, including the coal, iron ore, gold, copper, oil and natural gas industries. Customers in these industries frequently base their decisions to purchase our products on the expected future performance of these industries, which in turn are dependent in part on commodity prices. Prices of commodities in these industries are frequently volatile and can change abruptly and unpredictably in response to general economic conditions and trends, government actions, regulatory actions, commodity inventories, production and consumption levels, technological innovations, commodity substitutions, market expectations and any disruptions in production or distribution. Economic conditions affecting the industries we serve may in the future also lead to reduced capital expenditures by our customers. Reduced capital expenditures by our customers are likely to lead to a decrease in the demand for our products and may also result in a decrease in demand for aftermarket parts as customers are likely to extend preventative maintenance schedules and delay major overhauls when possible.

The rates of infrastructure spending, housing starts and commercial construction also play a significant role in our results. Our products are an integral component of these activities, and as these activities decrease, demand for our products may be significantly impacted, which could negatively impact our results.

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Commodity price changes, material price increases, fluctuations in demand for our products, significant disruptions to our supply chains or significant shortages of material may adversely impact our financial results or our ability to meet commitments to customers.

We are a significant user of steel and many other commodities required for the manufacture of our products. Increases in the prices of such commodities would increase our costs, negatively impacting our business, results of operations and financial condition if we are unable to fully offset the effect of these increased costs through price increases, productivity improvements or cost reduction programs.

We rely on suppliers to produce or secure material required for the manufacture of our products. A disruption in deliveries to or from suppliers or decreased availability of raw materials or commodities could have an adverse effect on our ability to meet our commitments to customers or increase our operating costs. The increase in demand in 2017 has led to challenges for certain products due to supplier constraints. Despite improvements in material flows in the second half of 2017, parts and components constraints remain across some products, which could impact our growth potential in 2018 as our global suppliers continue to increase production to meet demand. On the other hand, in circumstances where demand for our products is less than we expect, we may experience excess inventories and be forced to incur additional costs and our profitability may suffer. Our business, competitive position, results of operations or financial condition could be negatively impacted if supply is insufficient for our operations, if we experience excess inventories or if we are unable to adjust our production schedules or our purchases from suppliers to reflect changes in customer demand and market fluctuations on a timely basis.

Changes in government monetary or fiscal policies may negatively impact our results.

Most countries where our products and services are sold have established central banks to regulate monetary systems and influence economic activities, generally by adjusting interest rates. Interest rate changes affect overall economic growth, which affects demand for residential and nonresidential structures, as well as energy and mined products, which in turn affects sales of our products and services that serve these activities. Interest rate changes may also affect our customers' ability to finance machine purchases, can change the optimal time to keep machines in a fleet and can impact the ability of our suppliers to finance the production of parts and components necessary to manufacture and support our products. Increases in interest rates could negatively impact sales and create supply chain inefficiencies.

Central banks and other policy arms of many countries may take actions to vary the amount of liquidity and credit available in an economy. The impact from a change in liquidity and credit policies could negatively affect the customers and markets we serve or our suppliers, which could adversely impact our business, results of operations and financial condition.

Changes in monetary and fiscal policies, along with other factors, may cause currency exchange rates to fluctuate. Actions that lead the currency exchange rate of a country where we manufacture products to increase relative to other currencies could reduce the competitiveness of products made in that country, which could adversely affect our competitive position, results of operations and financial condition.

Government policies on taxes and spending also affect our business. Throughout the world, government spending finances a significant portion of infrastructure development, such as highways, airports, sewer and water systems and dams. Tax regulations determine asset depreciation lives and impact the after-tax returns on business activity and investment, both of which influence investment decisions. Unfavorable developments, such as declines in government revenues, decisions to reduce public spending or increases in taxes, could negatively impact our results.

Our global operations are exposed to political and economic risks, commercial instability and events beyond our control in the countries in which we operate.

Our global operations are dependent upon products manufactured, purchased and sold in the U.S. and internationally, including in countries with political and economic instability or uncertainty. This includes, for example, the uncertainty related to the United Kingdom’s withdrawal from the European Union (commonly known as “Brexit”). Some countries have greater political and economic volatility and greater vulnerability to infrastructure and labor disruptions than others. Our business could be negatively impacted by adverse fluctuations in freight costs, limitations on shipping and receiving capacity, and other disruptions in the transportation and shipping infrastructure at important geographic points of exit and entry for our products. Operating in different regions and countries exposes us to a number of risks, including:

- multiple and potentially conflicting laws, regulations and policies that are subject to change;

- imposition of currency restrictions, restrictions on repatriation of earnings or other restraints;

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- imposition of burdensome tariffs or quotas;
- changes in trade agreements;
- imposition of new or additional trade and economic sanctions laws imposed by the U.S. or foreign governments;
- war or terrorist acts; and
- political and economic instability or civil unrest that may severely disrupt economic activity in affected countries.

The occurrence of one or more of these events may negatively impact our business, results of operations and financial condition.

OPERATIONAL RISKS

The success of our business depends on our ability to develop, produce and market quality products that meet our customers' needs.

Our business relies on continued global demand for our brands and products. To achieve business goals, we must develop and sell products that appeal to our dealers, OEMs and end-user customers. This is dependent on a number of factors, including our ability to maintain key dealer relationships, our ability to produce products that meet the quality, performance and price expectations of our customers and our ability to develop effective sales, advertising and marketing programs. In addition, our continued success in selling products that appeal to our customers is dependent on leading-edge innovation, with respect to both products and operations, and on the availability and effectiveness of legal protection for our innovations. Failure to continue to deliver high quality, innovative, competitive products to the marketplace, to adequately protect our intellectual property rights, to supply products that meet applicable regulatory requirements, including engine exhaust emission requirements or to predict market demands for, or gain market acceptance of, our products, could have a negative impact on our business, results of operations and financial condition.

We operate in a highly competitive environment, which could adversely affect our sales and pricing.

We operate in a highly competitive environment. We compete on the basis of a variety of factors, including product performance, customer service, quality and price. There can be no assurance that our products will be able to compete successfully with other companies' products. Thus, our share of industry sales could be reduced due to aggressive pricing or product strategies pursued by competitors, unanticipated product or manufacturing difficulties, our failure to price our products competitively, our failure to produce our products at a competitive cost or an unexpected buildup in competitors' new machine or dealer-owned rental fleets, leading to downward pressure on machine rental rates and/or used equipment prices.

Lack of customer acceptance of price increases we announce from time to time, changes in customer requirements for price discounts, changes in our customers' behavior or a weak pricing environment could have an adverse impact on our business, results of operations and financial condition.

In addition, our results and ability to compete may be impacted negatively by changes in our geographic and product mix of sales.

Increased information technology security threats and more sophisticated computer crime pose a risk to our systems, networks, products and services.

We rely upon information technology systems and networks, some of which are managed by third parties, in connection with a variety of business activities. Additionally, we collect and store data that is sensitive to Caterpillar. Operating these information technology systems and networks and processing and maintaining this data, in a secure manner, are critical to our business operations and strategy. Information technology security threats -- from user error to cybersecurity attacks designed to gain unauthorized access to our systems, networks and data -- are increasing in frequency and sophistication. Cybersecurity attacks may range from random attempts to coordinated and targeted attacks, including sophisticated computer crime and advanced persistent threats. These threats pose a risk to the security of our systems and networks and the confidentiality, availability and integrity of our data. Cybersecurity attacks could also include attacks targeting customer data or the security, integrity and/or reliability of the hardware and software installed in our products. We have experienced cybersecurity attacks that have resulted in unauthorized parties gaining access to our information technology systems and networks, and we could in the future experience similar attacks. However, to date, no cybersecurity attack has had a material impact on our financial condition,

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results of operations or liquidity. While we actively manage information technology security risks within our control, there can be no assurance that such actions will be sufficient to mitigate all potential risks to our systems, networks and data. The potential consequences of a material cybersecurity attack include reputational damage, litigation with third parties, disruption to systems, unauthorized release of confidential or otherwise protected information, corruption of data, diminution in the value of our investment in research, development and engineering, and increased cybersecurity protection and remediation costs, which in turn could adversely affect our competitiveness, results of operations and financial condition. The amount of insurance coverage we maintain may be inadequate to cover claims or liabilities relating to a cybersecurity attack.

We expect to incur additional restructuring charges as we continue to contemplate cost reduction actions in an effort to optimize our cost structure and may not achieve the anticipated savings and benefits of these actions.

In response to economic and business conditions, we have taken significant restructuring and cost reduction actions in recent years. We expect to take additional restructuring actions as we continue to optimize our cost structure and improve the efficiency of our operation, which may reduce our profitability in the periods incurred. As a result of these actions, we will incur charges, which may include but not be limited to asset impairments, employee termination costs, charges for pension and other postretirement contractual benefits, potential additional pension funding obligations, and pension curtailments, any of which could be significant, and could adversely affect our financial condition and results of operations. In addition, we may not realize anticipated savings or benefits from past or future cost reduction actions in full or in part or within the time periods we expect. We are also subject to the risks of labor unrest, negative publicity and business disruption in connection with our cost reduction actions. Failure to realize anticipated savings or benefits from our cost reduction actions could have a material adverse effect on our business, prospects, financial condition, liquidity, results of operations and cash flows.

We may not realize all of the anticipated benefits from cash flow improvement initiatives and efficiency or productivity initiatives.

We are actively engaged in a number of initiatives to increase our productivity, efficiency and cash flow, which we expect to have a positive long-term effect on our business, competitive position, results of operations and financial condition. For example, one such initiative is to implement sustained improvements in our operational efficiency and order-to-delivery processes so that our lead time is better aligned with customer requirements, as well as to reduce waste, further enhance quality and maximize value for our customers. There can be no assurance that these initiatives or others will continue to be beneficial to the extent anticipated, or that the estimated efficiency improvements or cash flow improvements will be realized as anticipated or at all. If these initiatives are not implemented successfully, it could have an adverse effect on our operations and competitive position.

Our business is subject to the inventory management decisions and sourcing practices of our dealers and our OEM customers.

We sell finished products primarily through an independent dealer network and directly to OEMs and are subject to risks relating to their inventory management decisions and operational and sourcing practices. Both carry inventories of finished products as part of ongoing operations and adjust those inventories based on their assessments of future needs and market conditions, including levels of used equipment inventory. Such adjustments may impact our results positively or negatively. If the inventory levels of our dealers and OEM customers are higher than they desire, they may postpone product purchases from us, which could cause our sales to be lower than the end-user demand for our products and negatively impact our results. Similarly, our results could be negatively impacted through the loss of time-sensitive sales if our dealers and OEM customers do not maintain inventory levels sufficient to meet customer demand.

We may not realize all of the anticipated benefits of our acquisitions, joint ventures or divestitures, or these benefits may take longer to realize than expected.

In pursuing our business strategy, we routinely evaluate targets and enter into agreements regarding possible acquisitions, divestitures and joint ventures. We often compete with others for the same opportunities. To be successful, we conduct due diligence to identify valuation issues and potential loss contingencies, negotiate transaction terms, complete complex transactions and manage post-closing matters such as the integration of acquired businesses. Further, while we seek to mitigate risks and liabilities of such transactions through, among other things, due diligence, there may be risks and liabilities that such due diligence efforts fail to discover, that are not accurately or completely disclosed to us or that we inadequately assess. We may incur unanticipated costs or expenses following a completed acquisition, including post-closing asset impairment charges, expenses associated with eliminating duplicate facilities, litigation, and other liabilities. Risks associated with our past or future acquisitions also include the following:

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- the business culture of the acquired business may not match well with our culture;
- technological and product synergies, economies of scale and cost reductions may not occur as expected;
- unforeseen expenses, delays or conditions may be imposed upon the acquisition, including due to required regulatory approvals or consents;
- we may acquire or assume unexpected liabilities or be subject to unexpected penalties or other enforcement actions;
- faulty assumptions may be made regarding the macroeconomic environment or the integration process;
- unforeseen difficulties may arise in integrating operations, processes and systems;
- higher than expected investments may be required to implement necessary compliance processes and related systems, including IT systems, accounting systems and internal controls over financial reporting;
- we may fail to retain, motivate and integrate key management and other employees of the acquired business;
- higher than expected costs may arise due to unforeseen changes in tax, trade, environmental, labor, safety, payroll or pension policies in any jurisdiction in which the acquired business conducts its operations; and
- we may experience problems in retaining customers and integrating customer bases.

Many of these factors will be outside of our control and any one of them could result in increased costs, decreases in the amount of expected revenues and diversion of management's time and attention. They may also delay the realization of the benefits we anticipate when we enter into a transaction.

In order to conserve cash for operations, we may undertake acquisitions financed in part through public offerings or private placements of debt or equity securities, or other arrangements. Such acquisition financing could result in a decrease in our earnings and adversely affect other leverage measures. If we issue equity securities or equity-linked securities, the issued securities may have a dilutive effect on the interests of the holders of our common shares.

Failure to implement our acquisition strategy, including successfully integrating acquired businesses, could have an adverse effect on our business, financial condition and results of operations. Furthermore, we make strategic divestitures from time to time. In the case of divestitures, we may agree to indemnify acquiring parties for certain liabilities arising from our former businesses. These divestitures may also result in continued financial involvement in the divested businesses, including through guarantees or other financial arrangements, following the transaction. Lower performance by those divested businesses could affect our future financial results.

Union disputes or other labor matters could adversely affect our operations and financial results.

Some of our employees are represented by labor unions in a number of countries under various collective bargaining agreements with varying durations and expiration dates. There can be no assurance that any current or future issues with our employees will be resolved or that we will not encounter future strikes, work stoppages or other types of conflicts with labor unions or our employees. We may not be able to satisfactorily renegotiate collective bargaining agreements in the United States and other countries when they expire. If we fail to renegotiate our existing collective bargaining agreements, we could encounter strikes or work stoppages or other types of conflicts with labor unions. In addition, existing collective bargaining agreements may not prevent a strike or work stoppage at our facilities in the future. We may also be subject to general country strikes or work stoppages unrelated to our business or collective bargaining agreements. A work stoppage or other limitations on production at our facilities for any reason could have an adverse effect on our business, results of operations and financial condition. In addition, many of our customers and suppliers have unionized work forces. Strikes or work stoppages experienced by our customers or suppliers could have an adverse effect on our business, results of operations and financial condition.

Unexpected events, including natural disasters, may increase our cost of doing business or disrupt our operations.

The occurrence of one or more unexpected events, including war, terrorist acts or violence, fires, tornadoes, tsunamis, hurricanes, earthquakes, floods and other forms of severe weather in the United States or in other countries in which we operate or in which our suppliers are located could adversely affect our operations and financial performance. Natural disasters, pandemic illness, equipment failures, power outages or other unexpected events could result in physical damage to and complete or partial closure of one or more of our manufacturing facilities or distribution centers, temporary or long-term disruption in the supply of component products from some local and international suppliers, disruption in the transport of our

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products to dealers and end-users and delay in the delivery of our products to our distribution centers. Existing insurance coverage may not provide protection for all of the costs that may arise from such events.

FINANCIAL RISKS

Disruptions or volatility in global financial markets could limit our sources of liquidity, or the liquidity of our customers, dealers and suppliers.

Continuing to meet our cash requirements over the long-term requires substantial liquidity and access to varied sources of funds, including capital and credit markets. Global economic conditions may cause volatility and disruptions in the capital and credit markets. Market volatility, changes in counterparty credit risk, the impact of government intervention in financial markets and general economic conditions may also adversely impact our ability to access capital and credit markets to fund operating needs. Global or regional economic downturns could cause financial markets to decrease the availability of liquidity, credit and credit capacity for certain issuers, including certain customers, dealers and suppliers. An inability to access capital and credit markets may have an adverse effect on our business, results of operations, financial condition and competitive position. Furthermore, changes in global economic conditions, including material cost increases and decreases in economic activity in key markets we serve, and the success of plans to manage cost increases, inventory and other important elements of our business may significantly impact our ability to generate funds from operations.

In addition, demand for our products generally depends on customers' ability to pay for our products, which, in turn, depends on their access to funds. Changes in global economic conditions may result in customers experiencing increased difficulty in generating funds from operations. Capital and credit market volatility and uncertainty may cause financial institutions to revise their lending standards, resulting in customers' decreased access to capital. If capital and credit market volatility occurs, customers' liquidity may decline which, in turn, would reduce their ability to purchase our products.

Failure to maintain our credit ratings would increase our cost of borrowing and could adversely affect our cost of funds, liquidity, competitive position and access to capital markets.

Each of Caterpillar's and Cat Financial's costs of borrowing and their respective ability to access the capital markets are affected not only by market conditions but also by the short- and long-term credit ratings assigned to their respective debt by the major credit rating agencies. These ratings are based, in significant part, on each of Caterpillar's and Cat Financial's performance as measured by financial metrics such as net worth, interest coverage and leverage ratios, as well as transparency with rating agencies and timeliness of financial reporting. There can be no assurance that Caterpillar or Cat Financial will be able to maintain their credit ratings. On December 13, 2016, Moody's Investors Service (Moody's) downgraded the long- and short-term ratings of Caterpillar and Cat Financial to A3 from A2 and to Prime-2 from Prime-1. A further downgrade of Caterpillar or Cat Financial's credit ratings by Moody's or one of the other major credit rating agencies would result in increased borrowing costs and could adversely affect Caterpillar's and Cat Financial's liquidity, competitive position and access to the capital markets, including restricting, in whole or in part, access to the commercial paper market. There can be no assurance that the commercial paper market will continue to be a reliable source of short-term financing for Cat Financial or an available source of short-term financing for Caterpillar. An inability to access the capital markets could have an adverse effect on our cash flow, results of operations and financial condition.

Our Financial Products segment is subject to risks associated with the financial services industry.

Cat Financial is significant to our operations and provides financing support to a significant share of our global sales. The inability of Cat Financial to access funds to support its financing activities to our customers could have an adverse effect on our business, results of operations and financial condition.

Continuing to meet Cat Financial's cash requirements over the long-term could require substantial liquidity and access to sources of funds, including capital and credit markets. Cat Financial has continued to maintain access to key global medium term note and commercial paper markets, but there can be no assurance that such markets will continue to represent a reliable source of financing. If global economic conditions were to deteriorate, Cat Financial could face materially higher financing costs, become unable to access adequate funding to operate and grow its business and/or meet its debt service obligations as they mature, and be required to draw upon contractually committed lending agreements and/or seek other funding sources. However, there can be no assurance that such agreements and other funding sources would be available or sufficient under extreme market conditions. Any of these events could negatively impact Cat Financial’s business, as well as our and Cat Financial's results of operations and financial condition.

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Market disruption and volatility may also lead to a number of other risks in connection with these events, including but not limited to:

- Market developments that may affect customer confidence levels and cause declines in the demand for financing and adverse changes in payment patterns, causing increases in delinquencies and default rates, which could impact Cat Financial’s write-offs and provision for credit losses.
- The process Cat Financial uses to estimate losses inherent in its credit exposure requires a high degree of management’s judgment regarding numerous subjective qualitative factors, including forecasts of economic conditions and how economic predictors might impair the ability of its borrowers to repay their loans. Financial market disruption and volatility may impact the accuracy of these judgments.
- Cat Financial’s ability to engage in routine funding transactions or borrow from other financial institutions on acceptable terms or at all could be adversely affected by disruptions in the capital markets or other events, including actions by rating agencies and deteriorating investor expectations.
- As Cat Financial’s lending agreements are primarily with financial institutions, their ability to perform in accordance with any of its underlying agreements could be adversely affected by market volatility and/or disruptions in financial markets.

Changes in interest rates or market liquidity conditions could adversely affect Cat Financial's and our earnings and/or cash flow.

Changes in interest rates and market liquidity conditions could have an adverse effect on Cat Financial's and our earnings and cash flows. Because a significant number of the loans made by Cat Financial are made at fixed interest rates, its business is subject to fluctuations in interest rates. Changes in market interest rates may influence its financing costs, returns on financial investments and the valuation of derivative contracts and could reduce its and our earnings and cash flows. Although Cat Financial manages interest rate and market liquidity risks through a variety of techniques, including a match funding program, the selective use of derivatives and a broadly diversified funding program, there can be no assurance that fluctuations in interest rates and market liquidity conditions will not have an adverse effect on its and our earnings and cash flows. If any of the variety of instruments and strategies Cat Financial uses to hedge its exposure to these types of risk is ineffective, we may incur losses. With respect to Insurance Services' investment activities, changes in the equity and bond markets could cause an impairment of the value of its investment portfolio, requiring a negative adjustment to earnings.

An increase in delinquencies, repossessions or net losses of Cat Financial customers could adversely affect its results.

Inherent in the operation of Cat Financial is the credit risk associated with its customers. The creditworthiness of each customer and the rate of delinquencies, repossessions and net losses on customer obligations are directly impacted by several factors, including relevant industry and economic conditions, the availability of capital, the experience and expertise of the customer's management team, commodity prices, political events and the sustained value of the underlying collateral. Any increase in delinquencies, repossessions and net losses on customer obligations could have a material adverse effect on Cat Financial's and our earnings and cash flows. In addition, although Cat Financial evaluates and adjusts its allowance for credit losses related to past due and non-performing receivables on a regular basis, adverse economic conditions or other factors that might cause deterioration of the financial health of its customers could change the timing and level of payments received and necessitate an increase in Cat Financial's estimated losses, which could also have a material adverse effect on Cat Financial's and our earnings and cash flows.

Currency exchange rate fluctuations affect our results of operations.

We conduct operations in many countries involving transactions denominated in a variety of currencies. We are subject to currency exchange rate risk to the extent that our costs are denominated in currencies other than those in which we earn revenues. Fluctuations in currency exchange rates have had, and will continue to have, an impact on our results as expressed in U.S. dollars. There can be no assurance that currency exchange rate fluctuations will not adversely affect our results of operations, financial condition and cash flows. While the use of currency hedging instruments may provide us with protection from adverse fluctuations in currency exchange rates, by utilizing these instruments we potentially forego the benefits that might result from favorable fluctuations in currency exchange rates. In addition, our outlooks do not assume fluctuations in currency exchange rates. Adverse fluctuations in currency exchange rates from the date of our outlooks could cause our actual results to differ materially from those anticipated in our outlooks and adversely impact our business, results of operations and financial condition.

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We also face risks arising from the imposition of exchange controls and currency devaluations. Exchange controls may limit our ability to convert foreign currencies into U.S. dollars or to remit dividends and other payments by our foreign subsidiaries or businesses located in or conducted within a country imposing controls. Currency devaluations result in a diminished value of funds denominated in the currency of the country instituting the devaluation.

Restrictive covenants in our debt agreements could limit our financial and operating flexibility.

We maintain a number of credit facilities to support general corporate purposes (facilities) and have issued debt securities to manage liquidity and fund operations (debt securities). The agreements relating to a number of the facilities and the debt securities contain certain restrictive covenants applicable to us and certain subsidiaries, including Cat Financial. These covenants include maintaining a minimum consolidated net worth (defined as the consolidated shareholder's equity including preferred stock but excluding the pension and other post-retirement benefits balance within accumulated other comprehensive income (loss)), limitations on the incurrence of liens and certain restrictions on consolidation and merger. Cat Financial has also agreed under certain of these agreements not to exceed a certain leverage ratio (consolidated debt to consolidated net worth, calculated (1) on a monthly basis as the average of the leverage ratios determined on the last day of each of the six preceding calendar months and (2) at each December 31), to maintain a minimum interest coverage ratio (profit excluding income taxes, interest expense and net gain/(loss) from interest rate derivatives to interest expense, calculated at the end of each calendar quarter for the rolling four quarter period then most recently ended) and not to terminate, amend or modify its support agreement with us.

A breach of one or more of the covenants could result in adverse consequences that could negatively impact our business, results of operations and financial condition. These consequences may include the acceleration of amounts outstanding under certain of the facilities, triggering of an obligation to redeem certain debt securities, termination of existing unused commitments by our lenders, refusal by our lenders to extend further credit under one or more of the facilities or to enter into new facilities or the lowering or modification of our credit ratings or those of one or more of our subsidiaries.

Sustained increases in funding obligations under our pension plans may impair our liquidity or financial condition.

We maintain certain defined benefit pension plans for our employees, which impose on us certain funding obligations. In determining our future payment obligations under the plans, we assume certain rates of return on the plan assets and a certain level of future benefit payments. Significant adverse changes in credit or capital markets could result in actual rates of return being materially lower than projected and increased contribution requirements. We are expecting to make contributions to our pension plans in the future, and may be required to make contributions that could be material. We may fund contributions through the use of cash on hand, the proceeds of borrowings, shares of our common stock or a combination of the foregoing, as permitted by applicable law. Our assumptions for future benefit payments may also be materially higher than projected. These factors could significantly increase our payment obligations under the plans, and as a result, adversely affect our business and overall financial condition.

LEGAL & REGULATORY RISKS

Our global operations are subject to extensive trade and anti-corruption laws and regulations.

Due to the international scope of our operations, we are subject to a complex system of import- and export-related laws and regulations, including U.S. regulations issued by Customs and Border Protection, the Bureau of Industry and Security, the Office of Antiboycott Compliance, the Directorate of Defense Trade Controls and the Office of Foreign Assets Control, as well as the counterparts of these agencies in other countries. Any alleged or actual violations may subject us to government scrutiny, investigation and civil and criminal penalties, and may limit our ability to import or export our products or to provide services outside the United States. Furthermore, embargoes and sanctions imposed by the U.S. and other governments restricting or prohibiting sales to specific persons or countries or based on product classification may expose us to potential criminal and civil sanctions. We cannot predict the nature, scope or effect of future regulatory requirements to which our operations might be subject or the manner in which existing laws might be administered or interpreted.

In addition, the U.S. Foreign Corrupt Practices Act and similar foreign anti-corruption laws generally prohibit companies and their intermediaries from making improper payments or providing anything of value to improperly influence foreign government officials for the purpose of obtaining or retaining business, or obtaining an unfair advantage. Recent years have seen a substantial increase in the global enforcement of anti-corruption laws. Our operations outside the United States, including in developing countries, could increase the risk of such violations. Violations of anti-corruption laws or regulations by our employees, by intermediaries acting on our behalf, or by our joint venture partners may result in severe criminal or civil sanctions, could disrupt our business, and result in an adverse effect on our reputation, business and results of operations or financial condition.

International trade policies may impact demand for our products and our competitive position.

Government policies on international trade and investment such as import quotas, capital controls or tariffs, whether adopted by individual governments or addressed by regional trade blocs, can affect the demand for our products and services, impact the competitive position of our products or prevent us from being able to sell products in certain countries. The implementation of more restrictive trade policies, such as more detailed inspections, higher tariffs or new barriers to entry, in countries where we sell large quantities of products and services could negatively impact our business, results of operations and financial condition. For example, a government's adoption of "buy national" policies or retaliation by another government against such policies could have a negative impact on our results of operations.

We may incur additional tax expense or become subject to additional tax exposure.

We are subject to income taxes in the United States and numerous other jurisdictions. Our future results of operations could be adversely affected by changes in the effective tax rate as a result of a change in the mix of earnings in jurisdictions with differing statutory tax rates, changes in our overall profitability, changes in tax laws or treaties or in their application or interpretation, changes in tax rates, changes in generally accepted accounting principles, changes in the valuation of deferred tax assets and liabilities, changes in the amount of earnings indefinitely reinvested in certain non-U.S. jurisdictions, the results of audits and examinations of previously filed tax returns and continuing assessments of our tax exposures. We are also subject to the continuous examination of our income tax returns by the U.S. Internal Revenue Service and other tax authorities. We regularly assess the likelihood of an adverse outcome resulting from these examinations. If our effective tax rates were to increase, or if the ultimate determination of our taxes owed is for an amount in excess of amounts previously accrued, our operating results, cash flows and financial condition could be adversely affected. For information regarding additional legal matters related to our taxes, please see Note 5 — "Income taxes" and Note 22 — "Environmental and legal matters" of Part II, Item 8 "Financial Statements and Supplementary Data" to this Annual Report on Form 10-K.

Costs associated with lawsuits or investigations or adverse rulings in enforcement or other legal proceedings may have an adverse effect on our results of operations.

We are subject to a variety of legal proceedings and legal compliance risks in virtually every part of the world. We face risk of exposure to various types of claims, lawsuits and government investigations. We are involved in various claims and lawsuits related to product design, manufacture and performance liability (including claimed asbestos and welding fumes exposure), contracts, employment issues, environmental matters, intellectual property rights, tax, securities and other legal proceedings that arise in and outside of the ordinary course of our business. The industries in which we operate are also periodically reviewed or investigated by regulators, which could lead to enforcement actions, fines and penalties or the assertion of private litigation claims. It is not possible to predict with certainty the outcome of claims, investigations and lawsuits, and we could in the future incur judgments, fines or penalties or enter into settlements of lawsuits and claims that could have an adverse effect on our business, results of operations and financial condition in any particular period.

The global and diverse nature of our operations means that legal and compliance risks will continue to exist and additional legal proceedings and other contingencies, the outcome of which cannot be predicted with certainty, may arise from time to time. In addition, subsequent developments in legal proceedings may affect our assessment and estimates of loss contingencies recorded as a reserve and require us to make payments in excess of our reserves, which could have an adverse effect on our results of operations and financial condition.

New regulations or changes in financial services regulation could adversely impact Caterpillar and Cat Financial.

Cat Financial’s operations are highly regulated by governmental authorities in the locations where it operates, which can impose significant additional costs and/or restrictions on its business. In the U.S., for example, certain Cat Financial activities are subject to the U.S. Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank), which includes extensive provisions regulating the financial services industry. As such, Cat Financial has become and could continue to become subject to additional regulatory costs that could be significant and have an adverse effect on Cat Financial's and our results of operations and financial condition. Additional regulations in the U.S. or internationally impacting the financial services industry could also add significant cost or operational constraints that might have an adverse effect on Cat Financial's and our results of operations and financial condition.

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We are subject to stringent environmental laws and regulations that impose significant compliance costs.

Our facilities, operations and products are subject to increasingly stringent environmental laws and regulations globally, including laws and regulations governing emissions to noise, air, releases to soil and discharges to water and the generation, handling, storage, transportation, treatment and disposal of non-hazardous and hazardous waste materials. Some environmental laws impose strict, retroactive and joint and several liability for the remediation of the release of hazardous substances, even for conduct that was lawful at the time it occurred, or for the conduct of, or conditions caused by, prior operators, predecessors or other third parties. Failure to comply with environmental laws could expose us to penalties or clean-up costs, civil or criminal liability and sanctions on certain of our activities, as well as damage to property or natural resources. The potential liabilities, sanctions, damages and remediation efforts related to any non-compliance with such laws and regulations could negatively impact our ability to conduct our operations and our financial condition and results of operations. In addition, there can be no assurances that we will not be adversely affected by costs, liabilities or claims with respect to existing or subsequently acquired operations or under present laws and regulations or those that may be adopted or imposed in the future.

Environmental laws and regulations may change from time to time, as may related interpretations and other guidance. Changes in environmental laws or regulations could result in higher expenses and payments, and uncertainty relating to environmental laws or regulations may also affect how we conduct our operations and structure our investments and could limit our ability to enforce our rights. Changes in environmental and climate change laws or regulations, including laws relating to greenhouse gas emissions, could lead to new or additional investment in product designs and could increase environmental compliance expenditures. Changes in climate change concerns, or in the regulation of such concerns, including greenhouse gas emissions, could subject us to additional costs and restrictions, including increased energy and raw materials costs. If environmental laws or regulations are either changed or adopted and impose significant operational restrictions and compliance requirements upon us or our products, they could negatively impact our business, capital expenditures, results of operations, financial condition and competitive position.

Item 1B. Unresolved Staff Comments.

None.

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Item 1C. Executive Officers of the Registrant.

Name and age	Present Caterpillar Inc. position and date of initial election	Principal positions held during the past five years if other than Caterpillar Inc. position currently held
D. James Umpleby III (59)	Chief Executive Officer (2017)	Group President (2013-2016)
Bradley M. Halverson (57)	Group President and Chief Financial Officer (2013)	
Robert B. Charter (54)	Group President (2015)	Vice President (2009-2015)
Bob De Lange (48)	Group President (2017)	Vice President (2015-2016), Worldwide Product Manager, Medium Wheel Loaders, (2013-2014), Regional Product Manager, Medium Wheel Loaders (2010-2013)
Denise C. Johnson (51)	Group President (2016)	Vice President (2012-2016)
Thomas A. Pellette (55)	Group President (2015)	Vice President (2013-2015), Vice President, Customer Services, Solar (2010-2013)
Suzette M. Long (52)	General Counsel and Corporate Secretary (2017)	Interim Executive Vice President, Law and Public Policy (2017), Deputy General Counsel (2013-2017), Associate General Counsel (2011-2013)
Cheryl C. Johnson (57)	Chief Human Resources Officer (2017)	Executive Vice President of Human Resources for a global multi-industry aerospace, defense and industrial manufacturing company (2012-2017)
Jananne A. Copeland (55)	Chief Accounting Officer (2007)	

Item 2. Properties.

General Information
Caterpillar's operations are highly integrated. Although the majority of our plants are involved primarily in production relating to our Construction Industries, Resource Industries or Energy & Transportation segments, several plants are involved in manufacturing relating to more than one business segment. In addition, several plants reported in our financial statements under the All Other segments are involved in the manufacturing of components that are used in the assembly of products for more than one business segment. Caterpillar's parts distribution centers are involved in the storage and distribution of parts for Construction Industries, Resource Industries and Energy & Transportation. The research and development activities carried on at our Technical Center in Mossville, Illinois involve products for Construction Industries, Resource Industries and Energy & Transportation.

We believe the properties we own to be generally well maintained and adequate for present use. Through planned capital expenditures, we expect these properties to remain adequate for future needs. Properties we lease are covered by leases expiring over terms of generally one to ten years. We do not anticipate any difficulty in retaining occupancy of any leased facilities, either by renewing leases prior to expiration or by replacing them with equivalent leased facilities.

Headquarters and Other Key Offices

Our corporate headquarters are in leased offices located in Deerfield, Illinois. Additional marketing and operating headquarters are located both inside and outside the United States including Peoria, Illinois, Albertville, Alabama, San Diego, California; Geneva, Switzerland; Beijing, China; Singapore, Republic of Singapore; Piracicaba, Brazil, and Yokohama, Japan. Our Financial Products business is headquartered in offices in Nashville, Tennessee.

Technical Center, Training Centers, Demonstration Areas and Proving Grounds

We operate a Technical Center located in Mossville, Illinois, and various other technical and training centers and demonstration areas and proving grounds located both inside and outside the United States.

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Parts Distribution Centers

Distribution of our parts is conducted from parts distribution centers inside and outside the United States. We operate parts distribution centers in the following locations: Morton, Illinois; Mossville, Illinois; Arvin, California; Denver, Colorado; Miami, Florida; Atlanta, Georgia; St. Paul, Minnesota; Clayton, Ohio; Houston, Pennsylvania; York, Pennsylvania; Waco, Texas; Duffield, Virginia; Spokane, Washington; Melbourne, Australia; Queensland, Australia; Grimbergen, Belgium; Piracicaba, Brazil; Shanghai, China; San Luis Potosi, Mexico; Singapore, Republic of Singapore; Moscow, Russia; Johannesburg, South Africa, and Dubai, United Arab Emirates. We also own or lease other facilities that support our distribution activities.

Remanufacturing and Components

Remanufacturing of our products is reported in our Energy & Transportation segment and is conducted primarily at the facilities in the following locations: Franklin, Indiana; Corinth, Mississippi, Prentiss County, Mississippi; West Fargo, North Dakota; Piracicaba, Brazil; Shanghai, China; and Nuevo Laredo, Mexico.

Component manufacturing is reported in the All Other segments and is conducted primarily at facilities in the following locations: Aurora, Illinois; East Peoria, Illinois; Mapleton, Illinois; Peoria, Illinois; Menominee, Michigan; Boonville, Missouri; West Plains, Missouri; Goldsboro, North Carolina; Sumter, South Carolina; Tianjin, China; Xuzhou, China; Atessa, Italy; Bazzano, Italy; Frosinone, Italy; San Eusebio, Italy; Ramos Arizpe, Mexico; Pyeongtaek, South Korea; Shrewsbury, United Kingdom and Skinningrove, United Kingdom.

We also lease or own other facilities that support our remanufacturing and component manufacturing activities.

Manufacturing

Manufacturing of products for our Construction Industries, Resource Industries and Energy & Transportation segments is conducted primarily at the locations listed below. These facilities are believed to be suitable for their intended purposes, with adequate capacities for current and projected needs for existing products.

Our principal manufacturing facilities include those used by the following segments in the following locations:

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Segment	U.S. Facilities	Facilities Outside the U.S.
Construction Industries	Arkansas: North Little Rock Georgia: Athens, LaGrange Illinois: Aurora, Decatur, East Peoria Kansas: Wamego Minnesota: Brooklyn Park North Carolina: Clayton, Sanford Texas: Victoria, Waco	Brazil: Campo Largo, Piracicaba China: Suzhou, Wujiang, Xuzhou, Qingzhou France: Grenoble, Echirolles Hungary: Godollo India: Thiruvallar Indonesia: Jakarta Italy: Minerbio Japan: Akashi Mexico: Torreon Netherlands: Den Bosch Poland: Janow, Sosnowiec Thailand: Rayong United Kingdom: Desford, Stockton
Resource Industries	Illinois: Aurora, Decatur, East Peoria, Joliet South Carolina: Sumter Tennessee: Dyersburg Texas: Denison Wisconsin: South Milwaukee	China: Langfang, Wuxi France: Arras Germany: Dortmund, Lunen India: Hosur, Thiruvallur Indonesia: Batam Italy: Jesi Japan: Sagamihara Mexico: Acuna, Monterrey, Reynosa Northern Ireland: Belfast Russia: Tosno Thailand: Rayong United Kingdom: Peterlee
Energy & Transportation	Alabama: Albertville, Montgomery California: San Diego Colorado: Denver Georgia: Griffin, Alpharetta Illinois: Island Lake, LaGrange, Mossville, Mapleton, Pontiac Indiana: Lafayette, Muncie Oklahoma: Broken Arrow, Sulphur North Carolina: Winston-Salem Kentucky: Decoursey, Mayfield Texas: Channelview, DeSoto, Mabank, San Antonio, Schertz, Seguin, Sherman	Australia: Revesby, Redbank Brazil: Curitiba, Hortolandia, Piracicaba, Sete Lagoas China: Tianjin, Wuxi Czech Republic: Zatec, Zebrak Germany: Kiel, Mannheim, Rostock India: Hosur, Aurangabad Mexico: San Luis Potosi, Tijuana Republic of Singapore: Singapore Sweden: Ockero Islands Switzerland: Riazzino United Kingdom: Larne, Monkstown, Peterborough, Sandiacre, South Queensferry, Springvale, Stafford,

Wimborne

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Item 3. Legal Proceedings.

Certain legal proceedings in which we are involved are discussed in Note 22 — "Environmental and legal matters" of Part II, Item 8 "Financial Statements and Supplementary Data" and should be considered an integral part of Part I, Item 3 "Legal Proceedings."

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.

Common Stock (NYSE: CAT)

Listing Information: Caterpillar common stock is listed on the New York Stock Exchange in the United States, and on stock exchanges in France and Switzerland.

Price Ranges: Quarterly price ranges of Caterpillar common stock on the New York Stock Exchange, the principal market in which the stock is traded, were:

	2017		2016	
Quarter	High	Low	High	Low
First	$99.46	$90.34	$77.25	$56.36
Second	$108.18	$91.00	$80.89	$69.04
Third	$125.55	$105.11	$88.98	$73.46
Fourth	$158.64	$123.95	$97.40	$80.33

Number of Shareholders: Shareholders of record at the end of 2017 totaled 27,992, compared with 29,394 at the end of 2016.

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Performance Graph: Total Cumulative Shareholder Return for Five-Year Period Ending December 31, 2017

The graph below shows the cumulative shareholder return assuming an investment of $100 on December 31, 2012, and reinvestment of dividends issued thereafter.

	2012	2013	2014	2015	2016	2017
Caterpillar Inc.	$100.00	$103.42	$107.02	$82.43	$117.14	$205.04
S&P 500	$100.00	$132.39	$150.51	$152.59	$170.84	$208.14
S&P 500 Machinery	$100.00	$127.12	$132.74	$113.12	$151.51	$215.59

Additional information required by Item 5 regarding our stock is included in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" under "Dividends paid per common share."

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Non-U.S. Employee Stock Purchase Plans

As of December 31, 2017, we had 27 employee stock purchase plans (the "EIP Plans") administered outside the United States for our non-U.S. employees, which had approximately 12,000 active participants in the aggregate. During the fourth quarter of 2017, approximately 92,000 shares of Caterpillar common stock were purchased by the EIP Plans pursuant to the terms of such plans.

Issuer Purchases of Equity Securities

No shares were repurchased during the fourth quarter of 2017.

Other Purchases of Equity Securities

Period	Total number of Shares Purchased [1]	Average Price Paid per Share	Total Number of Shares Purchased Under the Program	Approximate Dollar Value of Shares that may yet be Purchased under the Program
October 1-31, 2017	127	$ 133.18	N/A	N/A
November 1-30, 2017	1,819	$ 136.43	N/A	N/A
December 1-31, 2017	95	$ 140.39	N/A	N/A
Total	2,041	$ 136.41		

(1) Represents shares delivered back to issuer for the payment of taxes resulting from the vesting of restricted stock units for employees and Directors.

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Item 6. Selected Financial Data.
Five-year Financial Summary
(Dollars in millions except per share data)

	2017	2016	2015	2014	2013
Years ended December 31,					
Sales and revenues	$45,462	$38,537	$47,011	$55,184	$55,656
Percent inside the United States	41 %	41 %	41 %	38 %	33 %
Percent outside the United States	59 %	59 %	59 %	62 %	67 %
Sales	$42,676	$35,773	$44,147	$52,142	$52,694
Revenues	$2,786	$2,764	$2,864	$3,042	$2,962
Profit (loss) [1]	$754	$(67)	$2,512	$2,452	$6,556
Profit (loss) per common share [2]	$1.27	$(0.11)	$4.23	$3.97	$10.16
Profit (loss) per common share–diluted [3]	$1.26	$(0.11)	$4.18	$3.90	$9.95
Dividends declared per share of common stock	$3.11	$3.08	$3.01	$2.70	$2.32
Return on average common shareholders' equity [4]	5.6 %	(0.5)%	15.8 %	13.0 %	34.1 %
Capital expenditures:					
Property, plant and equipment	$898	$1,109	$1,388	$1,539	$2,522
Equipment leased to others	$1,438	$1,819	$1,873	$1,840	$1,924
Depreciation and amortization	$2,877	$3,034	$3,046	$3,163	$3,087
Research and development expenses	$1,905	$1,951	$2,119	$2,380	$1,552
As a percent of sales and revenues	4.2 %	5.1 %	4.5 %	4.3 %	2.8 %
Average number of employees	96,000	99,500	110,800	115,600	122,500
December 31,					
Total assets	$76,962	$74,704	$78,342	$84,498	$84,755
Long-term debt due after one year:					
Consolidated	$23,847	$22,818	$25,169	$27,696	$26,643
Machinery, Energy & Transportation	$7,929	$8,436	$8,960	$9,445	$7,961
Financial Products	$15,918	$14,382	$16,209	$18,251	$18,682
Total debt:					
Consolidated	$34,878	$36,783	$38,013	$39,195	$37,672
Machinery, Energy & Transportation	$7,936	$9,152	$9,486	$9,964	$8,737
Financial Products	$26,942	$27,631	$28,527	$29,231	$28,935

[1] Profit (loss) attributable to common shareholders.
[2] Computed on weighted-average number of shares outstanding.
[3] Computed on weighted-average number of shares outstanding diluted by assumed exercise of stock-based compensation awards, using the treasury stock method. In 2016, the assumed exercise of stock-based compensation awards was not considered because the impact would be antidilutive.
[4] Represents profit (loss) divided by average shareholders' equity (beginning of year shareholders' equity plus end of year shareholders' equity divided by two).

Additional information required by Item 6 is included in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations."

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Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This Management's Discussion and Analysis of Financial Condition and Results of Operations should be read in conjunction with our discussion of cautionary statements and significant risks to the company's business under Item 1A. Risk Factors of the 2017 Form 10-K.

OVERVIEW

Our sales and revenues for 2017 were $45.462 billion, an 18 percent increase from 2016 sales and revenues of $38.537 billion. The increase was primarily due to higher sales volume, mostly due to improved end-user demand. In addition, favorable changes in dealer inventories contributed to increased sales volume. The improvement in end-user demand was across all regions and most end markets. The favorable change in dealer inventories was primarily due to a decrease in 2016, compared to dealer inventories that were about flat in 2017. Favorable price realization, mostly in Construction Industries, also contributed to the sales improvement. Profit per share for 2017 was $1.26, compared to a loss per share of $0.11 in 2016. Profit was $754 million in 2017, compared to a loss of $67 million in 2016. The increase was primarily due to higher sales volume, improved price realization, a decrease in mark-to-market losses related to pension and other postemployment benefits (OPEB) plans and the absence of a goodwill impairment charge in Resource Industries in 2016 offset by higher taxes primarily due to enactment of U.S. tax reform legislation on December 22, 2017. An increase in period costs and restructuring costs was partially offset by lower variable manufacturing costs.

Fourth-quarter 2017 sales and revenues were $12.896 billion, up $3.322 billion, or 35 percent, from $9.574 billion in the fourth quarter of 2016. Fourth-quarter 2017 loss was $2.18 per share, compared with a loss of $2.00 per share in the fourth quarter of 2016. Fourth-quarter 2017 loss was $1.299 billion, compared with a loss of $1.171 billion in 2016.

Highlights for 2017 include:

- Sales and revenues in 2017 were $45.462 billion, up 18 percent from 2016. Sales improved in all regions and most end markets.
- Profit was $1.26 per share for 2017, and excluding the items in the table below, adjusted profit per share was $6.88.
- For 2016, loss per share was $0.11, and excluding the items in the table below, adjusted profit per share was $3.42.
- In order for our results to be more meaningful to our readers, we have separately quantified the impact of several significant items:
- Inventory decreased about $200 million in the fourth-quarter 2017. For the full year, inventory increased about $1.4 billion.
- Machinery, Energy & Transportation (ME&T) operating cash flow for 2017 was about $5.5 billion, more than sufficient to cover capital expenditures and dividends.

Restructuring Costs

In recent years, we have incurred substantial restructuring costs to achieve a flexible and competitive cost structure. During 2017, we incurred $1.256 billion of restructuring costs with about half related to the closure of the facility in Gosselies, Belgium, and the remainder related to other restructuring actions across the company. During 2016, we incurred $1.019 billion of restructuring costs, primarily related to Resource Industries and Energy & Transportation. In 2018, we expect restructuring actions to continue and anticipate costs of about $400 million.

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Notes:
- Glossary of terms included on pages 49-52; first occurrence of terms shown in bold italics.
- Information on non-GAAP financial measures is included on pages 65-66.

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2017 COMPARED WITH 2016

CONSOLIDATED SALES AND REVENUES

The chart above graphically illustrates reasons for the change in Consolidated Sales and Revenues between 2016 (at left) and 2017 (at right). Items favorably impacting sales and revenues appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting sales and revenues appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues were $45.462 billion in 2017, an increase of $6.925 billion, or 18 percent, compared with $38.537 billion in 2016. The increase was primarily due to higher sales volume, mostly due to improved end-user demand, which we expect to continue in 2018. In addition, favorable changes in dealer inventories contributed to increased sales volume. The improvement in end-user demand was across all regions and most end markets. The favorable change in dealer inventories was primarily due to a decrease in 2016, compared to dealer inventories that were about flat in 2017. Dealer machine and engine inventories increased about $100 million in 2017, compared to a decrease of about $1.6 billion during 2016. Dealers are independent, and there could be many reasons for changes in their inventory levels, including their expectations of future demand and product delivery times. Dealers' demand expectations take into account seasonal changes, macroeconomic conditions, machine rental rates and other factors. Delivery times can vary based on availability of product from Caterpillar factories and product distribution centers.
By segment, the largest sales volume increase was in Construction Industries mostly due to higher end-user demand for construction equipment. Resource Industries sales volume increased due to higher end-user demand for aftermarket parts and equipment and a favorable impact of changes in dealer inventories. Energy & Transportation's sales volume was higher mostly due to increased demand for equipment and aftermarket parts for oil and gas and industrial applications. Favorable price realization, mostly in Construction Industries, also contributed to the sales improvement. Financial Products' revenues were about flat.
Sales increased in all regions. In North America, sales increased 19 percent primarily due to higher end-user demand mostly for on-shore oil and gas applications and construction equipment, the favorable impact of changes in dealer inventories and favorable price realization, primarily in Construction Industries. Asia/Pacific sales increased 23 percent primarily due to an increase in construction equipment sales, mostly in China resulting from increased building construction and infrastructure investment. EAME sales increased 16 percent primarily due to higher end-user demand for equipment and aftermarket parts in Resource Industries and favorable changes in dealer inventories, as dealers decreased inventories in 2016 and inventories were about flat in 2017. In addition, price realization was favorable, primarily in Construction Industries. Sales increased 25 percent in Latin America primarily due to stabilizing economic conditions in several countries in the region that resulted in improved end-user demand from low levels and the favorable impact of changes in dealer inventories as inventories decreased in 2016 and increased in 2017.

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The increase in demand in 2017 led to challenges for certain products due to supplier constraints. Despite improvements in material flows in the second half of 2017, parts and components constraints remain across some products, which could impact the company’s growth potential in 2018 as our global suppliers continue to increase production to meet demand.

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CONSOLIDATED OPERATING PROFIT

The chart above graphically illustrates reasons for the change in Consolidated Operating Profit between 2016 (at left) and 2017 (at right). Items favorably impacting operating profit appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting operating profit appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees. The bar entitled Other includes consolidating adjustments and Machinery, Energy & Transportation other operating (income) expenses.

Operating profit for 2017 was $4.406 billion, compared with $498 million in 2016. The increase of $3.908 billion was primarily due to higher sales volume, improved price realization, a decrease in mark-to-market losses related to pension and OPEB plans and the absence of a goodwill impairment charge in Resource Industries in 2016. An increase in period costs and restructuring costs was partially offset by lower variable manufacturing costs.

Period costs increased primarily due to higher short-term incentive compensation expense, partially offset by the favorable impact of restructuring and cost reduction actions over the past year. These actions primarily impacted depreciation expense and research and development (R&D) expenses.

Short-term incentive compensation expense is directly related to financial and operational performance, measured against targets set annually. Short-term incentive compensation expense was about $1.4 billion in 2017, significantly above targeted levels, compared to about $250 million in 2016. For 2018, we expect short-term incentive compensation expense will be significantly lower than 2017.

In 2017, we incurred $1.256 billion of restructuring costs with about half related to the closure of the facility in Gosselies, Belgium, and the remainder related to other restructuring actions across the company. In 2016, restructuring costs were $1.019 billion, primarily related to Resource Industries and Energy & Transportation.

Variable manufacturing costs were lower primarily due to the favorable impact from cost absorption and efficiencies. Cost absorption was favorable as inventory increased in 2017, and decreased in 2016. Material costs were slightly unfavorable in 2017, as higher steel costs were partially offset by cost reduction actions. We expect material costs to be higher in 2018, primarily due to anticipated increases in commodity prices.

Other Profit/Loss Items

- Other income/expense in 2017 was income of $207 million, compared with income of $146 million in 2016. The improvement was primarily due to a pretax gain on the sale of Caterpillar's equity investment in IronPlanet, gains on sale of securities and an increase in interest income. The favorable change was partially offset by an unfavorable net impact from currency translation and hedging gains and losses. Currency translation and hedging net losses in 2017 were significantly higher than the net losses in 2016.
- The provision for income taxes for 2017 reflects an annual effective tax rate of 27.7 percent, compared to 36.4 percent for the full-year 2016, excluding the items discussed below. The effective tax rate related to 2017 full-year

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adjusted profit before tax, excluding a discrete benefit from stock-based compensation awards, was 27 percent, compared to 26 percent in 2016.

The provision for income taxes for 2017 also includes a charge of $2.371 billion due to the enactment of U.S. tax reform legislation on December 22, 2017. The provisionally estimated charge includes a $596 million write-down of net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent beginning January 1, 2018, with the remainder primarily related to the cost of a mandatory deemed repatriation of non-U.S. earnings. We believe this charge is a reasonable estimate, as of January 18, 2018, that may change as additional required information is prepared and analyzed, interpretations and assumptions are refined, additional guidance is issued, and due to actions we may take as a result of the legislation. The 2017 provision for income taxes also includes the following:

- A non-cash benefit of $111 million, net of U.S. federal tax at 35 percent, from reductions in the valuation allowance against U.S. state deferred tax assets due to improved profits in the United States.
- A tax benefit of $64 million for the settlement of stock-based compensation awards with associated tax deductions in excess of cumulative U.S. GAAP compensation expense.
- A charge of $15 million for an increase in prior year taxes related to the Gosselies, Belgium, facility, restructuring costs.

The provision for income taxes for 2016 also included a non-cash charge of $141 million, net of U.S. federal tax at 35 percent, for increases in the valuation allowance against U.S. state deferred tax assets.

We expect the annual effective tax rate will be lower in 2018 as a result of U.S. tax reform.

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Segment Information

Sales and Revenues by Geographic Region

(Millions of dollars)	Total	% Change	North America	% Change	Latin America	% Change	EAME	% Change	Asia/ Pacific	% Change
2017										
Construction Industries [1]	$19,133	23 %	$8,742	16 %	$1,396	32 %	$3,760	15 %	$5,235	39 %
Resource Industries [2]	7,504	31 %	2,582	25 %	1,281	28 %	1,775	51 %	1,866	26 %
Energy & Transportation [3]	15,964	11 %	7,959	19 %	1,261	14 %	4,431	5 %	2,313	(5)%
All Other Segments [4]	178	28 %	70	52 %	3	— %	54	93 %	51	(18)%
Corporate Items and Eliminations	(103)		(97)		(1)		(6)		1	
Machinery, Energy & Transportation Sales	42,676	19 %	19,256	19 %	3,940	25 %	10,014	16 %	9,466	23 %
Financial Products Segment	3,093	3 %	2,006	8 %	306	(9)%	418	4 %	363	(8)%
Corporate Items and Eliminations	(307)		(190)		(46)		(19)		(52)	
Financial Products Revenues	2,786	1 %	1,816	5 %	260	(11)%	399	4 %	311	(12)%
Consolidated Sales and Revenues	$45,462	18 %	$21,072	17 %	$4,200	22 %	$10,413	15 %	$9,777	21 %
2016										
Construction Industries [1]	$15,612		$7,529		$1,059		$3,270		$3,754	
Resource Industries [2]	5,726		2,068		1,001		1,179		1,478	
Energy & Transportation [3]	14,411		6,680		1,104		4,201		2,426	
All Other Segments [4]	139		46		3		28		62	
Corporate Items and Eliminations	(115)		(98)		(3)		(9)		(5)	
Machinery, Energy & Transportation Sales	35,773		16,225		3,164		8,669		7,715	
Financial Products Segment	2,993		1,862		336		401		394	
Corporate Items and Eliminations	(229)		(125)		(45)		(17)		(42)	
Financial Products Revenues	2,764		1,737		291		384		352	
Consolidated Sales and Revenues	$38,537		$17,962		$3,455		$9,053		$8,067	

[1] Does not include inter-segment sales of $107 million and $78 million in 2017 and 2016, respectively.
[2] Does not include inter-segment sales of $357 million and $284 million in 2017 and 2016, respectively.
[3] Does not include inter-segment sales of $3,418 million and $2,540 million in 2017 and 2016, respectively.
[4] Does not include inter-segment sales of $392 million and $405 million in 2017 and 2016, respectively.

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Sales and Revenues by Segment

(Millions of dollars)	2016	Sales Volume	Price Realization	Currency	Other	2017	$ Change	% Change
Construction Industries	$15,612	$2,810	$ 751	$ (40)	$—	$19,133	$3,521	23 %
Resource Industries	5,726	1,638	118	22	—	7,504	1,778	31 %
Energy & Transportation	14,411	1,556	(42)	39	—	15,964	1,553	11 %
All Other Segments	139	39	—	—	—	178	39	28 %
Corporate Items and Eliminations	(115)	12	—	—	—	(103)	12	
Machinery, Energy & Transportation Sales	35,773	6,055	827	21	—	42,676	6,903	19 %
Financial Products Segment	2,993	—	—	—	100	3,093	100	3 %
Corporate Items and Eliminations	(229)	—	—	—	(78)	(307)	(78)	
Financial Products Revenues	2,764	—	—	—	22	2,786	22	1 %
Consolidated Sales and Revenues	$38,537	$6,055	$ 827	$ 21	$22	$45,462	$6,925	18 %

Profit (Loss) by Segment

(Millions of dollars)	2017	2016	$ Change	% Change
Construction Industries	$3,258	$1,650	$1,608	97 %
Resource Industries	690	(1,047)	1,737	n/a
Energy & Transportation	2,883	2,222	661	30 %
All Other Segments	(43)	(77)	34	44 %
Corporate Items and Eliminations	(2,736)	(2,659)	(77)	
Machinery, Energy & Transportation	4,052	89	3,963	4,453 %
Financial Products Segment	792	702	90	13 %
Corporate Items and Eliminations	(116)	(53)	(63)	
Financial Products	676	649	27	4 %
Consolidating Adjustments	(322)	(240)	(82)	
Consolidated Operating Profit	$4,406	$498	$3,908	785 %

Construction Industries

Construction Industries' sales were $19.133 billion in 2017, compared with $15.612 billion in 2016. The increase was due to higher sales volume and favorable price realization.

- Sales volume increased due to higher end-user demand, primarily for equipment in Asia/Pacific and North America. In addition, sales volume increased due to favorable changes in dealer inventories, as inventories decreased in 2016 and increased in 2017.
- Although market conditions remain competitive, price realization was favorable due to a particularly weak pricing environment in 2016, and previously implemented price increases impacting 2017.

Sales increased across all regions with the largest increases in Asia/Pacific and North America.

- Sales in Asia/Pacific were higher as a result of an increase in end-user demand, primarily in China, stemming from increased building construction and infrastructure investment. We expect 2018 sales in China to be higher due to continued building construction and infrastructure investment with a strong first half and some tempering in the latter part of the year, largely due to anticipated seasonality.

- In North America, sales increased primarily due to higher end-user demand for construction equipment, mostly due to improved oil and gas, residential and nonresidential construction activities. Also contributing to higher sales was the impact of favorable changes in dealer inventories, as inventories decreased more in 2016 than in 2017, and favorable price realization. We expect improvement in residential, nonresidential and infrastructure construction activities in North America to result in higher end-used demand for construction equipment in 2018.

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- Sales in EAME increased due to favorable changes in dealer inventories and favorable price realization. The favorable impact of change in dealer inventories resulted from a decrease in 2016 and an increase in 2017.
- Although construction activity remained weak in Latin America, sales were higher as end-user demand increased from low levels due to stabilizing economic conditions in several countries in the region. In addition, sales volume increased due to favorable changes in dealer inventories, as dealer inventories increased in 2017 and decreased in 2016.

Construction Industries' profit was $3.258 billion in 2017, compared with $1.650 billion in 2016. The increase in profit was primarily due to higher sales volume and favorable price realization. Period costs were unfavorable primarily due to higher short-term incentive compensation expense, partially offset by lower depreciation expense.

Resource Industries

Resource Industries' sales were $7.504 billion in 2017, an increase of $1.778 billion, or 31 percent, from 2016. Sales increased due to higher end-user demand for aftermarket parts and equipment and the favorable impact of changes in dealer inventories. Positive commodity price trends in 2017 drove improved market conditions and better financial health of mining companies. After a number of years of low investment, miners have begun to increase capital expenditures, reflecting more confidence in their end markets. Idle mining trucks on customer sites also decreased in 2017. These changes resulted in higher sales for aftermarket parts to support increased mining activity as well as maintenance and rebuild activities and, by the second half of 2017, resulted in higher end-user demand for mining equipment. Dealer inventories increased in 2017, compared with a significant decrease in 2016.

Resource Industries' profit was $690 million in 2017, compared with a loss of $1.047 billion in 2016. The improvement was partially due to the absence of a goodwill impairment charge of $595 million in 2016. Higher sales volume, lower variable manufacturing costs, favorable price realization and lower period costs also contributed to increased profit. Variable manufacturing costs were lower primarily due to a favorable impact from cost absorption and efficiencies. Cost absorption was favorable as inventory increased in 2017, to support higher production volumes and decreased in 2016. Period costs were lower primarily due to the favorable impact of restructuring and cost reduction actions, partially offset by an increase in short-term incentive compensation expense.

Energy & Transportation

Energy & Transportation's sales were $15.964 billion in 2017, compared with $14.411 billion in 2016. The increase was primarily due to higher sales in oil and gas and industrial applications.

- Oil and Gas - Sales increased in North America due to higher sales of reciprocating engines and aftermarket parts used in on-shore gas compression and well servicing applications. Sales in remaining regions were about flat.
- Industrial - Sales were higher in all regions, reflecting increased sales for equipment across end-user applications and aftermarket parts.
- Transportation - Sales were higher primarily in North America for rail services driven by increased rail traffic.
- Power Generation - Sales were about flat in all regions as the industry remains challenged.

Sales into Oil and Gas applications are expected to increase in 2018, led by reciprocating engines for gas compression and well servicing in North America. We expect an increase in Transportation primarily from recent acquisitions in rail services.

Energy & Transportation's profit was $2.883 billion in 2017, compared with $2.222 billion in 2016. The increase was primarily due to higher sales volume and lower variable manufacturing costs, partially offset by higher period costs. Variable manufacturing costs were lower primarily due to a favorable impact from cost absorption and improved material costs. Cost absorption was favorable as inventory increased in 2017, compared to a decrease in 2016. The increase in period costs was primarily due to higher short-term incentive compensation expense.

Financial Products Segment

Financial Products' segment revenues were $3.093 billion, an increase of $100 million, or 3 percent, from 2016. The increase was primarily due to higher average financing rates in North America, a favorable impact from intercompany lending activity in North America and higher average earning assets in EAME. These favorable impacts were partially offset by lower average financing rates in Asia/Pacific and lower average earning assets in North America and Latin America.

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Financial Products’ segment profit was $792 million in 2017, compared with $702 million in 2016. The increase was primarily due to higher gains on sales of securities at Insurance Services, an increase in net yield on average earning assets and increased intercompany lending activity. These favorable impacts were partially offset by an increase in SG&A expenses due to higher short-term incentive compensation expense.

At the end of 2017, past dues at Cat Financial were 2.78 percent, compared with 2.38 percent at the end of 2016. Write-offs, net of recoveries, were $114 million for the full year of 2017, compared with $123 million for the full year of 2016.

As of December 31, 2017, Cat Financial's allowance for credit losses totaled $365 million, or 1.33 percent of finance receivables, compared with $343 million, or 1.29 percent of finance receivables at year-end 2016.

Corporate Items and Eliminations

Expense for corporate items and eliminations was $2.852 billion in 2017, which was an increase of $140 million compared with 2016. Corporate items and eliminations include: corporate-level expenses; restructuring costs; timing differences, as some expenses are reported in segment profit on a cash basis; retirement benefit costs other than service cost; currency differences for ME&T, as segment profit is reported using annual fixed exchange rates; cost of sales methodology differences as segments use a current cost methodology; and inter-segment eliminations.

The increase in expense was a result of methodology differences, higher restructuring costs, timing differences and an increase in short-term incentive compensation expense, mostly offset by lower mark-to-market losses related to pension and OPEB plans.

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FOURTH QUARTER 2017 COMPARED WITH FOURTH QUARTER 2016

CONSOLIDATED SALES AND REVENUES

The chart above graphically illustrates reasons for the change in Consolidated Sales and Revenues between the fourth quarter of 2016 (at left) and the fourth quarter of 2017 (at right). Items favorably impacting sales and revenues appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting sales and revenues appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues were $12.896 billion in the fourth quarter of 2017, an increase of $3.322 billion, or 35 percent, compared with $9.574 billion in the fourth quarter of 2016. The increase was primarily due to higher sales volume, mostly due to improved end-user demand. In addition, favorable changes in dealer inventories contributed to increased sales volume. The improvement in end-user demand was across all regions and most end markets. The favorable change in dealer inventories was primarily due to a decrease in the fourth quarter of 2016, compared to dealer inventories that were about flat in the fourth quarter of 2017. Dealer machine and engine inventories were about flat in the fourth quarter of 2017, compared to a decrease of about $800 million in the fourth quarter of 2016. Dealers are independent, and there could be many reasons for changes in their inventory levels, including their expectations of future demand and product delivery times. Dealers’ demand expectations take into account seasonal changes, macroeconomic conditions, machine rental rates and other factors. Delivery times can vary based on availability of product from Caterpillar factories and product distribution centers.

By segment, the largest sales volume increase was in Construction Industries, mostly due to higher end-user demand for construction equipment and the favorable impact of changes in dealer inventories. Energy & Transportation’s sales volume increased due to higher demand across all applications. Sales volume for Resource Industries increased due to higher end-user demand for equipment and aftermarket parts. Favorable price realization, primarily in Construction Industries and Resource Industries, also contributed to the sales improvement. Financial Products’ revenues were about flat.

Sales increased across all regions with the largest increase in North America. Sales improved 46 percent in North America primarily due to higher end-user demand for both equipment and aftermarket parts. Changes in dealer inventories were favorable as dealer inventories decreased in the fourth quarter of 2016 and increased slightly in the fourth quarter of 2017. EAME sales increased 38 percent primarily due to higher end-user demand for equipment and favorable price realization. Asia/Pacific sales increased 22 percent primarily due to higher end-user demand for construction equipment. About half of the sales improvement in Asia/Pacific was in China resulting from increased building construction and infrastructure investment. Sales increased 39 percent in Latin America due to stabilizing economic conditions in several countries in the region that resulted in improved end-user demand from low levels, as well as favorable changes in dealer inventories.

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CONSOLIDATED OPERATING PROFIT (LOSS)

The chart above graphically illustrates reasons for the change in Consolidated Operating Profit (Loss) between the fourth quarter of 2016 (at left) and the fourth quarter of 2017 (at right). Items favorably impacting operating profit appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting operating profit appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees. The bar entitled Other includes consolidating adjustments and Machinery, Energy & Transportation other operating (income) expenses.

Operating profit for the fourth quarter of 2017 was $1.161 billion, compared with a loss of $1.262 billion in the fourth quarter of 2016. The increase of $2.423 billion was due to higher sales volume, a decrease in mark-to-market losses related to pension and OPEB plans and the absence of a goodwill impairment charge in Resource Industries in 2016. Favorable price realization, lower variable manufacturing costs and lower restructuring costs were mostly offset by higher period costs. Price realization was favorable, primarily in Construction Industries and Resource Industries. Variable manufacturing costs were lower primarily due to the favorable impact from cost absorption and lower warranty expense. Cost absorption was favorable as inventory was about flat in the fourth quarter of 2017, compared to a reduction in inventory in the fourth quarter of 2016. Material costs were slightly unfavorable due to increases in steel prices. Period costs were higher primarily due to higher short-term incentive compensation expense. Also contributing to increased period costs were targeted investments and higher manufacturing costs to support higher production volumes, partially offset by lower depreciation expense.

Restructuring costs were $245 million in the fourth quarter of 2017, compared with $395 million in the fourth quarter of 2016.

Short-term incentive compensation expense was about $350 million in the fourth quarter of 2017, compared to about $50 million in the fourth quarter of 2016.

Other Profit/Loss Items

- Interest expense excluding Financial Products in the fourth quarter of 2017 was $169 million, an increase of $49 million from the fourth quarter of 2016, primarily due to an early debt retirement.
- Other income/expense in the fourth quarter of 2017 was income of $119 million, compared with income of $34 million in the fourth quarter of 2016. The favorable change was primarily a result of gains on the sale of securities.
- The provision for income taxes in the fourth quarter reflects an annual effective tax rate of 27.7 percent, compared to 36.4 percent for the full year of 2016, excluding the items discussed below. The effective tax rate related to 2017 full-year adjusted profit before tax, excluding a discrete benefit from stock-based compensation awards, was 27 percent, compared to 26 percent in 2016.

The provision for income taxes in the fourth quarter of 2017 also includes a charge of $2.371 billion due to the enactment of U.S. tax reform legislation on December 22, 2017. The provisionally estimated charge includes a $596 million write-

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down of net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent beginning January 1, 2018, with the remainder primarily related to the cost of a mandatory deemed repatriation of non-U.S. earnings. We believe this charge is a reasonable estimate, as of January 18, 2018, that may change as additional required information is prepared and analyzed, interpretations and assumptions are refined, additional guidance is issued, and due to actions we may take as a result of the legislation. Three items partially offset this charge:

- A $130 million benefit related to the change from the third-quarter estimated annual tax rate of 32 percent to 27.7 percent for the full year of 2017, primarily due to a more favorable geographic mix of profits from a tax perspective, including the impact of U.S. pension and OPEB mark-to-market losses taxed at higher U.S. rates.
- A non-cash benefit of $111 million, net of U.S. federal tax at 35 percent, from reductions in the valuation allowance against U.S. state deferred tax assets due to improved profits in the United States.
- A tax benefit of $19 million for the settlement of stock-based compensation awards with associated tax deductions in excess of cumulative U.S. GAAP compensation expense.

The provision for income taxes in the fourth quarter of 2016 also included a charge of $170 million related to the change from the third quarter of 2016 estimated annual tax rate. In addition, the valuation allowance against U.S. state deferred tax assets was increased in 2016, resulting in a $141 million non-cash charge, net of U.S. federal tax at 35 percent.

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Segment Information
Sales and Revenues by Geographic Region

(Millions of dollars)	Total	% Change	North America	% Change	Latin America	% Change	EAME	% Change	Asia/ Pacific	% Change
Fourth Quarter 2017										
Construction Industries [1]	$5,258	47 %	$2,346	50 %	$392	48 %	$976	56 %	$1,544	36 %
Resource Industries [2]	2,205	53 %	791	68 %	384	74 %	475	60 %	555	22 %
Energy & Transportation [3]	4,706	22 %	2,327	35 %	374	8 %	1,286	21 %	719	— %
All Other Segments [4]	52	63 %	22	100 %	1	— %	14	180 %	15	(6)%
Corporate Items and Eliminations	(27)	—	(27)		—		—		—	
Machinery, Energy & Transportation Sales	12,194	37 %	5,459	46 %	1,151	39 %	2,751	38 %	2,833	22 %
Financial Products Segment	783	6 %	505	9 %	80	(4)%	107	8 %	91	(5)%
Corporate Items and Eliminations	(81)		(50)		(12)		(6)		(13)	
Financial Products Revenues	702	2 %	455	5 %	68	(8)%	101	6 %	78	(8)%
Consolidated Sales and Revenues	$12,896	35 %	$5,914	41 %	$1,219	35 %	$2,852	37 %	$2,911	21 %
Fourth Quarter 2016										
Construction Industries [1]	$3,589		$1,569		$264		$624		$1,132	
Resource Industries [2]	1,443		471		221		297		454	
Energy & Transportation [3]	3,849		1,722		347		1,063		717	
All Other Segments [4]	32		11		—		5		16	
Corporate Items and Eliminations	(28)		(23)		(2)		(2)		(1)	
Machinery, Energy & Transportation Sales	8,885		3,750		830		1,987		2,318	
Financial Products Segment	742		464		83		99		96	
Corporate Items and Eliminations	(53)		(29)		(9)		(4)		(11)	
Financial Products Revenues	689		435		74		95		85	
Consolidated Sales and Revenues	$9,574		$4,185		$904		$2,082		$2,403	

1 Does not include inter-segment sales of $37 million and $31 million in the fourth quarter 2017 and 2016, respectively.

2 Does not include inter-segment sales of $103 million and $87 million in the fourth quarter 2017 and 2016, respectively.

3 Does not include inter-segment sales of $934 million and $621 million in the fourth quarter 2017 and 2016, respectively.

4 Does not include inter-segment sales of $103 million and $117 million in the fourth quarter 2017 and 2016, respectively.

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Sales and Revenues by Segment

(Millions of dollars)	Fourth Quarter 2016	Sales Volume	Price Realization	Currency	Other	Fourth Quarter 2017	$ Change	% Change
Construction Industries	$3,589	$1,502	$ 146	$ 21	$—	$5,258	$1,669	47 %
Resource Industries	1,443	669	84	9	—	2,205	762	53 %
Energy & Transportation	3,849	808	(17)	66	—	4,706	857	22 %
All Other Segments	32	20	—	—	—	52	20	63 %
Corporate Items and Eliminations	(28)	1	—	—	—	(27)	1	
Machinery, Energy & Transportation Sales	8,885	3,000	213	96	—	12,194	3,309	37 %
Financial Products Segment	742	—	—	—	41	783	41	6 %
Corporate Items and Eliminations	(53)	—	—	—	(28)	(81)	(28)	
Financial Products Revenues	689	—	—	—	13	702	13	2 %
Consolidated Sales and Revenues	$9,574	$3,000	$ 213	$ 96	$13	$12,896	$3,322	35 %

Profit (Loss) by Segment

(Millions of dollars)	Fourth Quarter 2017	Fourth Quarter 2016	$ Change	% Change
Construction Industries	$838	$334	$504	151 %
Resource Industries	209	(711)	920	n/a
Energy & Transportation	881	638	243	38 %
All Other Segments	(16)	(34)	18	53 %
Corporate Items and Eliminations	(821)	(1,572)	751	
Machinery, Energy & Transportation	1,091	(1,345)	2,436	n/a
Financial Products Segment	233	149	84	56 %
Corporate Items and Eliminations	(77)	(9)	(68)	
Financial Products	156	140	16	11 %
Consolidating Adjustments	(86)	(57)	(29)	
Consolidated Operating Profit (Loss)	$1,161	$(1,262)	$2,423	n/a

Construction Industries

Construction Industries' sales were $5.258 billion in the fourth quarter of 2017, compared with $3.589 billion in the fourth quarter of 2016. The increase was due to higher sales volume and favorable price realization.

- Sales volume increased primarily due to higher end-user demand for construction equipment. In addition, there was a favorable impact from changes in dealer inventories as inventories decreased more in the fourth quarter of 2016 than in the fourth quarter of 2017.
- Price realization was favorable due to a weak pricing environment in the fourth quarter of 2016 and previously implemented price increases.

Sales increased across all regions with the largest increases in North America and Asia/Pacific.

- In North America, the sales increase was due to higher end-user demand for construction equipment, mostly due to oil and gas, residential and non-residential construction activities. The impact of favorable changes in dealer inventories, as inventories decreased in the fourth quarter of 2016 and were about flat in the fourth quarter of 2017, also contributed to increased sales.

- Sales in Asia/Pacific were higher as a result of an increase in end-user demand, primarily in China, stemming from increased building construction and infrastructure investment.
- Sales increased in EAME primarily due to higher end-user demand for construction equipment, reflecting improved economic conditions across much of the region. Favorable price realization also contributed to increased sales.

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- Although construction activity remained weak in Latin America, sales were higher as end-user demand increased from low levels due to stabilizing economic conditions in several countries in the region.

Construction Industries’ profit was $838 million in the fourth quarter of 2017, compared with $334 million in the fourth quarter of 2016. The increase in profit was primarily due to higher sales volume, favorable price realization and variable manufacturing efficiencies, partially offset by unfavorable period costs and higher material costs, primarily for steel. The increase in period costs was due to higher short-term incentive compensation expense, targeted investments and higher manufacturing period costs to support increased production volumes.

Resource Industries

Resource Industries’ sales were $2.205 billion in the fourth quarter of 2017, an increase of $762 million from the fourth quarter of 2016. The increase was primarily due to higher end-user demand for equipment and aftermarket parts in all regions, favorable impact of changes in dealer inventories and favorable price realization. Dealer deliveries for new equipment increased significantly. Positive commodity price trends in 2017 drove improved market conditions and better financial health of mining companies. After several years of low investment, miners began to increase capital expenditures, reflecting more confidence in their end markets. Dealer inventories increased slightly in the fourth quarter of 2017, compared with a slight decrease in the fourth quarter of 2016.

Resource Industries’ profit was $209 million in the fourth quarter of 2017, compared with a loss of $711 million in the fourth quarter of 2016. The improvement was primarily due to the absence of a goodwill impairment charge of $595 million in the fourth quarter of 2016. Higher sales volume and favorable price realization also contributed to increased profit.

Energy & Transportation

Energy & Transportation’s sales were $4.706 billion in the fourth quarter of 2017, compared with $3.849 billion in the fourth quarter of 2016. The increase was primarily due to higher sales volume across all applications.

- Oil and Gas - Sales increased primarily due to higher demand for equipment used in gas compression and well servicing applications in North America.
- Transportation - Sales were higher primarily in North America for rail services, driven by increased rail traffic, and due to additional deliveries of freight locomotives.
- Industrial - Sales were higher primarily in EAME due to increased demand for equipment used in electric power and agricultural end-user applications and aftermarket parts.
- Power Generation - Sales increased primarily in EAME due to the timing of projects.

Energy & Transportation’s profit was $881 million in the fourth quarter of 2017, compared with $638 million in the fourth quarter of 2016. The increase was primarily due to higher sales volume, partially offset by higher period costs. The increase in period costs was primarily due to higher short-term incentive compensation expense, costs associated with higher production and targeted investments.

Financial Products Segment

Financial Products’ segment revenues were $783 million in the fourth quarter of 2017, an increase of $41 million, or 6 percent, from the fourth quarter of 2016. The increase was primarily due to higher average financing rates in North America, higher average earning assets in EAME and Asia/Pacific and a favorable impact from intercompany lending activity in North America. These favorable impacts were partially offset by lower average financing rates in Asia/Pacific.

Financial Products’ segment profit was $233 million in the fourth quarter of 2017, compared with $149 million in the fourth quarter of 2016. The increase was primarily due to higher gains on sales of securities at Insurance Services and an increase in net yield on average earning assets.

Corporate Items and Eliminations

Expense for corporate items and eliminations was $898 million in the fourth quarter of 2017, a decrease of $683 million from the fourth quarter of 2016. Corporate items and eliminations include: restructuring costs; corporate-level expenses; timing differences, as some expenses are reported in segment profit on a cash basis; retirement benefit costs other than service cost;

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currency differences for ME&T, as segment profit is reported using annual fixed exchange rates; cost of sales methodology differences, as segments use a current cost methodology; and inter-segment eliminations.

The decrease in expense was primarily due to the favorable impact of lower mark-to-market losses related to pension and OPEB plans and lower restructuring costs, partially offset by methodology differences and higher short-term incentive compensation expense. Mark-to-market losses in the fourth quarter of 2017 were $301 million, compared to mark-to-market losses of $985 million in the fourth quarter of 2016.

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2016 COMPARED WITH 2015

CONSOLIDATED SALES AND REVENUES

The chart above graphically illustrates reasons for the change in Consolidated Sales and Revenues between 2015 (at left) and 2016 (at right). Items favorably impacting sales and revenues appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting sales and revenues appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues were $38.537 billion in 2016, compared with $47.011 billion in 2015, a decline of $8.474 billion, or 18 percent. The decrease was primarily due to lower sales volume attributable to continued weak commodity prices globally and economic weakness in many countries. While sales for both new equipment and aftermarket parts declined, most of the decrease was for new equipment. The unfavorable impact of price realization, primarily in Construction Industries, also contributed to the decline.

Sales volume was also unfavorably impacted by changes in dealer machine and engine inventories as inventories decreased about $1.6 billion in 2016 compared with a decrease of about $1.0 billion in 2015. The unfavorable impact of changes in dealer inventories was primarily in North America. Dealers are independent, and there could be many reasons for changes in their inventory levels, including their expectations of future demand and product delivery times. Dealers’ demand expectations take into account seasonal changes, macroeconomic conditions, machine rental rates and other factors. Delivery times can vary based on availability of product from Caterpillar factories and product distribution centers. We believe some of the expected dealer inventory reduction is a result of increased machine availability through our factories and product distribution centers.

Sales declined in all regions. In North America, sales decreased 19 percent due to lower end-user demand primarily driven by Construction Industries and Energy & Transportation, and the unfavorable impact of changes in dealer inventories, primarily in Construction Industries. In EAME, sales declined 22 percent, primarily in Africa/Middle East due to weak economic conditions resulting from low oil and other commodity prices and an uncertain investment environment. Sales decreased 29 percent in Latin America, primarily due to widespread economic weakness across the region. The most significant decreases were in Mexico and Brazil. Asia/Pacific sales declined 9 percent, primarily due to lower end-user demand for Energy & Transportation applications and products used in mining, partially offset by an increase in demand for construction equipment mostly in China.

Energy & Transportation’s sales declined 22 percent, largely due to lower end-user demand for oil and gas and transportation applications. Construction Industries’ sales decreased 12 percent due to lower demand from end users, unfavorable price realization and the unfavorable impact of changes in dealer inventories. Resource Industries’ sales declined 26 percent, mostly due to continued low end-user demand. Financial Products’ segment revenues were about flat.

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CONSOLIDATED OPERATING PROFIT

The chart above graphically illustrates reasons for the change in Consolidated Operating Profit between 2015 (at left) and 2016 (at right). Items favorably impacting operating profit appear as upward stair steps with the corresponding dollar amounts above each bar, while items negatively impacting operating profit appear as downward stair steps with dollar amounts reflected in parentheses above each bar. Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees. The bar entitled Other includes consolidating adjustments and Machinery, Energy & Transportation other operating (income) expenses.

Operating profit for 2016 was $498 million, compared with $3.785 billion in 2015. The decrease in profit was primarily due to lower sales volume, including an unfavorable mix of products. The decrease in profit also included an unfavorable impact from mark-to-market losses related to remeasurement of our pension and OPEB plans and a goodwill impairment charge in Resource Industries. In addition, price realization, Financial Products and restructuring costs were unfavorable. These items were partially offset by favorable period costs and variable manufacturing costs.

The unfavorable price realization resulted from competitive market conditions, primarily in Construction Industries. We saw competitive pressure during 2016 that started in the last half of 2015 driven by excess industry capacity, unfavorable currency pressure as the impact of the strong dollar benefited competitors based outside the United States and an overall weak economic environment.

Period costs were lower, primarily due to the impact from substantial restructuring and cost reduction actions and lower short-term incentive compensation expense. The reductions primarily impacted period manufacturing costs and selling, general and administrative expenses (SG&A). Variable manufacturing costs were favorable primarily due to improved material costs and the favorable impact of cost absorption. Cost absorption was favorable due to inventory decreasing more significantly in 2015 than in 2016.

Restructuring costs of $1.019 billion in 2016 were related to multiple restructuring actions across the company, primarily in Resource Industries and Energy & Transportation. In 2015, restructuring costs were $898 million.

Short-term incentive compensation expense is directly related to financial and operational performance measured against targets set annually. Expense in 2016 was about $250 million as compared to about $585 million in 2015.

Other Profit/Loss Items

Other income/expense in 2016 was income of $146 million, compared with income of $161 million in 2015. The unfavorable change was primarily due to the absence of a gain of $120 million on the sale of the remaining 35 percent interest in our former third-party logistics business. This was mostly offset by a favorable net impact from currency translation and hedging gains and losses. Currency translation and hedging net losses in 2016 were significantly less than the net losses in 2015.

The provision for income taxes for 2016 reflects an annual effective tax rate of 36.4 percent compared to 25.5 percent for 2015, excluding the items discussed in the paragraph below. The increase was primarily due to the negative impact from the portion of the Surface Mining & Technology goodwill impairment not deductible for tax purposes offsetting a favorable

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geographic mix of profits from a tax perspective. The effective tax rate related to 2016 full-year adjusted profit before tax was 26 percent.
The provision for income taxes for 2016 also included a $141 million non-cash charge for increases in the valuation allowance for U.S. state deferred tax assets due to recent U.S. GAAP losses that were expected to recur in 2017 in certain state jurisdictions and the weight given this negative objective evidence under income tax accounting guidance. The provision for income taxes for 2015 also included a $42 million net charge to adjust prior years' U.S. taxes.

Segment Information

Sales and Revenues by Geographic Region

(Millions of dollars)	Total	% Change	North America	% Change	Latin America	% Change	EAME	% Change	Asia/ Pacific	% Change
2016										
Construction Industries [1]	$15,612	(12)%	$7,529	(16)%	$1,059	(32)%	$3,270	(17)%	$3,754	13 %
Resource Industries [2]	5,726	(26)%	2,068	(30)%	1,001	(19)%	1,179	(33)%	1,478	(17)%
Energy & Transportation [3]	14,411	(22)%	6,680	(19)%	1,104	(33)%	4,201	(22)%	2,426	(26)%
All Other Segments [4]	139	(32)%	46	(42)%	3	(79)%	28	(46)%	62	7 %
Corporate Items and Eliminations	(115)		(98)		(3)		(9)		(5)	
Machinery, Energy & Transportation Sales	35,773	(19)%	16,225	(19)%	3,164	(29)%	8,669	(22)%	7,715	(9)%
Financial Products Segment	2,993	(3)%	1,862	3 %	336	(16)%	401	(2)%	394	(14)%
Corporate Items and Eliminations	(229)		(125)		(45)		(17)		(42)	
Financial Products Revenues	2,764	(3)%	1,737	2 %	291	(19)%	384	(1)%	352	(16)%
Consolidated Sales and Revenues	$38,537	(18)%	$17,962	(18)%	$3,455	(28)%	$9,053	(21)%	$8,067	(9)%
2015										
Construction Industries [1]	$17,797		$9,006		$1,546		$3,930		$3,315	
Resource Industries [2]	7,739		2,953		1,231		1,769		1,786	
Energy & Transportation [3]	18,519		8,204		1,651		5,365		3,299	
All Other Segments [4]	203		79		14		52		58	
Corporate Items and Eliminations	(111)		(118)		2		—		5	
Machinery, Energy & Transportation Sales	44,147		20,124		4,444		11,116		8,463	
Financial Products Segment	3,078		1,812		400		408		458	
Corporate Items and Eliminations	(214)		(111)		(42)		(22)		(39)	

Financial Products Revenues	2,864	1,701	358	386	419
Consolidated Sales and Revenues	$47,011	$21,825	$4,802	$11,502	$8,882

[1] Does not include inter-segment sales of $78 million and $109 million in 2016 and 2015, respectively.
[2] Does not include inter-segment sales of $284 million and $332 million in 2016 and 2015, respectively.
[3] Does not include inter-segment sales of $2,540 million and $2,877 million in 2016 and 2015, respectively.
[4] Does not include inter-segment sales of $405 million and $390 million in 2016 and 2015, respectively.

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Sales and Revenues by Segment

(Millions of dollars)	2015	Sales Volume	Price Realization	Currency	Other	2016	$ Change	% Change
Construction Industries	$17,797	$(1,632)	$ (539)	$ (14)	$—	$15,612	$(2,185)	(12)%
Resource Industries	7,739	(1,852)	(155)	(6)	—	5,726	(2,013)	(26)%
Energy & Transportation	18,519	(3,934)	(68)	(106)	—	14,411	(4,108)	(22)%
All Other Segments	203	(63)	—	(1)	—	139	(64)	(32)%
Corporate Items and Eliminations	(111)	(8)	2	2	—	(115)	(4)	
Machinery, Energy & Transportation Sales	44,147	(7,489)	(760)	(125)	—	35,773	(8,374)	(19)%
Financial Products Segment	3,078	—	—	—	(85)	2,993	(85)	(3)%
Corporate Items and Eliminations	(214)	—	—	—	(15)	(229)	(15)	
Financial Products Revenues	2,864	—	—	—	(100)	2,764	(100)	(3)%
Consolidated Sales and Revenues	$47,011	$(7,489)	$ (760)	$ (125)	$(100)	$38,537	$(8,474)	(18)%

Profit (Loss) by Segment

(Millions of dollars)	2016	2015	$ Change	% Change
Construction Industries	$1,650	$1,865	$(215)	(12)%
Resource Industries	(1,047)	1	(1,048)	n/a
Energy & Transportation	2,222	3,390	(1,168)	(34)%
All Other Segments	(77)	(75)	(2)	(3)%
Corporate Items and Eliminations	(2,659)	(1,911)	(748)	
Machinery, Energy & Transportation	89	3,270	(3,181)	(97)%
Financial Products Segment	702	809	(107)	(13)%
Corporate Items and Eliminations	(53)	(35)	(18)	
Financial Products	649	774	(125)	(16)%
Consolidating Adjustments	(240)	(259)	19	
Consolidated Operating Profit	$498	$3,785	$(3,287)	(87)%

Construction Industries

Construction Industries' sales were $15.612 billion in 2016, a decrease of $2.185 billion, or 12 percent, from 2015. The decrease in sales was primarily due to lower volume and unfavorable price realization. While sales declined for both new equipment and aftermarket parts, most of the decrease was for new equipment.

- The sales volume decline was primarily due to a decrease in deliveries to end users and the unfavorable impact of changes in dealer inventories. Dealers lowered inventories more significantly in 2016 than in 2015.
- Price realization was unfavorable $539 million due to competitive market conditions resulting from excess industry capacity and an overall weak economic environment.

Sales decreased in North America, EAME and Latin America and were higher in Asia/Pacific.

- In North America, the sales decline was primarily due to lower end-user demand. The sales decline was also due to a decrease in dealer inventories in 2016 compared to relatively flat inventories in 2015. Unfavorable price realization resulted from competitive market conditions. The availability of used equipment negatively impacted sales in North America during 2016.
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Lower sales in EAME were primarily due to lower end-user demand and the unfavorable impact of changes in dealer inventories. In addition, price realization was unfavorable across the region due to competitive market conditions. Dealer inventories decreased in 2016 while inventories remained flat in 2015.

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- In Latin America, end-user demand was down across most of the region, with the most significant decline in Brazil due to weak economic conditions.
- Sales in Asia/Pacific were higher as a result of an increase in end-user demand primarily in China stemming from increased government support in infrastructure and residential investment. In addition, the impact of changes in dealer inventories was favorable as inventories increased slightly in 2016 compared to a decrease in inventories in 2015.

Construction Industries' profit was $1.650 billion in 2016, compared with $1.865 billion in 2015. The decrease in profit was primarily due to lower sales volume and unfavorable price realization resulting from competitive market conditions. The decline was partially offset by favorable costs, primarily due to the impact from restructuring and cost reduction actions, improved material costs, the favorable impact of cost absorption and the absence of an unfavorable impact from litigation in 2015. The impact of cost absorption was favorable as inventory decreased more significantly in 2015 than in 2016.

Resource Industries

Resource Industries' sales were $5.726 billion in 2016, a decrease of $2.013 billion, or 26 percent, from 2015. The decline was almost entirely due to lower sales volume. Sales were lower for both new equipment and aftermarket parts, however, most of the decrease was for new equipment. Aftermarket parts sales increased sequentially in each of the last three quarters of 2016.

The sales decrease was primarily due to lower end-user demand across all regions. While most commodity prices improved in the fourth quarter over a year earlier, current prices were not sufficient to drive an increase in short-term demand for new equipment. We believe idle mining trucks on customer sites also had a negative impact on end-user demand. In 2016, mining customers continued to focus on improving productivity in existing mines and reducing their total capital expenditures, as they had for several years.

Resource Industries incurred a loss of $1.047 billion in 2016, compared with profit of $1 million in 2015. The most significant item impacting 2016 was a goodwill impairment charge of $595 million related to the Surface Mining & Technology reporting unit. Excluding the impairment charge, the remaining unfavorable change was mostly due to lower sales volume and unfavorable price realization. These items were partially offset by lower costs due to the impact from restructuring and cost reduction actions, improved material costs and lower short-term incentive compensation expense.

Energy & Transportation

Energy & Transportation's sales were $14.411 billion in 2016, a decrease of $4.108 billion, or 22 percent, from 2015. The decrease was almost entirely the result of lower sales volume. Sales decreased in all applications with oil and gas and transportation representing nearly 80 percent of the Energy & Transportation decline.

- Oil and Gas - Sales continued to decrease in all regions due to low oil prices. Although oil prices were low in 2015 and 2016, our sales during the first half of 2015 benefited from a strong order backlog. The sales decline was most significant in equipment used for production, drilling and well servicing.
- Transportation - Sales decreased in all geographic regions. The most significant decline was in North America, primarily due to significant weakness in the rail industry. Rail remains challenged with low traffic volume and a significant number of idle locomotives. We believe our sales into the rail industry, including rail services and aftermarket, are being negatively impacted by idled fleets resulting from weak commodity prices. In Asia/Pacific, the decrease was due to the absence of a large sale of locomotives in 2015 and a decline in demand for equipment used in marine applications, primarily for work boats. Demand in Latin America and EAME were also negatively impacted by the weakness in the rail industry.
- Power Generation - Sales decreased in all regions, but primarily in EAME. The decline in EAME was primarily a result of continued weakness in the Middle East with continued low oil prices limiting investments. The declines in both North America and Asia/Pacific were primarily due to the absence of several large projects and weakness in power generation demand for oil and gas development. The decline in Latin America was primarily due to weak economic conditions.
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Industrial - Sales were lower in EAME, North America and Latin America and about flat in Asia Pacific. The decline in sales was primarily due to lower end-user demand for most industrial applications.

Energy & Transportation’s profit was $2.222 billion in 2016, compared with $3.390 billion in 2015. The decline was due to a decrease in sales volume, including an unfavorable mix of products. This was partially offset by lower costs primarily due to restructuring and cost reduction actions, favorable material costs and lower short-term incentive compensation expense.

Financial Products Segment
Financial Products' revenues were $2.993 billion, a decrease of $85 million, or 3 percent, from 2015. The decline was primarily due to lower average earning assets in Asia/Pacific and Latin America, an unfavorable impact from returned or repossessed equipment, primarily in North America and lower average financing rates in Latin America. These decreases were partially offset by higher average financing rates and higher average earning assets in North America.
Financial Products' profit was $702 million in 2016, compared with $809 million in 2015. The decrease was primarily due to an unfavorable impact from returned or repossessed equipment, an unfavorable impact from lower average earning assets, a decrease in net yield on average earning assets reflecting geographic mix changes and an increase in the provision for credit losses at Cat Financial. These unfavorable impacts were partially offset by a decrease in SG&A expenses.
At the end of 2016, past dues at Cat Financial were 2.38 percent, compared with 2.14 percent at the end of 2015. The increase in past dues was primarily driven by the European marine portfolio. Write-offs, net of recoveries, were $123 million for the full-year 2016, compared with $155 million for the full-year 2015.
As of December 31, 2016, Cat Financial's allowance for credit losses totaled $343 million, or 1.29 percent of net finance receivables, compared with $338 million, or 1.22 percent of net finance receivables at year-end 2015.

Corporate Items and Eliminations
Expense for corporate items and eliminations was $2.712 billion in 2016, which was an increase of $766 million compared with 2015. Corporate items and eliminations include: corporate-level expenses; restructuring costs; timing differences, as some expenses are reported in segment profit on a cash basis; retirement benefit costs other than service cost; currency differences for ME&T, as segment profit is reported using annual fixed exchange rates; cost of sales methodology differences as segments use a current cost methodology; and inter-segment eliminations.
The most significant item was the unfavorable impact of mark-to-market losses related to remeasurement of our pension and OPEB plans. Mark-to-market losses in 2016 were $985 million compared to mark-to-market losses of $179 million in 2015. The remaining decrease in expense of $40 million was primarily due to a favorable impact from methodology differences, partially offset by a $121 million increase in restructuring costs.

RESTRUCTURING COSTS

Restructuring costs for 2017, 2016 and 2015 were as follows:

(Millions of dollars)	2017	2016	2015
Employee separations [1]	$525	$297	$641
Contract terminations [1]	183	62	—
Long-lived asset impairments [1]	346	391	127
Defined benefit plan curtailments and termination benefits [1]	29	7	82
Other [2]	173	262	48
Total restructuring costs	$1,256	$1,019	$898

[1] Recognized in Other operating (income) expenses.
[2] Represents costs related to our restructuring programs, primarily for accelerated depreciation, project management costs, equipment relocation and inventory write-downs, and also LIFO inventory decrement benefits from inventory liquidations at closed facilities (all of which are primarily included in Cost of goods sold).

In 2017, about half of the restructuring costs were related to the closure of the facility in Gosselies, Belgium, within Construction Industries, and the remainder was related to other restructuring actions across the company. The restructuring costs in 2016 were primarily related to actions in Resource Industries in response to continued weakness in the mining industry. In addition, costs in 2016 resulted from our decision to discontinue production of on-highway vocational trucks within Energy & Transportation and other restructuring actions across the company. The restructuring costs in 2015 were primarily related to several restructuring programs across the company.

Restructuring costs are a reconciling item between Segment profit and Consolidated profit before taxes.

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The following table summarizes the 2016 and 2017 employee separation activity:

(Millions of dollars)	
Liability balance at December 31, 2015	$483
Increase in liability (separation charges)	297
Reduction in liability (payments)	(633)
Liability balance at December 31, 2016	$147
Increase in liability (separation charges)	525
Reduction in liability (payments)	(423)
Liability balance at December 31, 2017	$249

Most of the remaining liability balance as of December 31, 2017 is expected to be paid in 2018 and primarily includes employee separation payments related to closure of the Gosselies, Belgium, facility.

In March 2017, Caterpillar informed Belgian authorities of the decision to proceed to a collective dismissal, which will lead to the closure of the Gosselies site, impacting about 2,000 employees. Production of Caterpillar products at the Gosselies site ended during the second quarter of 2017. The other operations and functions at the Gosselies site are expected to be gradually phased out by the end of the second quarter of 2018. We estimate restructuring costs incurred under this program to be about $675 million. In 2017, we recognized $653 million of restructuring costs which included $436 million of employee separation costs, $205 million for long-lived asset impairments and $77 million of other costs partially offset by a $65 million LIFO inventory decrement benefit. The remaining costs are expected to be recognized in 2018.

Restructuring costs for the year ended December 31, 2016 were $1,019 million. Throughout 2016, we initiated the following restructuring plans:

- In February 2016, we made the decision to discontinue production of on-highway vocational trucks. Based on the business climate in the truck industry and a thorough evaluation of the business, the company decided it would withdraw from this market. We recognized $104 million of restructuring costs, primarily related to long-lived asset impairments and sales discounts, which is substantially all the costs expected under this program.

- In the second half of 2016, we took additional restructuring actions in Resource Industries, including ending the production of track drills; pursuing strategic alternatives related to room and pillar products; consolidation of two product development divisions; and additional actions in response to ongoing weakness in the mining industry. For the year ended December 31, 2016, we incurred $369 million of restructuring costs for these plans primarily related to long-lived asset impairments, employee separation costs and inventory write-downs.

In September 2015, we announced a large scale restructuring plan (the Plan) including a voluntary retirement enhancement program for qualifying U.S. employees, several voluntary separation programs outside of the U.S., additional involuntary programs throughout the company and manufacturing facility consolidations and closures expected to occur through 2018. The largest action among those included in the Plan was related to our European manufacturing footprint which led to the Gosselies, Belgium, facility closure as discussed above. We incurred $817 million, $281 million and $569 million in 2017, 2016 and 2015, respectively, for a total of $1,667 million. We expect to recognize approximately $200 million of additional restructuring costs related to the Plan in 2018.

In 2018, we expect to incur about $400 million of restructuring costs primarily related to ongoing manufacturing facility consolidations to achieve a flexible and competitive cost structure. We are expecting about $250 million of cost reduction in 2018 from lower operating costs, primarily SG&A expenses and Cost of goods sold resulting from restructuring actions.

GLOSSARY OF TERMS

1. Adjusted Profit Per Share - Profit per share excluding restructuring costs and pension and OPEB mark-to-market losses for 2017 and 2016. For 2017, adjusted profit per share also excludes a gain on the sale of an equity investment in IronPlanet recognized in the second quarter, as well as state deferred tax valuation allowance reversal and the impact of the U.S. tax reform in the fourth quarter. For 2016, adjusted profit per share also excludes a goodwill impairment charge and state deferred tax valuation allowance recognized in the fourth quarter.

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2. All Other Segments - Primarily includes activities such as: business strategy, product management and development, and manufacturing of filters and fluids, undercarriage, tires and rims, ground engaging tools, fluid transfer products, precision seals, and rubber sealing and connecting components primarily for Cat® products; parts distribution; distribution services responsible for dealer development and administration including a wholly owned dealer in Japan, dealer portfolio management and ensuring the most efficient and effective distribution of machines, engines and parts; digital investments for new customer and dealer solutions that integrate data analytics with state-of-the art digital technologies while transforming the buying experience.

3. Consolidating Adjustments - Elimination of transactions between Machinery, Energy & Transportation and Financial Products.

4. Construction Industries - A segment primarily responsible for supporting customers using machinery in infrastructure, forestry and building construction applications. Responsibilities include business strategy, product design, product management and development, manufacturing, marketing and sales and product support. The product portfolio includes backhoe loaders, small wheel loaders, small track-type tractors, skid steer loaders, compact track loaders, multi-terrain loaders, mini excavators, compact wheel loaders, telehandlers, select work tools, small, medium and large track excavators, wheel excavators, medium wheel loaders, medium track-type tractors, track-type loaders, motor graders, pipelayers, forestry and paving products and related parts.

5. Currency - With respect to sales and revenues, currency represents the translation impact on sales resulting from changes in foreign currency exchange rates versus the U.S. dollar. With respect to operating profit, currency represents the net translation impact on sales and operating costs resulting from changes in foreign currency exchange rates versus the U.S. dollar. Currency only includes the impact on sales and operating profit for the Machinery, Energy & Transportation lines of business excluding restructuring costs; currency impacts on Financial Products' revenues and operating profit are included in the Financial Products' portions of the respective analyses. With respect to other income/expense, currency represents the effects of forward and option contracts entered into by the company to reduce the risk of fluctuations in exchange rates (hedging) and the net effect of changes in foreign currency exchange rates on our foreign currency assets and liabilities for consolidated results (translation).

6. Debt-to-Capital Ratio - A key measure of Machinery, Energy & Transportation's financial strength used by management. The metric is defined as Machinery, Energy & Transportation's short-term borrowings, long-term debt due within one year and long-term debt due after one year (debt) divided by the sum of Machinery, Energy & Transportation's debt and shareholders' equity. Debt also includes Machinery, Energy & Transportation's long-term borrowings from Financial Products.

7. EAME - A geographic region including Europe, Africa, the Middle East and the Commonwealth of Independent States (CIS).

8. Earning Assets - Assets consisting primarily of total finance receivables net of unearned income, plus equipment on operating leases, less accumulated depreciation at Cat Financial.

9. Energy & Transportation - A segment primarily responsible for supporting customers using reciprocating engines, turbines, diesel-electric locomotives and related parts across industries serving Power Generation, Industrial, Oil and Gas and Transportation applications, including marine and rail-related businesses. Responsibilities include business strategy, product design, product management and development, manufacturing, marketing and sales and product support of turbines and turbine-related services, reciprocating engine-powered generator sets, integrated systems used in the electric power generation industry, reciprocating engines and integrated systems and solutions for the marine and oil and gas industries; reciprocating engines supplied to the industrial industry as well as Cat machinery; the remanufacturing of Cat engines and components and remanufacturing services for other companies;

the business strategy, product design, product management and development, manufacturing, remanufacturing, leasing and service of diesel-electric locomotives and components and other rail-related products and services and product support of on-highway vocational trucks for North America.

10. Financial Products Segment - Provides financing alternatives to customers and dealers around the world for Caterpillar products, as well as financing for vehicles, power generation facilities and marine vessels that, in most cases, incorporate Caterpillar products. Financing plans include operating and finance leases, installment sale contracts, working capital loans and wholesale financing plans. The segment also provides insurance and risk management products and services that help customers and dealers manage their business risk. Insurance and risk management products offered include physical damage insurance, inventory protection plans, extended service coverage for machines and engines, and dealer property and casualty insurance. The various forms of financing, insurance and risk management products offered to customers and dealers help support the purchase and lease of our equipment. Financial Products segment profit is determined on a pretax basis and includes other income/expense items.

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11. Latin America - A geographic region including Central and South American countries and Mexico.

12. Machinery, Energy & Transportation (ME&T) - Represents the aggregate total of Construction Industries, Resource Industries, Energy & Transportation and All Other Segments and related corporate items and eliminations.

13. Machinery, Energy & Transportation Other Operating (Income) Expenses - Comprised primarily of gains/losses on disposal of long-lived assets, gains/losses on divestitures and legal settlements and accruals. Restructuring costs classified as other operating expenses on the Results of Operations are presented separately on the Operating Profit Comparison.

14. Mark-to-Market (MTM) gains/losses - Represents the net gain or loss of actual results differing from our assumptions and the effects of changing assumptions for our defined benefit pension and OPEB plans. These gains and losses are immediately recognized through earnings upon the annual remeasurement in the fourth quarter, or on an interim basis as triggering events warrant remeasurement.

15. Pension and Other Postemployment Benefits (OPEB) - The company's defined benefit pension and postretirement benefit plans.

16. Period Costs - Includes period manufacturing costs, ME&T selling, general and administrative (SG&A) and research and development (R&D) expenses excluding the impact of currency and exit-related costs that are included in restructuring costs (see definition below). Period manufacturing costs support production but are defined as generally not having a direct relationship to short-term changes in volume. Examples include machinery and equipment repair, depreciation on manufacturing assets, facility support, procurement, factory scheduling, manufacturing planning and operations management. SG&A and R&D costs are not linked to the production of goods or services and include marketing, legal and finance services and the development of new and significant improvements in products or processes.

17. Price Realization - The impact of net price changes excluding currency and new product introductions. Price realization includes geographic mix of sales, which is the impact of changes in the relative weighting of sales prices between geographic regions.

18. Resource Industries - A segment primarily responsible for supporting customers using machinery in mining, quarry and aggregates, waste and material handling applications. Responsibilities include business strategy, product design, product management and development, manufacturing, marketing and sales and product support. The product portfolio includes large track-type tractors, large mining trucks, hard rock vehicles, longwall miners, electric rope shovels, draglines, hydraulic shovels, rotary drills, large wheel loaders, off-highway trucks, articulated trucks, wheel tractor scrapers, wheel dozers, landfill compactors, soil compactors, hard rock continuous mining systems, select work tools, machinery components, electronics and control systems and related parts. In addition to equipment, Resource Industries also develops and sells technology products and services to provide customers fleet management, equipment management analytics and autonomous machine capabilities. Resource Industries also manages areas that provide services to other parts of the company, including integrated manufacturing and research and development, as well as global procurement.

19. Restructuring Costs - Primarily costs for employee separation, long-lived asset impairments and contract terminations. These costs are included in Other Operating (Income) Expenses. Restructuring costs also include other exit-related costs primarily for accelerated depreciation, inventory write-downs, equipment relocation and project management costs and also LIFO inventory decrement benefits from inventory liquidations at closed

facilities (primarily included in Cost of goods sold).

20. Sales Volume - With respect to sales and revenues, sales volume represents the impact of changes in the quantities sold for Machinery, Energy & Transportation as well as the incremental revenue impact of new product introductions, including emissions-related product updates. With respect to operating profit, sales volume represents the impact of changes in the quantities sold for Machinery, Energy & Transportation combined with product mix as well as the net operating profit impact of new product introductions, including emissions-related product updates. Product mix represents the net operating profit impact of changes in the relative weighting of Machinery, Energy & Transportation sales with respect to total sales. The impact of sales volume on segment profit includes inter-segment sales.

21. Surface Mining & Technology - A goodwill reporting unit included in Resource Industries. Its product portfolio includes large mining trucks, electric rope shovels, draglines, hydraulic shovels and related parts. In addition to equipment, Surface Mining & Technology also develops and sells technology products and services to provide customer fleet management, equipment management analytics and autonomous machine capabilities.

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22. Variable Manufacturing Costs - Represents volume-adjusted costs excluding the impact of currency and restructuring costs (see definition above). Variable manufacturing costs are defined as having a direct relationship with the volume of production. This includes material costs, direct labor and other costs that vary directly with production volume such as freight, power to operate machines and supplies that are consumed in the manufacturing process.

LIQUIDITY AND CAPITAL RESOURCES

Sources of funds

We generate significant capital resources from operating activities, which are the primary source of funding for our ME&T operations. Funding for these businesses is also available from commercial paper and long-term debt issuances. Financial Products' operations are funded primarily from commercial paper, term debt issuances and collections from its existing portfolio. During 2017, we experienced favorable liquidity conditions globally in both our ME&T and Financial Products' operations. On a consolidated basis, we ended 2017 with $8.26 billion of cash, an increase of $1.09 billion from year-end 2016. We intend to maintain a strong cash and liquidity position.

Our cash balances are held in numerous locations throughout the world with approximately $7.5 billion held by our non-U.S. subsidiaries. U.S. tax reform legislation enacted on December 22, 2017 resulted in a one-time mandatory deemed repatriation of non-U.S. earnings. The resulting U.S. tax liability, net of available foreign tax credits, will be payable over eight years, and is not expected to significantly impact liquidity. As a result of this legislation, we expect to be able to use cash held by non-U.S. subsidiaries in the United States in the future with minimal U.S. tax consequences.

Consolidated operating cash flow for 2017 was $5.70 billion, up slightly from $5.64 billion in 2016. The increase was due to higher profit in 2017 adjusted for non-cash items including a charge related to the enactment of U.S. tax reform legislation and higher short-term incentive compensation expense accruals. The most significant driver of higher profit was an increase in sales volume in 2017. This improvement was offset by higher working capital requirements and higher pension contributions in 2017. Within working capital, changes to inventory and receivables unfavorably impacted cash flow but were partially offset by changes to accounts payable. These changes to working capital were primarily a result of higher sales volume in 2017 compared to a decrease in sales volume during 2016. In addition, the timing of employee separation payments for 2015 restructuring actions and lower short-term incentive compensation payments in 2017 versus 2016 favorably impacted operating cash flow. See further discussion of operating cash flow under ME&T and Financial Products.

Total debt as of December 31, 2017 was $34.88 billion, a decrease of $1.91 billion from year-end 2016. Debt related to Financial Products decreased $689 million. Debt related to ME&T decreased $1.22 billion in 2017, primarily due to the early redemption of a long term debt issuance. On October 10, 2017, we called for redemption of all $900 million in aggregate principal amount of our outstanding 7.90% senior notes due in December 2018, payable in cash. The redemption date occurred on November 10, 2017 and included a prepayment fee of $58 million.

We have three global credit facilities with a syndicate of banks totaling $10.50 billion (Credit Facility) available in the aggregate to both Caterpillar and Cat Financial for general liquidity purposes. Based on management's allocation decision, which can be revised from time to time, the portion of the Credit Facility available to ME&T as of December 31, 2017 was $2.75 billion. Our three Credit Facilities are:

- The 364-day facility of $3.15 billion (of which $0.82 billion is available to ME&T) expires in September 2018.
- The three-year facility, as amended in September 2017, of $2.73 billion (of which $0.72 billion is available to ME&T) expires in September 2020.

- The five-year facility, as amended in September 2017, of $4.62 billion (of which $1.21 billion is available to ME&T) expires in September 2022.

At December 31, 2017, Caterpillar's consolidated net worth was $13.72 billion, which was above the $9.00 billion required under the Credit Facility. The consolidated net worth is defined as the consolidated shareholder's equity including preferred stock but excluding the pension and other postretirement benefits balance within Accumulated other comprehensive income (loss).

At December 31, 2017, Cat Financial's covenant interest coverage ratio was 1.88 to 1. This is above the 1.15 to 1 minimum ratio, calculated as (1) profit excluding income taxes, interest expense and net gain/(loss) from interest rate derivatives to (2) interest expense calculated at the end of each calendar quarter for the rolling four quarter period then most recently ended, required by the Credit Facility.

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In addition, at December 31, 2017, Cat Financial's six-month covenant leverage ratio was 7.38 to 1 and year-end covenant leverage ratio was 7.71 to 1. This is below the maximum ratio of debt to net worth of 10 to 1, calculated (1) on a monthly basis as the average of the leverage ratios determined on the last day of each of the six preceding calendar months and (2) at each December 31, required by the Credit Facility.

In the event Caterpillar or Cat Financial does not meet one or more of their respective financial covenants under the Credit Facility in the future (and are unable to obtain a consent or waiver), the syndicate of banks may terminate the commitments allocated to the party that does not meet its covenants. Additionally, in such event, certain of Cat Financial's other lenders under other loan agreements where similar financial covenants or cross default provisions are applicable, may, at their election, choose to pursue remedies under those loan agreements, including accelerating the repayment of outstanding borrowings. At December 31, 2017, there were no borrowings under the Credit Facility.

Our total credit commitments and available credit as of December 31, 2017 were:

	December 31, 2017		
(Millions of dollars)	Consolidated	Machinery, Energy & Transportation	Financial Products
Credit lines available:			
Global credit facilities	$10,500	$ 2,750	$ 7,750
Other external	4,591	1	4,590
Total credit lines available	15,091	2,751	12,340
Less: Commercial paper outstanding	(3,680)	—	(3,680)
Less: Utilized credit	(1,479)	(1)	(1,478)
Available credit	$9,932	$ 2,750	$ 7,182

The other consolidated credit lines with banks as of December 31, 2017 totaled $4.59 billion. These committed and uncommitted credit lines, which may be eligible for renewal at various future dates or have no specified expiration date, are used primarily by our subsidiaries for local funding requirements. Caterpillar or Cat Financial may guarantee subsidiary borrowings under these lines.

We receive debt ratings from the major rating agencies. In December 2016, Moody's Investors Service downgraded our long-term ratings to A3 from A2, and short-term ratings to Prime-2 from Prime-1. The Moody's downgrade did not have a material impact on our borrowing costs or our overall financial health. A further downgrade of our credit ratings by Moody's or one of the other major credit rating agencies would result in increased borrowing costs and could make access to certain credit markets more difficult. However, our long-term ratings with Fitch and S&P continue to be "mid-A". In the event economic conditions deteriorate such that access to debt markets becomes unavailable, our ME&T operations would rely on cash flow from operations, use of existing cash balances, borrowings from Cat Financial and access to our Credit Facility. Our Financial Products operations would rely on cash flow from its existing portfolio, existing cash balances, access to our Credit Facility and other credit line facilities of Cat Financial and potential borrowings from Caterpillar. In addition, we maintain a support agreement with Cat Financial, which requires Caterpillar to remain the sole owner of Cat Financial and may, under certain circumstances, require Caterpillar to make payments to Cat Financial should Cat Financial fail to maintain certain financial ratios.

Machinery, Energy & Transportation

Net cash provided by operating activities was $5.46 billion in 2017, compared with $3.89 billion in 2016. The increase was primarily due to higher profit in 2017 adjusted for non-cash items including a charge related to the enactment of U.S. tax reform legislation and higher short-term incentive compensation expense. The most significant driver of higher profit was an increase in sales volume in 2017. This improvement was offset by higher working capital requirements and higher pension contributions in 2017. Within working capital, changes to inventory and receivables unfavorably impacted cash flow but were partially offset by changes to accounts payable. These changes to working capital were primarily a result of higher sales volume in 2017 compared to a decrease in sales volume during 2016. In addition, the timing of employee separation payments for 2015 restructuring actions and lower short-term incentive compensation payments in 2017 versus 2016 favorably impacted operating cash flow.

Net cash used for investing activities in 2017 was $760 million, compared with net cash used of $1.78 billion in 2016. The change was primarily due to ME&T lending activity with Financial Products that occurred in 2016 and lower capital expenditures in 2017.

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Net cash used for financing activities during 2017 was $2.58 billion, compared with $2.16 billion in the same period of 2016. The change was primarily due to higher payments on debt in 2017, including the early retirement of $900 million of debt due in December 2018, partially offset by proceeds from common stock issued from stock options exercised in 2017.

Our priorities for cash deployment have not changed. While our short-term priorities for the use of cash may vary from time to time as business needs and conditions dictate, our long-term cash deployment strategy is focused on the following priorities. Our top priority is to maintain a strong financial position in support of a Mid-A rating. Next, we intend to fund operational requirements and commitments. Then, we intend to fund priorities that profitably grow the company and return capital to shareholders through dividend growth and share repurchases. Additional information on cash deployment is as follows:

Strong financial position — A key measure of ME&T's financial strength used by management is ME&T's debt-to-capital ratio. Debt-to-capital is defined as short-term borrowings, long-term debt due within one year and long-term debt due after one year (debt) divided by the sum of debt and shareholders' equity. Debt also includes ME&T's long-term borrowings from Financial Products. The debt-to-capital ratio for ME&T was 36.7 percent at December 31, 2017, within our target range of 30 to 45 percent. ME&T's debt-to-capital ratio was 41.0 percent at December 31, 2016. The decrease in the debt-to-capital ratio was primarily driven by a decrease in debt which included an early retirement of $900 million of debt due in December 2018.

Operational requirements and commitments — Capital expenditures were $916 million during 2017, compared to $1.21 billion for the same period in 2016. We expect ME&T's capital expenditures in 2018 to be between $1.0 and $1.5 billion. Contributions to our pension and OPEB plans were $1.61 billion and $329 million in 2017 and 2016, respectively. We expect to make approximately $365 million of contributions to our pension and OPEB plans in 2018. We believe we have adequate resources to fund both pension and OPEB plans.

Return capital to shareholders — Dividends totaled $1.83 billion in 2017, representing 77 cents per share paid in the first and second quarters and 78 cents per share paid in the third and fourth quarters. Each quarter, our Board of Directors reviews the company's dividend for the applicable quarter. The Board evaluates the financial condition of the company and considers the economic outlook, corporate cash flow, the company's liquidity needs and the health and stability of global credit markets to determine whether to maintain or change the quarterly dividend. In January 2014, the Board of Directors approved an authorization to repurchase up to $10 billion of Caterpillar common stock (the 2014 Authorization), which will expire on December 31, 2018. We did not purchase any Caterpillar common stock in 2017. As of December 31, 2017, $5.47 billion remained available under the 2014 Authorization. Caterpillar's basic shares outstanding as of December 31, 2017 were approximately 598 million.

Financial Products

Financial Products operating cash flow was $1.35 billion in 2017, compared with $1.55 billion in 2016. Net cash used for investing activities was $591 million in 2017, compared with cash provided by investing activities of $299 million in 2016. The change was primarily due to the impact of net intercompany purchased receivables, partially offset by lower capital expenditures for equipment on operating leases. Net cash used for financing activities in 2017 was $1.82 billion, compared with $1.07 billion in 2016. The change was primarily due to the impact of borrowings with ME&T.

Dividends paid per common share

Quarter	2017	2016	2015
First	$.770	$.770	$.700
Second	.770	.770	.700

Third	.780	.770	.770
Fourth	.780	.770	.770
	$3.100	$3.080	$2.940

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Contractual obligations

The company has committed cash outflow related to long-term debt, operating lease agreements, postretirement benefit obligations, purchase obligations, interest on long-term debt and other long-term contractual obligations. As of December 31, 2017, minimum payments for these obligations were:

(Millions of dollars)	2018	2019-2020	2021-2022	After 2022	Total
Long-term debt:					
Machinery, Energy & Transportation (excluding capital leases)	$—	$ —	$ 1,870	$ 6,236	$8,106
Machinery, Energy & Transportation-capital leases	6	46	28	30	110
Financial Products	6,191	9,989	3,826	2,147	22,153
Total long-term debt [1]	6,197	10,035	5,724	8,413	30,369
Operating leases	211	246	132	169	758
Postretirement benefit obligations [2]	365	625	1,020	3,380	5,390
Purchase obligations:					
Accounts payable [3]	6,487	—	—	—	6,487
Purchase orders [4]	7,577	—	—	—	7,577
Other contractual obligations [5]	237	325	251	—	813
Total purchase obligations	14,301	325	251	—	14,877
Interest on long-term debt [6]	885	1,316	911	6,138	9,250
Other long-term obligations [7]	446	450	218	377	1,491
Total contractual obligations	$22,405	$ 12,997	$ 8,256	$ 18,477	$62,135

1 Amounts exclude unamortized discounts, a non-cash settlement for a capital lease, debt issuance costs, and fair value adjustments.

2 Amounts represent expected contributions to our pension and other postretirement benefit plans through 2027, offset by expected Medicare Part D subsidy receipts.

3 Amount represents invoices received and recorded as liabilities in 2017, but scheduled for payment in 2018. These represent short-term obligations made in the ordinary course of business.

4 Amount represents contractual obligations for material and services on order at December 31, 2017 but not yet delivered. These represent short-term obligations made in the ordinary course of business.

5 Amounts represent long-term commitments entered into with key suppliers for minimum purchases quantities.

6 Amounts represent estimated contractual interest payments on long-term debt, including capital lease interest payments.

7 Amounts represent contractual obligations primarily for logistics services agreements related to our former third party logistics business, software license and development contracts, IT consulting contracts and outsourcing contracts for benefit plan administration and software system support, and estimated income tax payments for mandatory deemed repatriation as a result of U.S. tax reform.

The total amount of gross unrecognized tax benefits for uncertain tax positions, including positions impacting only the timing of tax benefits, was $1,286 million at December 31, 2017. Payment of these obligations would result from settlements with taxing authorities. Due to the difficulty in determining the timing of settlements, these obligations are not included in the table above. We do not expect to make a tax payment related to these obligations within the next year that would significantly impact liquidity.

Off-balance sheet arrangements

We are a party to certain off-balance sheet arrangements, primarily in the form of guarantees. Information related to guarantees appears in Note 21 – “Guarantees and product warranty” of Part II, Item 8 “Financial Statements and Supplementary Data”.

CRITICAL ACCOUNTING POLICIES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect reported amounts. The more significant estimates include: residual values for leased assets, fair values for goodwill impairment tests, impairment of available-for-sale securities, warranty liability, stock-based compensation, reserves for product liability and insurance losses, postretirement benefits, post-sale discounts, credit losses and income taxes. We have incorporated many years of data into the determination of each of these estimates and we have not historically experienced significant adjustments. These assumptions are reviewed at least annually with the Audit Committee of the Board of Directors. Following are the methods and assumptions used in determining our estimates and an indication of the risks inherent in each.

Residual values for leased assets – The residual values for Cat Financial's leased assets, which are an estimate of the market value of leased equipment at the end of the lease term, are based on an analysis of historical wholesale market sales prices, projected forward on a level trend line without consideration for inflation or possible future pricing action. At the inception of the lease, residual values are estimated with consideration of the following critical factors: market size and demand, any known significant market/product trends, total expected hours of usage, machine configuration, application, location, model changes, quantities, past remarketing experience, third-party residual guarantees and contractual customer purchase options. Many of these factors are gathered in an application survey that is completed prior to quotation. The lease agreement also clearly defines applicable return conditions and remedies for non-compliance, to ensure that the leased equipment will be in good operating condition upon return. Model changes and updates, as well as market strength and product acceptance, are monitored and adjustments are made to residual values in accordance with the significance of any such changes. Remarketing sales staff works closely with customers and dealers to manage the sale of lease returns and the recovery of residual exposure.

During the term of the equipment on operating leases, we evaluate our depreciation on a regular basis taking into consideration expected residual values at lease termination. Adjustments to depreciation expense reflecting revised estimates of expected residual values at the end of the lease terms are recorded prospectively on a straight-line basis. For finance leases, residual value adjustments are recognized through a reduction of finance revenue.

We evaluate the carrying value of equipment on operating leases for potential impairment when we determine a triggering event has occurred. When a triggering event occurs, a test for recoverability is performed by comparing projected undiscounted future cash flows to the carrying value of the equipment on operating leases. If the test for recoverability identifies a possible impairment, the fair value of the equipment on operating leases is measured in accordance with the fair value measurement framework. An impairment charge is recognized for the amount by which the carrying value of the equipment on operating leases exceeds its estimated fair value.

At December 31, 2017, the aggregate residual value of equipment on operating leases was $2.20 billion. Without consideration of other factors such as third-party residual guarantees or contractual customer purchase options, a 10% non-temporary decrease in the market value of our equipment subject to operating leases would reduce residual value estimates and result in the recognition of approximately $80 million of additional annual depreciation expense.

Fair values for goodwill impairment tests – We test goodwill for impairment annually, at the reporting unit level, and whenever events or circumstances make it more likely than not that an impairment may have occurred, such as a significant adverse change in the business climate or a decision to sell all or a portion of a reporting unit. We perform our annual goodwill impairment test as of October 1 and monitor for interim triggering events on an ongoing basis.

Goodwill is reviewed for impairment utilizing either a qualitative assessment or a quantitative goodwill impairment test. If we choose to perform a qualitative assessment and determine the fair value more likely than not exceeds the carrying value, no further evaluation is necessary. For reporting units where we perform the quantitative goodwill impairment test, we compare the fair value of each reporting unit, which we primarily determine using an income approach based on the present value of discounted cash flows, to the respective carrying value, which includes goodwill. If the fair value of the reporting unit exceeds its carrying value, the goodwill is not considered impaired. Beginning in 2017, if the carrying value is higher than the fair value, the difference would be recognized as an impairment loss. Prior to 2017, a two-step process was used. For reporting units where we performed the two-step process, the first step required us to compare the fair value of each reporting unit, which we primarily determined using an income approach based on the present value of discounted cash flows, to the respective carrying value, which includes goodwill. If the fair value of the reporting unit exceeded its carrying value, the goodwill was not considered impaired. If the carrying value was higher than the fair value, there was an indication that an impairment may have existed and the second step was required. In step two, the implied fair value of goodwill was calculated as the excess of the fair value of a reporting unit over the fair values assigned to its assets and liabilities. If the implied fair value of goodwill was less than the carrying value of the reporting unit's goodwill, the difference was recognized as an impairment loss.

The impairment test process requires valuation of the respective reporting unit, which we primarily determine using an income approach based on a discounted five year forecasted cash flow with a year-five residual value. The residual value is computed using the constant growth method, which values the forecasted cash flows in perpetuity. The income approach is supported by a reconciliation of our calculated fair value for Caterpillar to the company's market capitalization. The assumptions about future cash flows and growth rates are based on each reporting unit's long-term forecast and are subject to review and approval by senior

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management. A reporting unit's discount rate is a risk-adjusted weighted average cost of capital, which we believe approximates the rate from a market participant's perspective. The estimated fair value could be impacted by changes in market conditions, interest rates, growth rates, tax rates, costs, pricing and capital expenditures. The fair value determination is categorized as Level 3 in the fair value hierarchy due to its use of internal projections and unobservable measurement inputs.

Our annual impairment tests completed in the fourth quarter of 2017 indicated the fair value of each reporting unit was substantially above its respective carrying value, including goodwill. Caterpillar's market capitalization has remained significantly above the net book value of the Company.

An unfavorable change in our expectations for the financial performance of our reporting units, particularly long-term growth and profitability, would reduce the fair value of our reporting units. The demand for our equipment and related parts is highly cyclical and significantly impacted by commodity prices, although the impact may vary by reporting unit. The energy and mining industries are major users of our products, including the coal, iron ore, gold, copper, oil and natural gas industries. Decisions to purchase our products are dependent upon the performance of those industries, which in turn are dependent in part on commodity prices. Lower commodity prices or industry specific circumstances that have a negative impact to the valuation assumptions may reduce the fair value of our reporting units. Should such events occur and it becomes more likely than not that a reporting unit's fair value has fallen below its carrying value, we will perform an interim goodwill impairment test(s), in addition to the annual impairment test. Future impairment tests may result in a goodwill impairment, depending on the outcome of the quantitative impairment test. A goodwill impairment would be reported as a non-cash charge to earnings.

Impairment of available-for-sale securities – Available-for-sale securities, primarily at Insurance Services, are reviewed at least quarterly to identify fair values below cost which may indicate that a security is impaired and should be written down to fair value.

For debt securities, once a security's fair value is below cost we utilize data gathered by investment managers, external sources and internal research to monitor the performance of the security to determine whether an other-than-temporary impairment has occurred. These reviews, which include an analysis of whether it is more likely than not that we will be required to sell the security before its anticipated recovery, consist of both quantitative and qualitative analysis and require a degree of management judgment. Securities in a loss position are monitored and assessed at least quarterly based on severity and timing of loss and may be deemed other-than-temporarily impaired at any time. Once a security's fair value has been 20 percent or more below its original cost for six consecutive months, the security will be other-than-temporarily impaired unless there are sufficient facts and circumstances supporting otherwise.

For equity securities in a loss position, determining whether a security is other-than-temporarily impaired requires an analysis of that security's historical sector return as well as the volatility of that return. This information is utilized to estimate a security's future fair value and to assess whether the security has the ability to recover to its original cost over a reasonable period of time. Both historical annualized sector returns and the volatility of those returns are applied over a two year period to arrive at these estimates.

For both debt and equity securities, qualitative factors are also considered in determining whether a security is other-than-temporarily impaired. These include reviews of the following: significant changes in the regulatory, economic or technological environment of the investee, significant changes in the general market condition of either the geographic area or the industry in which the investee operates, and length of time and the extent to which the fair value has been less than cost. These qualitative factors are subjective and require a degree of management judgment.

Warranty liability – At the time a sale is recognized, we record estimated future warranty costs. The warranty liability is determined by applying historical claim rate experience to the current field population and dealer inventory. Generally, historical claim rates are based on actual warranty experience for each product by machine model/engine size by customer or dealer location (inside or outside North America). Specific rates are developed for each product shipment month and are updated monthly based on actual warranty claim experience. Warranty costs may differ from those estimated if actual claim rates are higher or lower than our historical rates.

Stock-based compensation – We use a lattice-based option-pricing model to calculate the fair value of our stock options and stock appreciation rights (SARs). The calculation of the fair value of the awards using the lattice-based option-pricing model is affected by our stock price on the date of grant as well as assumptions regarding the following:

- Volatility is a measure of the amount by which the stock price is expected to fluctuate each year during the expected term of the award and is based on historical Caterpillar stock price movement and current implied volatilities from traded options on Caterpillar stock. The implied volatilities from traded options are impacted by changes in market conditions. An increase in the volatility would result in an increase in our expense.

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- The expected term represents the period of time that awards granted are expected to be outstanding and is an output of the lattice-based option-pricing model. In determining the expected term of the award, future exercise and forfeiture patterns are estimated from Caterpillar employee historical exercise behavior. These patterns are also affected by the vesting conditions of the award. Changes in the future exercise behavior of employees or in the vesting period of the award could result in a change in the expected term. An increase in the expected term would result in an increase to our expense.
- The weighted-average dividend yield is based on Caterpillar's historical dividend yields. As holders of stock options and SARs do not receive dividend payments, this could result in employees retaining the award for a longer period of time if dividend yields decrease or exercising the award sooner if dividend yields increase. A decrease in the dividend yield would result in an increase in our expense.
- The risk-free interest rate is based on the U.S. Treasury yield curve in effect at time of grant. As the risk-free interest rate increases, the expected term increases, resulting in an increase in our expense.

The fair value of our RSUs and PRSUs is determined by reducing the stock price on the date of grant by the present value of the estimated dividends to be paid during the vesting period. The estimated dividends are based on Caterpillar's quarterly dividend per share at the time of grant. A decrease in the dividend per share would result in an increase in our expense.

Stock-based compensation expense recognized based on the grant date fair value. Forfeitures are accounted for in the period they occur as a reduction to expense. Stock-based compensation expense for PRSUs is based on the probable number of shares expected to vest. Changes in the expected probability of achieving performance targets in future periods may result in an increase or decrease in our expense.

Product liability and insurance loss reserve – We determine these reserves based upon reported claims in process of settlement and actuarial estimates for losses incurred but not reported. Loss reserves, including incurred but not reported reserves, are based on estimates and ultimate settlements may vary significantly from such estimates due to increased claims frequency or severity over historical levels.

Postretirement benefits – Primary actuarial assumptions were determined as follows:

- The assumed discount rate is used to discount future benefit obligations back to today's dollars. The U.S. discount rate is based on a benefit cash flow-matching approach and represents the rate at which our benefit obligations could effectively be settled as of our measurement date, December 31. The benefit cash flow-matching approach involves analyzing Caterpillar's projected cash flows against a high quality bond yield curve, calculated using a wide population of corporate Aa bonds available on the measurement date. The very highest and lowest yielding bonds (top and bottom 10 percent) are excluded from the analysis. A similar approach is used to determine the assumed discount rate for our most significant non-U.S. plans. In estimating the service and interest cost components of net periodic benefit cost, we utilize a full yield curve approach in determining a discount rate. This approach applies the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

Discount rates are sensitive to changes in interest rates. A decrease in the discount rate would increase our obligation and future expense.

- The expected long-term rate of return on plan assets is based on our estimate of long-term passive returns for equities and fixed income securities weighted by the allocation of our plan assets. Based on historical performance, we increase the passive returns due to our active management of the plan assets. This rate is impacted by changes in general market conditions, but because it represents a long-term rate, it is not significantly impacted by short-term market swings. Changes in our allocation of plan assets would also impact this rate. For example, a shift to more fixed income securities would lower the rate. A decrease in the rate would increase our expense. The expected return on plan assets is calculated using the fair value of plan assets as of our measurement date, December 31.

- The expected rate of compensation increase is used to develop benefit obligations using projected pay at retirement. It represents average long-term salary increases. This rate is influenced by our long-term compensation policies. An increase in the rate would increase our obligation and expense.

- The assumed health care trend rate represents the rate at which health care costs are assumed to increase and is based on historical and expected experience. Changes in our projections of future health care costs due to general economic conditions and those specific to health care (e.g., technology driven cost changes) will impact this trend rate. An increase in the trend rate would increase our obligation and expense.

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The effects of actual results differing from our assumptions and the effects of changing assumptions are considered actuarial gains or losses. We recognize actuarial gains or losses immediately through earnings upon the annual remeasurement in the fourth quarter, or on an interim basis as triggering events warrant remeasurement.

See Note 12 for further information regarding the accounting for postretirement benefits.

Post-sale discount reserve – We provide discounts to dealers through merchandising programs. We have numerous programs that are designed to promote the sale of our products. The most common dealer programs provide a discount when the dealer sells a product to a targeted end user. The amount of accrued post-sale discounts was $1,426 million and $1,288 million as of December 31, 2017 and 2016, respectively. The reserve represents discounts that we expect to pay on previously sold units and is reviewed at least quarterly. The reserve is adjusted if discounts paid differ from those estimated. Historically, those adjustments have not been material.

Credit loss reserve – The allowance for credit losses is an estimate of the losses inherent in our finance receivable portfolio and includes consideration of accounts that have been individually identified as impaired, as well as pools of finance receivables where it is probable that certain receivables in the pool are impaired but the individual accounts cannot yet be identified. In identifying and measuring impairment, management takes into consideration past loss experience, known and inherent risks in the portfolio, adverse situations that may affect the borrower's ability to repay, estimated value of underlying collateral and current economic conditions.

Accounts are identified for individual review based on past-due status and information available about the customer, such as financial statements, news reports and published credit ratings, as well as general information regarding industry trends and the economic environment in which our customers operate. The allowance for credit losses attributable to finance receivables that are individually evaluated and determined to be impaired is based on the present value of expected future cash flows discounted at the receivables' effective interest rate, the fair value of the collateral for collateral-dependent receivables or the observable market price of the receivable. In determining collateral value, we estimate the current fair market value of the collateral less selling costs. We also consider credit enhancements such as additional collateral and contractual third-party guarantees. The allowance for credit losses attributable to the remaining accounts not yet individually identified as impaired is estimated based on loss forecast models utilizing probabilities of default, our estimate of the loss emergence period and the estimated loss given default. In addition, qualitative factors not able to be fully captured in our loss forecast models including industry trends, macroeconomic factors and model imprecision are considered in the evaluation of the adequacy of the allowance for credit losses. These qualitative factors are subjective and require a degree of management judgment.

While management believes it has exercised prudent judgment and applied reasonable assumptions, there can be no assurance that in the future, changes in economic conditions or other factors would not cause changes in the financial health of our customers. If the financial health of our customers deteriorates, the timing and level of payments received could be impacted and therefore, could result in a change to our estimated losses.

Income taxes – We are subject to the income tax laws of the many jurisdictions in which we operate. These tax laws are complex, and the manner in which they apply to our facts is sometimes open to interpretation. In establishing the provision for income taxes, we must make judgments about the application of these inherently complex tax laws.

Despite our belief that our tax return positions are consistent with applicable tax laws, we believe that taxing authorities could challenge certain positions. Settlement of any challenge can result in no change, a complete disallowance, or some partial adjustment reached through negotiations or litigation. We record tax benefits for uncertain tax positions based upon management's evaluation of the information available at the reporting date. To be recognized in the financial statements, a tax benefit must be at least more likely than not of being sustained based on technical merits. The benefit for positions meeting the recognition threshold is measured as the largest benefit more likely than not of being realized upon ultimate settlement with a taxing authority that has full knowledge of all relevant information. Significant judgment is required in making these determinations and adjustments to unrecognized tax benefits may be necessary to reflect actual taxes payable upon settlement. Adjustments related to positions impacting the effective tax rate affect the provision for income taxes. Adjustments related to positions impacting the timing of deductions impact deferred tax assets and liabilities.

Income taxes are based on the statutory tax rate of the jurisdiction in which earnings are subject to taxation. That statutory rate may differ from the statutory tax rate of the jurisdiction in which that entity is incorporated. Taxes are paid in the jurisdictions where earnings are subject to taxation. The effective tax rate differs from the U.S. statutory rate in part due to profits of non-U.S. subsidiaries being subject to statutory tax rates which were generally lower than the U.S. rate of 35 percent effective prior to January 1, 2018. Caterpillar SARL (CSARL), primarily taxable locally in Switzerland, contributes the most significant amount of this difference. For tax years 2007 to 2012 including the impact of a loss carryback to 2005, the IRS has proposed to tax in the

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United States profits earned from certain parts transactions by CSARL based on the IRS examination team's application of "substance-over-form" or "assignment-of-income" judicial doctrines. We are vigorously contesting the proposed increases to tax and penalties for these years of approximately $2.3 billion. We believe that the relevant transactions complied with applicable tax laws and did not violate judicial doctrines. The purchase of parts by CSARL from unrelated parties and the subsequent sale of those parts to unrelated dealers outside the United States have substantial legal, commercial, and economic consequences for the parties involved. Therefore, we have concluded that the largest amount of benefit that is more likely than not to be sustained related to this position is the entire benefit. As a result, no amount related to these IRS adjustments is reflected in unrecognized tax benefits. We have filed U.S. income tax returns on this same basis for years after 2012. We currently believe the ultimate disposition of this matter will not have a material adverse effect on our consolidated financial position, liquidity or results of operations.

Our income tax positions and analysis are based on currently enacted tax law. On December 22, 2017, U.S. tax legislation was enacted containing a broad range of tax reform provisions including a corporate tax rate reduction and changes in the U.S. taxation of non-U.S. earnings. We have not completed our accounting for the income tax effects of U.S. tax reform. However, we have made a reasonable estimate of the 2017 financial statement impact as of January 18, 2018, and recognized a provisional charge of $2.371 billion. We will continue to update our calculations as additional required information is prepared and analyzed, interpretations and assumptions are refined, additional guidance is issued, and due to actions we may take as a result of the legislation. These updates could significantly impact the provision for income taxes, the amount of taxes payable, and the deferred tax asset and liability balances.

The provisionally estimated charge includes a $596 million write-down of net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent beginning January 1, 2018. We are still analyzing certain aspects of the law and refining our calculations of basis differences as of December 31, 2017, which could affect the measurement of these balances.

The provisionally estimated charge includes $1.775 billion for the estimated cost of a mandatory deemed repatriation of non-U.S. earnings, including changes in the deferred tax liability related to the amount of earnings considered not indefinitely reinvested as well as the amount of unrecognized tax benefits and state tax liabilities associated with these tax positions. The U.S. federal tax cost for the mandatory deemed repatriation is computed at 15.5 percent for non-U.S. earnings held in liquid assets and 8 percent for non-liquid assets, reduced by applicable foreign tax credits. These estimates are provisional due to additional information and analysis required to determine cumulative taxable earnings since 1986 for non-U.S. subsidiaries at two separate points in time and to determine the amount of earnings that are held in liquid versus non-liquid assets as defined in the new legislation at several different measurement periods. In addition, information is being gathered and analyzed to support available foreign tax credits including estimates of credit utilization and valuation allowance considerations for any remaining foreign tax credit carryforward. Due to uncertainty about aspects of the tax law, we have made various assumptions to determine our reasonable estimate that we expect to refine as additional guidance is issued.

As a result of U.S. tax reform legislation, distributions of profits from non-U.S. subsidiaries are not expected to cause a significant U.S. tax impact in the future. However, these distributions may be subject to non-U.S. withholding taxes if profits are distributed from certain jurisdictions. We have recorded a deferred tax liability of $138 million for withholding taxes in non-U.S. jurisdictions where earnings are not considered indefinitely reinvested. Additional information and analysis are needed to determine the final amount of deferred tax liability considering factors such as whether non-U.S. entities are subject to withholding taxes, have reserve requirements, or have projected working capital and other capital needs in the country where the earnings were generated that would result in a decision to indefinitely reinvest a portion or all their earnings.

Deferred tax assets generally represent tax benefits for tax deductions or credits available in future tax returns. Certain estimates and assumptions are required to determine whether it is more likely than not that all or some portion of the benefit of a deferred tax asset will not be realized. In making this assessment, management analyzes the trend of U.S. GAAP earnings and estimates the impact of future taxable income, reversing temporary differences and available prudent and feasible tax planning strategies. Should a change in facts or circumstances lead to a change in judgment about the ultimate realizability of a deferred tax asset, we record or adjust the related valuation allowance in the period that the change in facts and circumstances occurs, along with a corresponding increase or decrease in the provision for income taxes. The provision for income taxes for 2016 included an increase in the valuation allowance for U.S. state deferred tax assets resulting in a $141 million non-cash charge, net of federal deferred tax adjustment at 35 percent. The primary driver of the increase was recent U.S. GAAP losses expected to recur in 2017 in certain state jurisdictions and the weight given this negative objective evidence under income tax accounting guidance. Due to better than previously forecasted 2017 U.S. GAAP results in certain U.S. state jurisdictions, the provision for income taxes for 2017 includes a decrease in the valuation allowance for U.S. state deferred tax assets resulting in a $111 million non-cash benefit, net of federal deferred tax adjustment of 35 percent. We give less weight in this analysis to mark-to-market adjustments to remeasure our pension and OPEB plans as we do not consider these adjustments indicative of ongoing earnings trends.

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OTHER MATTERS

ENVIRONMENTAL AND LEGAL MATTERS

The Company is regulated by federal, state and international environmental laws governing our use, transport and disposal of substances and control of emissions. In addition to governing our manufacturing and other operations, these laws often impact the development of our products, including, but not limited to, required compliance with air emissions standards applicable to internal combustion engines. We have made, and will continue to make, significant research and development and capital expenditures to comply with these emissions standards.

We are engaged in remedial activities at a number of locations, often with other companies, pursuant to federal and state laws. When it is probable we will pay remedial costs at a site, and those costs can be reasonably estimated, the investigation, remediation, and operating and maintenance costs are accrued against our earnings. Costs are accrued based on consideration of currently available data and information with respect to each individual site, including available technologies, current applicable laws and regulations, and prior remediation experience. Where no amount within a range of estimates is more likely, we accrue the minimum. Where multiple potentially responsible parties are involved, we consider our proportionate share of the probable costs. In formulating the estimate of probable costs, we do not consider amounts expected to be recovered from insurance companies or others. We reassess these accrued amounts on a quarterly basis. The amount recorded for environmental remediation is not material and is included in Accrued expenses. We believe there is no more than a remote chance that a material amount for remedial activities at any individual site, or at all the sites in the aggregate, will be required.

On January 7, 2015, the Company received a grand jury subpoena from the U.S. District Court for the Central District of Illinois. The subpoena requests documents and information from the Company relating to, among other things, financial information concerning U.S. and non-U.S. Caterpillar subsidiaries (including undistributed profits of non-U.S. subsidiaries and the movement of cash among U.S. and non-U.S. subsidiaries). The Company has received additional subpoenas relating to this investigation requesting additional documents and information relating to, among other things, the purchase and resale of replacement parts by Caterpillar Inc. and non-U.S. Caterpillar subsidiaries, dividend distributions of certain non-U.S. Caterpillar subsidiaries, and Caterpillar SARL and related structures. On March 2-3, 2017, agents with the Department of Commerce, the Federal Deposit Insurance Corporation and the Internal Revenue Service executed search and seizure warrants at three facilities of the Company in the Peoria, Illinois area, including its former corporate headquarters. The warrants identify, and agents seized, documents and information related to, among other things, the export of products from the United States, the movement of products between the United States and Switzerland, the relationship between Caterpillar Inc. and Caterpillar SARL, and sales outside the United States. It is the Company’s understanding that the warrants, which concern both tax and export activities, are related to the ongoing grand jury investigation. The Company is continuing to cooperate with this investigation. The Company is unable to predict the outcome or reasonably estimate any potential loss; however, we currently believe that this matter will not have a material adverse effect on the Company’s consolidated results of operations, financial position or liquidity.

On March 20, 2014, Brazil’s Administrative Council for Economic Defense (CADE) published a Technical Opinion which named 18 companies and over 100 individuals as defendants, including two subsidiaries of Caterpillar Inc., MGE - Equipamentos e Serviços Ferroviários Ltda. (MGE) and Caterpillar Brasil Ltda. The publication of the Technical Opinion opened CADE's official administrative investigation into allegations that the defendants participated in anticompetitive bid activity for the construction and maintenance of metro and train networks in Brazil. While companies cannot be held criminally liable for anticompetitive conduct in Brazil, criminal charges have been brought against two current employees of MGE and one former employee of MGE involving the same conduct alleged by CADE. The Company has responded to all requests for information from the authorities. The Company is unable to predict the outcome or reasonably estimate the potential loss; however, we currently believe that this matter will not have a material adverse effect on the Company's consolidated results of operations, financial position or liquidity.

On October 24, 2013, Progress Rail received a grand jury subpoena from the U.S. District Court for the Central District of California related to the former railcar repair operations of its subsidiary, United Industries, LLC ("United") at the intermodal rail yard at Terminal Island, California ("Terminal Island"). United complied with the subpoena and cooperated with the U.S. Attorney. After investigation, the U.S. Attorney alleged that United engaged in unnecessary and improper railcar repair activities and disposed of railcar parts by hand in the water surrounding its former Terminal Island operation. On December 7, 2017, United entered a guilty plea in U.S. District Court for the Central District of California to a single misdemeanor violation of the Refuse Act. As part of the agreement to enter the plea, United has paid $25 million in fines and restitution.

In addition, we are involved in other unresolved legal actions that arise in the normal course of business. The most prevalent of these unresolved actions involve disputes related to product design, manufacture and performance liability (including claimed asbestos and welding fumes exposure), contracts, employment issues, environmental matters, intellectual property rights, tax and securities laws. The aggregate range of reasonably possible losses in excess of accrued liabilities, if any, associated with these

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unresolved legal actions is not material. In some cases, we cannot reasonably estimate a range of loss because there is insufficient information regarding the matter. However, we believe there is no more than a remote chance that any liability arising from these matters would be material. Although it is not possible to predict with certainty the outcome of these unresolved legal actions, we believe that these actions will not individually or in the aggregate have a material adverse effect on our consolidated results of operations, financial position or liquidity.

RETIREMENT BENEFITS

We recognize mark-to-market gains and losses immediately through earnings upon the remeasurement of our pension and OPEB plans. Mark-to-market gains and losses represent the effects of actual results differing from our assumptions and the effects of changing assumptions. Changes in discount rates and differences between the actual return on plan assets and the expected return on plan assets generally have the largest impact on mark-to-market gains and losses.

We recognized expense of $342 million in 2017, $957 million in 2016 and $292 million in 2015 related to our defined benefit pension and OPEB plans. The decrease in expense in 2017 compared to 2016 was primarily due to lower net mark-to-market losses in 2017 compared to 2016. This was partially offset by an unfavorable change in amortization of prior service credits, curtailment and termination charges in 2017 related to the Gosselies, Belgium and Aurora, Illinois facility closures and a lower expected return on plan assets. The increase in expense in 2016 compared to 2015 was primarily due to a higher net mark-to-market loss in 2016 compared to 2015 and lower expected return on plan assets as a result of a lower asset base in 2016 compared to 2015 and a lower expected rate of return on plan assets. This was partially offset by lower interest costs primarily due to adoption of a full yield curve approach in the estimation of interest cost (discussed below) and lower service costs primarily due to fewer employees earning benefits under our plans as a result of the U.S. voluntary retirement enhancement program that was implemented in the fourth quarter 2015.

The primary factors that resulted in mark-to-market losses for 2017, 2016 and 2015 are described below:

- 2017 net mark-to-market loss of $301 million - Primarily due to lower discount rates at the end of 2017 compared to the end of 2016 and changes in our mortality assumption (discussed below). This was partially offset by the difference between the actual return on plan assets compared to the expected return on plan assets (U.S. pension plans had an actual rate of return of 15.5 percent compared to an expected rate of return of 6.7 percent).
- 2016 net mark-to-market loss of $985 million - Primarily due to lower discount rates at the end of 2016 compared to the end of 2015 and changes in our U.S. mortality assumption (discussed below). This was partially offset by the difference between the actual return on plan assets compared to the expected return on plan assets (U.S. pension plans had an actual rate of return of 7.8 percent compared to an expected rate of return of 6.9 percent).
- 2015 net mark-to-market loss of $179 million - Primarily due to the difference between the actual return on plan assets compared to the expected return on plan assets (U.S. pension plans had an actual rate of return of (2.0) percent compared to an expected rate of return of 7.4 percent) which was partially offset by higher discount rates at the end of 2015 compared to 2014.

The net mark-to-market losses were in the following Results of Operations line items:

	Years ended December 31,		
(Millions of dollars)	2017	2016	2015
Cost of goods sold	$(29)	$476	$122
Selling, general and administrative expenses	244	382	18
Research and development expenses	86	127	39

Total	$301	$985	$179

Effective January 1, 2018, we adopted new accounting guidance issued by the FASB related to the presentation of net periodic pension and OPEB costs. This guidance requires that an employer disaggregate the service cost component from the other components of net benefit cost. Service cost is required to be reported in the same line item or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components of net benefit cost are required to be reported outside the subtotal for income from operations. As a result, components of pension and OPEB costs, other than service costs, will be reclassified from operating costs to other income/expense. This change will be applied retrospectively to prior years.

In the fourth quarter of 2017, the company reviewed and made changes to the mortality assumptions primarily for our U.S. pension plans which resulted in an overall increase in the life expectancy of plan participants. As of December 31, 2017 these changes resulted in an increase in our Liability for postemployment benefits of approximately $290 million. In the fourth quarter of 2016, the company adopted new mortality improvement scales released by the SoA for our U.S. pension and OPEB plans. As of December 31, 2016, this resulted in an increase in our Liability for postemployment benefits of approximately $200 million.

In the first quarter of 2017, we announced the closure of our Gosselies, Belgium facility. This announcement impacted certain employees that participated in a defined benefit pension plan and resulted in a curtailment and the recognition of termination benefits. In March 2017, we recognized a net loss of $20 million for the curtailment and termination benefits. In addition, we announced the decision to phase out production at our Aurora, Illinois, facility, which resulted in termination benefits of $9 million for certain hourly employees that participate in our U.S. hourly defined benefit pension plan.

Beginning in 2016, we elected to utilize a full yield curve approach in the estimation of service and interest costs by applying the specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows. Service and interest costs in 2017 and 2016 were lower by $140 million and $180 million, respectively, under the new method than they would have been under the previous method. This change had no impact on our year-end defined benefit pension and OPEB obligations or our annual net periodic benefit cost as the lower service and interest costs were entirely offset in the actuarial loss (gain) reported for the respective year.

We expect our total defined benefit pension and OPEB expense (excluding the impact of mark-to-market gains and losses) to decrease approximately $80 million in 2018. This decrease is primarily due to a higher expected return on plan assets as a result of a higher asset base in 2018.

In general, our strategy for both the U.S. and the non-U.S. pensions includes ongoing alignment of our investments to our liabilities, while reducing risk in our portfolio. For our U.S. pension plans, our year-end 2017 asset allocation was 34 percent equities, 62 percent fixed income and 4 percent other. Our current U.S. pension target asset allocation is 30 percent equities and 70 percent fixed income. The target allocation is revisited periodically to ensure it reflects our overall objectives. The U.S. plans are rebalanced to plus or minus 5 percentage points of the target asset allocation ranges on a monthly basis.

The year-end 2017 asset allocation for our non-U.S. pension plans was 40 percent equities, 53 percent fixed income, 4 percent real estate and 3 percent other. The 2017 weighted-average target allocations for our non-U.S. pension plans was 38 percent equities, 54 percent fixed income, 5 percent real estate and 3 percent other. The target allocations for each plan vary based upon local statutory requirements, demographics of the plan participants and funded status. The frequency of rebalancing for the non-U.S. plans varies depending on the plan.

Contributions to our pension and OPEB plans were $1.6 billion and $329 million in 2017 and 2016, respectively. The 2017 contributions include a $1.0 billion discretionary contribution made to our U.S. pension plans in December 2017. We expect to make approximately $365 million of contributions to our pension and OPEB plans in 2018. We believe we have adequate resources to fund both pension and OPEB plans.

Actuarial assumptions have a significant impact on both pension and OPEB expenses. The effects of a one percentage point change in our primary actuarial assumptions on 2017 benefit costs and year-end obligations are included in the table below.

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Postretirement Benefit Plan Actuarial Assumptions Sensitivity

Following are the effects of a one percentage-point change in our primary pension and OPEB actuarial assumptions (included in the following table) on 2017 pension and other OPEB costs and obligations:

(Millions of dollars)	2017 Benefit Cost		Year-end Benefit Obligation	
	One percentage-point increase	One percentage-point decrease	One percentage-point increase	One percentage-point decrease
Pension benefits:				
Assumed discount rate	$ 61	$ (83)	$ (2,561)	$ 3,167
Expected rate of compensation increase	8	(7)	77	(70)
Expected long-term rate of return on plan assets	(149)	149	—	—
Other postretirement benefits:				
Assumed discount rate	11	(12)	(366)	438
Expected rate of compensation increase	—	—	1	(1)
Expected long-term rate of return on plan assets	(5)	5	—	—
Assumed health care cost trend rate	14	(12)	161	(136)

Primary Actuarial Assumptions

	U.S. Pension Benefits			Non-U.S. Pension Benefits			Other Postretirement Benefits		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Weighted-average assumptions used to determine benefit obligations, end of year:									
Discount rate	3.5 %	4.0 %	4.2 %	2.4 %	2.5 %	3.2 %	3.6 %	4.0 %	4.1 %
Rate of compensation increase	4.0 %	4.0 %	4.0 %	4.0 %	4.0 %	3.8 %	4.0 %	4.0 %	4.0 %
Weighted-average assumptions used to determine net cost:									
Discount rate used to measure service cost	4.2 %	4.5 %	3.8 %	2.4 %	2.9 %	3.3 %	3.9 %	4.2 %	3.9 %
Discount rate used to measure interest cost	3.3 %	3.4 %	3.8 %	2.3 %	2.8 %				