2019
Annual Report
Executing Our Strategy

CATERPILLAR®

CORPORATE PROFILE

Whether paving roads, mining essential commodities or extracting the fuels to satisfy global energy demand, Caterpillar products are helping to build a better world. Since 1925, Caterpillar has been making sustainable progress possible and driving positive change on every continent.

Services offered throughout the product life cycle, cutting-edge technology and decades of product expertise set Caterpillar apart, providing exceptional value to help our customers succeed.

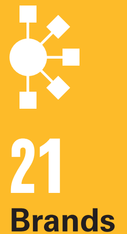
$53.8B
Sales & Revenues

$1.7B
R&D Funding

~$30M
Foundation Investment

102,300
Employees

165
Cat® Dealers



21
Brands

4 Million+
Cat® Products at Work Around the World*
*Includes discontinued products

~150
Primary Locations

In ~25 Countries

190+
Countries Where We Do Business

Sales Outside the U.S.

1M
Connected Assets

All numbers represent 2019 data

THE WORLD'S LEADING MANUFACTURER

- Construction and Mining Equipment
- Diesel and Natural Gas Engines
- Industrial Gas Turbines
- Diesel-Electric Locomotives

PRIMARY BUSINESS SEGMENTS

- Construction Industries
- Resource Industries
- Energy & Transportation
- Financial Products

CORPORATE HEADQUARTERS

- Deerfield, Illinois

STOCK SYMBOL

- CAT

20 YEARS ON THE DOW JONES SUSTAINABILITY INDEX

DEAR FELLOW SHAREHOLDERS

I would like to thank Caterpillar employees around the world for enabling our customers to continue providing the critical infrastructure essential to fight the global pandemic.

As we prepared this year's Annual Report, COVID-19 became a global pandemic, presenting new challenges around the world. Governments responded with guidance to manage the crisis and, in many instances, classified operations such as Caterpillar's as essential activity for support of critical infrastructure.

Customers use our products to provide primary and stand-by power for hospitals, grocery stores and data centers; transport food and critical supplies in trucks, ships and locomotives; maintain clean water and sewer systems; mine commodities

> Along with our dealers and suppliers, Caterpillar is working to help ensure uninterrupted access to the products and services that our customers rely upon to support society during these difficult times.

and extract the fuels essential to satisfy global energy demand. Along with our dealers and suppliers, Caterpillar is working to help ensure uninterrupted access to the products and services that our customers rely upon to support society during these difficult times.

While we are serving this important need, Caterpillar remains dedicated to the safety, health and well-being of our employees. The Caterpillar team achieved our best safety performance on record in 2019, and we are leveraging our strong safety culture to manage through this pandemic.

Employees who can work from home are doing so. In our facilities that remain open, Caterpillar is taking appropriate precautions and implementing safeguards to protect our team members. We have increased the frequency of cleaning and disinfecting facilities with special attention to common areas. We are following social distancing practices and are implementing other measures consistent with specific regulatory requirements and guidance from health authorities.

We have introduced a number of enhanced benefits to our employees to help them deal with the pandemic. These benefits vary by country based on local medical care systems and various regulatory requirements. The Caterpillar Foundation has also committed $10 million (USD) to directly support global COVID-19 response activities and help organizations that have been impacted.

In response to the pandemic, we have taken other decisive actions to keep our company strong, including reducing discretionary expenses and suspending 2020 salary increases and short-term incentives for many employees and all senior executives.

Photo credit: NYSE

Celebrating 90 Years of Corporate Strength

Of the approximately 2,200 companies listed on the New York Stock Exchange (NYSE), Caterpillar is among only 3% that have been listed for 90 consecutive years or more. We celebrated the 90th anniversary of Caterpillar's listing on the NYSE in December, when Caterpillar Chairman and CEO Jim Umpleby rang the opening bell.

To mark the occasion, we put a variety of Cat® machines on display in front of the NYSE, including a wheel loader, wheeled excavator, industrial loader and compact loader, all of which have played a part in Caterpillar's historical success.

We continue to execute the strategy for profitable growth we introduced in 2017 by focusing on operational excellence, expanded offerings and services.

Caterpillar has faced and overcome many challenges in our 95-year history. As in the past, our employees continue to rise to the occasion. I would like to thank Caterpillar employees around the world for enabling our customers to continue providing the critical infrastructure essential to fight the global pandemic.

Thank you for your continued support.

Jim Umpleby
Chairman & CEO

2019 PERFORMANCE AT-A-GLANCE

Caterpillar delivered strong operational performance despite a 2% decline in sales and revenues for the year. We remained disciplined and focused on maintaining control of our structural costs, which helped us achieve an operating profit margin of 15.4%. We generated strong operating cash flow and, as a result, were able to return $6.2 billion to shareholders, including $4.0 billion in share repurchases. We also raised the dividend by 20% in 2019 and paid dividends of $2.1 billion, maintaining our status as a Dividend Aristocrat. We achieved our 2019 Investor Day targets for operating margin and returned substantially all Machinery, Energy & Transportation (ME&T) free cash flow to shareholders.

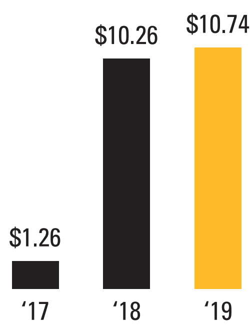
Sales and Revenues
(in billions)

Sales by Region
(in billions)

- North America – **$25.8**
- Asia/Pacific – **$12.1**
- Europe, Africa, Middle East – **$11.2**
- Latin America – **$4.7**

Operating Profit
(in billions)

Profit Per Share
(in dollars)



Adjusted Profit Per Share
(in dollars)

A reconciliation of adjusted profit per share to U.S. GAAP can be found in our 2019 10-K filing, which is available on our website at www.caterpillar.com/investors.

Dividends Paid
(per share in dollars)

Amounts in U.S. Dollars

2019 END-MARKET HIGHLIGHTS

Construction Industries

Modest economic expansion and continued growth in construction activity in North America, in particular for road infrastructure, was offset by weaker demand in Asia/Pacific due to continued competitive pressures. Lower sales in 2019 were driven by changes in dealer inventories, partially offset by higher end-user demand.

$22.6B* Revenue

$3.9B Profit

Resource Industries

Mining customers increased capital expenditures as commodity prices were generally supportive of investments. Positive global economic growth drove increased sales for equipment supporting nonresidential construction activities, as well as quarry and aggregates activities.

$10.3B* Revenue

$1.6B Profit

Energy & Transportation

Declines in North American oil and gas resulted in weaker new equipment demand for well servicing and slowed timing of turbine project delivery of gas compression projects. Both industrial and power generation applications experienced moderate growth from higher end-user demand, while transportation sales were about flat.

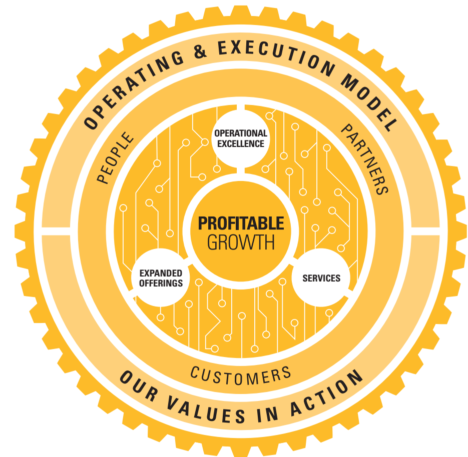
$22.1B* Revenue

$3.9B Profit

** Includes inter-segment sales*

EXECUTING OUR STRATEGY

Caterpillar continues to execute our strategy for profitable growth, which has three pillars: operational excellence, expanded offerings and services. **Operational excellence** includes the core competencies of safety, quality, Lean and a competitive and flexible cost structure. **Expanded offerings** includes our growing equipment portfolio that meets a broad range of customer needs. **Services** refers to the many ways that we help customers succeed after purchasing a product, including growing digital offerings. Successfully executing this strategy allows us to improve operating profit and free cash flow – while providing better solutions to customers and creating more opportunities for our people, partners and shareholders.



OPERATIONAL EXCELLENCE

- Delivered an operating margin of 15.4% on $53.8 billion of sales and revenues in line with our 2019 Investor Day range.

- Continued our Lean manufacturing journey through synchronization of value chains to reduce lead times, optimize working capital and increase availability.
- Continued focus on improving the competitiveness and flexibility of our cost structure, such as reducing production levels to reflect dealer order patterns and targeting lead times.

- Removed about $2 billion in structural costs since 2014 by taking an enterprise view to cost management and streamlining our manufacturing approach.
- Continued focus on implementing defect-free initiatives across the company has continued to result in high-quality machines and power systems.

Achieved our best safety performance on record.

EXPANDED OFFERINGS

- Invested approximately $3.5 billion in research and development (R&D) during the past two years, resulting in a wide variety of new products across all our segments.
- Launched 11 GC models to date, including six new models in 2019, which target customers who prioritize lifecycle value.
- Expanded our portfolio to include a broader range of underground mining products. Introduced new products with fuel-efficiency benefits, including the D6 XE, the world's first high-drive electric drive dozer.
- Responded to customers' needs for reliable engines that are lighter, more efficient and powerful with two new engine platforms, the Cat C3.6 and C9.3B.
- Introduced the well service 3512E Tier 4 Final Dynamic Gas Blending™ dual fuel engine – the first and only Tier 4 Final well service dual-fuel engine in the industry.
- Started production of a new single trailer 5MW Solar turbine mobile generator.
- Launched the XQP30, XQP60, XQP100, XQ230, XQP1100 and XGC1900 family of switchable electric power rental packages.

SERVICES

- Increased Machinery, Energy & Transportation (ME&T) services revenue 2% in 2019 to approximately $18 billion, working toward our goal to double ME&T services revenue between 2016 and 2026.

- Achieved target to connect 1 million assets, resulting in one of the largest fleets of connected assets in the industries we serve.

- Continued to expand digital capabilities, providing actionable insights for our customers. For example, the Cat Inspect app is now being used to provide close to 100,000 inspections per month.

- Helped dealers better forecast customer demand through advanced analytics, enabling them to improve parts availability.

- Leveraged new capabilities to be more customer-focused than ever before, thanks to a renewed focus on customer value agreements.

- Expanded the number of mining trucks running Caterpillar's autonomous solutions to 275 trucks, an increase of 48% over 2018. Caterpillar continues to have the single largest autonomous fleet in the world, with customers reporting benefits in the areas of safety, productivity and performance.

CORPORATE GOVERNANCE

Caterpillar's governance structure provides leadership, accountability and transparency to the management of the company and its businesses. Our corporate governance framework serves the interests of shareholders with the highest standards of responsibility, integrity and commitment to enhance shareholder value over the long term. These standards are developed and implemented by our Board of Directors and the Executive Office. Learn more at **www.caterpillar.com/governance**.

Board of Directors

Kelly A. Ayotte
Former U.S. Senator
Representing New Hampshire

David L. Calhoun
President and CEO
The Boeing Company

Daniel M. Dickinson
Managing Partner
HCI Equity Partners

Juan Gallardo
Chairman and Former CEO
Organización CULTIBA, S.A.B de C.V.

William A. Osborn
Former Chairman and CEO
Northern Trust Corporation and
The Northern Trust Company

Debra L. Reed-Klages
Former Chairman and CEO
Sempra Energy

Edward B. Rust, Jr.
Former Chairman and CEO
State Farm Mutual Automobile
Insurance Company

Susan C. Schwab
Professor
University of Maryland School
of Public Policy and Former
U.S. Trade Representative

D. James Umpleby III
Chairman and CEO
Caterpillar Inc.

Miles D. White
Executive Chairman of the Board
Abbott Laboratories

Rayford Wilkins, Jr.
Former CEO
Diversified Businesses AT&T Inc.

As of April 1, 2020

Officers

Chairman and CEO
D. James Umpleby III

Group Presidents
William P. Ainsworth
Bob De Lange
Denise C. Johnson
Ramin Younessi

Chief Financial Officer
Andrew R.J. Bonfield

Chief Legal Officer, General Counsel
and Corporate Secretary
Suzette M. Long

Chief Human Resources Officer
Cheryl H. Johnson

LEARN MORE about our corporate governance framework and voting on matters for the annual meeting in Caterpillar's Proxy Statement: **https://www.caterpillar.com/en/investors/financial-information/proxy-statement.**

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

CATERPILLAR®

FORM 10-K

☑ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2019
OR
☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____________ to _____________.

Commission File 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)*

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

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT:

Title of each class	Trading Symbol (s)	Name of each exchange on which registered
Common Stock ($1.00 par value)	CAT	New York Stock Exchange[1]
9 3/8% Debentures due March 15, 2021	CAT21	New York Stock Exchange
8% Debentures due February 15, 2023	CAT23	New York Stock Exchange
5.3% Debentures due September 15, 2035	CAT35	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	YES	NO
• if the Registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.	☑	☐
• if the Registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.	☐	☑
• 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.	☑	☐
• whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).	☑	☐
• whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or emerging growth company. See the definitions of "large accelerated filer," "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):		
Large accelerated filer ☑ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐		
• If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.	☐	
• whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).	☐	☑

As of June 28, 2019, there were 562,589,191 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 $76.8 billion.

As of December 31, 2019, there were 550,082,610 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 2020 Annual Meeting Proxy Statement (Proxy Statement) to be filed with the Securities and Exchange Commission (SEC) within 120 days after the end of the fiscal year.

TABLE OF CONTENTS

PART I	**Item 1.**	Business	1
	Item 1A.	Risk Factors	6
	Item 1B.	Unresolved Staff Comments	12
	Item 1C.	Executive Officers of the Registrant	12
	Item 2.	Properties	13
	Item 3.	Legal Proceedings	14
	Item 4.	Mine Safety Disclosures	14
PART II	**Item 5.**	Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	15
	Item 6.	Selected Financial Data	17
	Item 7.	Management's Discussion and Analysis of Financial Condition and Results of Operations	18
	Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	48
	Item 8.	Financial Statements and Supplementary Data	49
	Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	107
	Item 9A.	Controls and Procedures	107
	Item 9B.	Other Information	107
PART III	**Item 10.**	Directors, Executive Officers and Corporate Governance	108
	Item 11.	Executive Compensation	108
	Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	108
	Item 13.	Certain Relationships and Related Transactions, and Director Independence	109
	Item 14.	Principal Accountant Fees and Services	109

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 2019 sales and revenues of $53.800 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 five operating segments, of which four are reportable segments and are described below.

Categories of Business Organization

1. **Machinery, Energy & Transportation** – Represents the aggregate total of Construction Industries, Resource Industries, Energy & Transportation and All Other operating segment 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 2019, 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.

The 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 2019 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 CASE (part of CNH Industrial N.V.), Deere Construction & Forestry (part of Deere & Company), Doosan Infracore Co., Ltd., Hitachi Construction Machinery Co., Ltd., Hyundai Construction Equipment Co., Ltd., J.C. Bamford Excavators Ltd., Kobelco Construction Machinery (part of Kobe Steel, Ltd), Komatsu Ltd., Kubota Farm & Industrial Machinery (part of Kubota Corporation), and Volvo Construction Equipment (part of the Volvo Group). 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, Shandong Lingong Construction Machinery Co., Ltd. (SDLG, part of the Volvo Group) and Shantui Construction Machinery Co., Ltd., (part of Shandong Heavy Industry Group Co.). Each of these companies has varying product lines that compete with Caterpillar products, and each has varying degrees of regional focus.

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

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

Resource Industries

The Resource Industries segment is primarily responsible for supporting customers using machinery in mining, heavy construction, quarry and aggregates, 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 customers the lowest total cost of ownership enabled through the highest quality, most productive products and services 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 Deere Construction & Forestry (part of Deere & Company), Epiroc AB, Hitachi Construction Machinery Co., Ltd., Komatsu Ltd., Liebherr-International AG, Sandvik AB, and Volvo Construction Equipment. Our global underground competitors include Epiroc AB, Komatsu Ltd., Sandvik AB and Zhengzhou Coal Mining Machinery Group Co., Ltd.

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

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

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 Caterpillar 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.

Regulatory emissions standards require us to continue to make investments as new products and new regulations are introduced. On-going compliance with these regulations remains a focus. Emissions compliance in developing markets is complex due to rapidly evolving and unique requirements where enforcement processes can often vary. We employ robust product development and manufacturing processes to help us comply with these regulations.

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., Deutz AG, INNIO, Rolls-Royce Power Systems and Wärtsilä Corp. Other competitors, such as Fiat Industrial SpA (CNHI), GE Power, Kawasaki Heavy Industries Energy System & Plant Engineering, MAN Energy Solutions (VW), Mitsubishi Heavy Industries Ltd., Siemens Power and Gas, Volvo Penta AB, Weichai Power Co., Ltd., and other emerging market competitors compete in certain markets in which Caterpillar competes. An additional set of competitors, including Aggreko plc, Baker Hughes Co., Generac Holdings, Kohler Power Systems, 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 Alstom SA, Bombardier Transportation, CRRC Corp., LTD., The Greenbrier Companies, Siemens Mobility, Voestalpine AG, Vossloh AG and Wabtec Freight. 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, Insurance Services and their respective subsidiaries. Cat Financial is a wholly owned finance subsidiary of Caterpillar Inc. and its 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. 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 the 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 loans (totaling 49 percent*) include:

- Loans that allow customers and dealers to use their Caterpillar equipment or other assets as collateral to obtain financing (24 percent*).
- 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 (25 percent*).

Cat Financial's retail leases (totaling 35 percent*) include:

- 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 (22 percent*).
- 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*).
- 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 also purchases short-term receivables from Caterpillar (14 percent*).

Cat Financial's wholesale loans and leases (2 percent*) include inventory/rental programs, which provide assistance to dealers by financing their new Caterpillar inventory and rental fleets.

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, Australia and New Zealand Banking Group Limited, Banc of America Leasing & Capital LLC, BNP Paribas Leasing Solutions Limited, Wells Fargo Equipment Finance Inc. and various other banks and finance companies. In addition, many of our manufacturing competitors own financial subsidiaries, such as John Deere Capital Corporation, Komatsu Financial L.P., Kubota Credit Corporation and Volvo Financial Services, which 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. Cat Financial is also affected by, among other things, the availability of funds from its financing sources, its cost of funds relative to its competitors and general economic conditions such as inflation and market interest rates.

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 4 — "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 assets and liabilities, 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 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

* Indicates the percentage of Cat Financial's total portfolio at December 31, 2019. 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 7 — "Cat Financial Financing Activities" of Part II, Item 8 "Financial Statements and Supplementary Data."

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 $13.7 billion at December 31, 2019 and $16.5 billion at December 31, 2018. Compared with year-end 2018, the order backlog decreased across the three primary segments. Of the total backlog at December 31, 2019, approximately $3.8 billion was not expected to be filled in 2020.

Dealers and Distributors

Our machines are distributed principally through a worldwide organization of dealers (dealer network), 46 located in the United States and 119 located outside the United States, serving 191 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 67 distributors covering 178 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 150 distributors covering 109 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 segment. There are also three independent dealers in the Southern Region of Japan.

For Caterpillar branded products, the company's relationship with each of its independent dealers is memorialized in standard sales and service agreements. Pursuant to these agreements,

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.

Employment

As of December 31, 2019, we employed about 102,300 full-time persons of whom approximately 58,700 were located outside the United States. In the United States, we employed approximately 43,600 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

	2019	2018
Inside U.S.	**43,600**	44,600
Outside U.S.	**58,700**	59,400
Total	**102,300**	104,000
By Region:		
North America	**43,900**	44,900
EAME	**18,400**	18,000
Latin America	**16,400**	17,300
Asia/Pacific	**23,600**	23,800
Total	**102,300**	104,000

As of December 31, 2019, there were approximately 8,290 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 6,880 of such employees are covered by collective bargaining agreements with the UAW that expire on December 17, 2020 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.

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 -

- view additional financial information on-line at www.Caterpillar.com/en/investors/financial-information.html
- 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

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," "forecast," "target," "guide," "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 and services 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 or changes in consumption. 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 services 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, commercial construction and housing starts 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.

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. Production challenges at suppliers, 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. 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 support 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, create supply chain inefficiencies and 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, rail systems, airports, sewer and water systems, waterways 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 decisions to reduce public spending or to increase 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;
- imposition of new or additional tariffs or quotas;
- withdrawal from or modification of trade agreements or the negotiation of new trade agreements;
- imposition of new or additional trade and economic sanctions laws imposed by the U.S. or foreign governments;
- war or acts of terrorism; 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, which could lead 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 sensitive information relating to our business, customers, dealers, suppliers and employees. Operating these information technology systems and networks and processing and maintaining this data in a secure manner, is 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. It is possible that our information technology systems and networks, or those managed by third parties, could have vulnerabilities, which could go unnoticed for a period of time. While various procedures and controls have been and are being utilized to mitigate such risks, there can be no guarantee that the actions and controls we have

implemented and are implementing, or which we cause or have caused third party service providers to implement, will be sufficient to protect our systems, information or other property.

We have experienced cyber security threats and vulnerabilities in our systems and those of our third party providers, and we have experienced viruses and attacks targeting our information technology systems and networks. Such prior events, to date, have not had a material impact on our financial condition, results of operations or liquidity. However, the potential consequences of a future material cybersecurity attack include reputational damage, litigation with third parties, government enforcement actions, penalties, 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. Due to the evolving nature of such security threats, the potential impact of any future incident cannot be predicted. Further, the amount of insurance coverage we maintain may be inadequate to cover claims or liabilities relating to a cybersecurity attack.

In addition, data we collect, store and process is subject to a variety of U.S. and international laws and regulations, such as the European Union's General Data Protection Regulation that became effective in May 2018, which may carry significant potential penalties for noncompliance.

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 and machine rental usage rates. 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 due diligence, among other things, there may be risks and liabilities that our 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:

- the failure to achieve the acquisition's revenue or profit forecast;
- 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 information technology 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 following the transaction, including through guarantees or other financial arrangements. 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 disputes 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 disputes 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 may increase our cost of doing business or disrupt our operations.

The occurrence of one or more unexpected events, including war, acts of terrorism or violence, civil unrest, 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, including the current COVID-19 outbreak, 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, and disruption and delay in the transport of our products to dealers, end-users and 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 and Cat Financial will be able to maintain their credit ratings. We receive debt ratings from the major credit rating agencies. Moody's long- and short-term ratings of Caterpillar and Cat Financial are A3 and Prime-2 ("low-A"), while other major credit rating agencies maintain a "mid-A" debt rating. A downgrade of our credit rating by any of the 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 for 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.

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 impact 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 results are subject to fluctuations in interest rates. Certain loans made by Cat Financial and various financing extended to Cat Financial are made at variable rates that use LIBOR as a benchmark for establishing the interest rate. LIBOR is the subject of recent proposals for reform. On July 27, 2017, the United Kingdom's Financial Conduct Authority announced that it intends to stop persuading or compelling banks to submit LIBOR rates after 2021. These reforms may cause LIBOR to cease to exist, new methods of calculating LIBOR to be established such that LIBOR continues to exist after 2021 or the establishment of an alternative reference rate(s). Several offerings of securities that include such an alternative reference rate have now been completed by other companies. The consequences of these developments cannot be entirely predicted and could have an adverse impact on the market value for or value of LIBOR-linked securities, loans, derivatives, and other financial obligations or extensions of credit held by or due to Cat Financial, as well as the revenue and expenses associated with those securities, loans and financial instruments. Cat Financial has created a cross-functional team that will assess risk across multiple categories as it relates to the use of LIBOR in securities, loans, derivatives, and other financial obligations or extensions of credit held by or due to us. The team is also closely monitoring the progress of LIBOR reform and preparing to incorporate appropriate fallback language for transitioning to an alternative reference rate(s) into new agreements with customers. The team is reviewing how to best manage those customer agreements that extend beyond 2021 and utilize LIBOR. Other changes in market interest rates may influence Cat Financial's borrowing costs and could reduce its and our earnings and cash flows, returns on financial investments and the valuation of derivative contracts. Cat Financial manages interest rate and market liquidity risks through a variety of techniques that include a match funding strategy, the selective use of derivatives and a broadly diversified funding program. There can be no assurance, however, that fluctuations in interest rates and market liquidity conditions will not have an adverse impact 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, this may have an adverse impact on our earnings and cash flows. With respect to Insurance Services' investment activities, changes in the equity and bond markets could result in a decline in value of its investment portfolio, resulting in an unfavorable impact 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.

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 result in increased contribution requirements. Our assumptions for future benefit payments may also change over time and could be materially higher than originally projected. We expect 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 change over time and could 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 a wide-range of 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 increased 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 in certain locations 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, expose us to the the risk of such violations. Violations of anti-corruption laws or regulations by our employees, intermediaries acting on our behalf, or 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 between U.S. and non-U.S. jurisdictions or among 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 6 — "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 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 reputation, business, results of operations or 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 reputation, business and results of operations or 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 United States, 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 a result, 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. Changes in regulations or additional regulations in the United States 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.

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 reputation, business, capital expenditures, results of operations, financial condition and competitive position.

ITEM 1B. Unresolved Staff Comments.

None.

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 (61)	Chairman of the Board (2018) and Chief Executive Officer (2017)	Group President (2013-2016)
Andrew R.J. Bonfield (57)	Chief Financial Officer (2018)	Group Chief Financial Officer for a multinational electricity and gas utility company (2010-2018)
Bob De Lange (50)	Group President (2017)	Vice President (2015-2016), Worldwide Product Manager, Medium Wheel Loaders, (2013-2014)
Denise C. Johnson (53)	Group President (2016)	Vice President (2012-2016)
William P. Ainsworth (63)	Group President (2019)	President/CEO, Progress Rail & Senior Vice President and Strategic Advisor to Caterpillar Inc. (2017-2019), President/CEO, Progress Rail - Vice President (2014-2017)
Ramin Younessi (55)	Group President (2018)	Vice President (2013-2018)
Suzette M. Long (54)	Chief Legal Officer, General Counsel and Corporate Secretary (2017)	Interim Executive Vice President, Law and Public Policy (2017), Deputy General Counsel (2013-2017)
Cheryl C. Johnson (59)	Chief Human Resources Officer (2017)	Executive Vice President of Human Resources for a global multi-industry aerospace, defense and industrial manufacturing company (2012-2017)
G. Michael Marvel (58)	Chief Accounting Officer (2019)	Director of Corporate Financial Reporting (2018-2019), Chief Financial Officer for Solar Turbines Incorporated (2013-2018)

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 segment 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. Our Financial Products business is headquartered in offices in Nashville, Tennessee. Additional key offices are located inside and outside the United States.

Technical Center, Training Centers, Demonstration Areas and Proving Grounds

We operate Technical Centers located in Mossville, Illinois; Wuxi, China; and Chennai, India. Our demonstration centers are located in Tinaja Hills, Arizona; Edwards, Illinois; Chichibu, Japan and Malaga, Spain. We have various other technical and training centers, demonstration areas and proving grounds located both inside and outside the United States.

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: Arvin, California; Denver, Colorado; Miami, Florida; Atlanta, Georgia; Morton, Illinois; St. Paul, Minnesota; Clayton, Ohio; York, Pennsylvania; Waco, Texas; Spokane, Washington; Melbourne, Australia; Queensland, Australia; Grimbergen, Belgium; Piracicaba, Brazil; Shanghai, China; Sagami, Japan; 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; Bogor, Indonesia; Corinth, Mississippi; Prentiss County, Mississippi; West Fargo, North Dakota; Piracicaba, Brazil; Shanghai, China; Nuevo Laredo, Mexico; and Shrewsbury, United Kingdom.

Component manufacturing is reported in the All Other segment and is conducted primarily at facilities in the following locations: East Peoria, Illinois; Mapleton, Illinois; Peoria, Illinois; Bogor, Indonesia; 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; 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:

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

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.

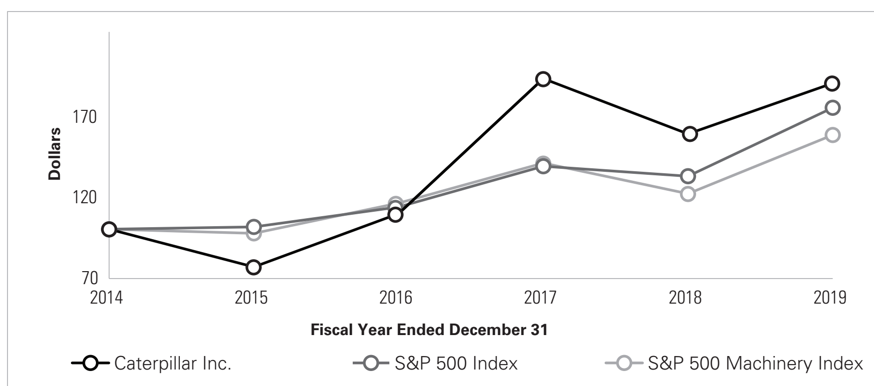
Common Stock (NYSE: CAT)

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.

Number of Shareholders: Shareholders of record at the end of 2019 totaled 25,985, compared with 26,938 at the end of 2018.

Performance Graph: Total Cumulative Shareholder Return for Five-Year Period Ending December 31, 2019

The graph below shows the cumulative shareholder return assuming an investment of $100 on December 31, 2014, and reinvestment of dividends issued thereafter.



	2014	2015	2016	2017	2018	2019
Caterpillar Inc.	$ 100.00	$ 77.03	$ 109.46	$ 191.59	$ 157.95	$ 188.77
S&P 500	$ 100.00	$ 101.38	$ 113.51	$ 138.29	$ 132.23	$ 173.86
S&P 500 Machinery	$ 100.00	$ 97.47	$ 115.85	$ 140.22	$ 121.58	$ 157.29

Non-U.S. Employee Stock Purchase Plans

As of December 31, 2019, we had 24 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 2019, approximately 87,000 shares of Caterpillar common stock were purchased by the EIP Plans pursuant to the terms of such plans.

Issuer Purchases of Equity Securities

Period	Total Number of Shares Purchased [2,3]	Average Price Paid per Share [2,3]	Total Number of Shares Purchased as Part of Publicly Announced Program	Approximate Dollar Value of Shares that May Yet be Purchased under the Program (in billions) [1]
October 1-31, 2019	4,755,142	$ 137.65	4,755,142	$ 6.022
November 1-30, 2019	36,414	$ 137.31	36,414	$ 6.017
December 1-31, 2019	2,890	$ 139.73	2,890	$ 6.017
Total	4,794,446	$ 137.64	4,794,446	

[1] In July 2018, the Board approved a share repurchase authorization of up to $10.0 billion of Caterpillar common stock effective January 1, 2019, with no expiration (the 2018 Authorization). As of December 31, 2019, approximately $6.0 billion remained available under the 2018 Authorization.

[2] During the fourth quarter of 2019, we entered into an accelerated share repurchase agreement (ASR) with a third-party financial institution to purchase $600 million of our common stock. In October 2019, upon payment of $600 million to the financial institution, we received 3.5 million shares. In January 2020, upon final settlement of the ASR, we received an additional 0.7 million shares. In total, we repurchased 4.2 million shares under this ASR at an average price per share of $142.48.

[3] In October of 2019, we repurchased 1.3 million shares for $158 million in open market transactions at an average price per share of $124.43. In November and December of 2019, we repurchased a minimal number of shares in open market transactions as illustrated in the above table.

Share repurchases in the table above are reported based on the trade dates.

ITEM 6. Selected Financial Data.

Five-year Financial Summary

(Dollars in millions except per share data)	2019	2018	2017	2016	2015
Years ended December 31,					
Sales and revenues	**$ 53,800**	$ 54,722	$ 45,462	$ 38,537	$ 47,011
Percent inside the United States	**42%**	41%	41%	41%	41%
Percent outside the United States	**58%**	59%	59%	59%	59%
Sales	**$ 50,755**	$ 51,822	$ 42,676	$ 35,773	$ 44,147
Revenues	**$ 3,045**	$ 2,900	$ 2,786	$ 2,764	$ 2,864
Profit (loss) [1]	**$ 6,093**	$ 6,147	$ 754	$ (67)	$ 2,512
Profit (loss) per common share [2]	**$ 10.85**	$ 10.39	$ 1.27	$ (0.11)	$ 4.23
Profit (loss) per common share–diluted [3]	**$ 10.74**	$ 10.26	$ 1.26	$ (0.11)	$ 4.18
Dividends declared per share of common stock	**$ 3.95**	$ 3.36	$ 3.11	$ 3.08	$ 3.01
Return on average common shareholders' equity [4]	**42.4%**	44.1%	5.6%	(0.5)%	15.8%
Capital expenditures:					
Property, plant and equipment	**$ 1,056**	$ 1,276	$ 898	$ 1,109	$ 1,388
Equipment leased to others	**$ 1,613**	$ 1,640	$ 1,438	$ 1,819	$ 1,873
Depreciation and amortization	**$ 2,577**	$ 2,766	$ 2,877	$ 3,034	$ 3,046
Research and development expenses	**$ 1,693**	$ 1,850	$ 1,842	$ 1,853	$ 2,134
As a percent of sales and revenues	**3.1%**	3.4%	4.1%	4.8%	4.5%
Average number of employees	**103,400**	101,500	96,000	99,500	110,800
December 31,					
Total assets	**$ 78,453**	$ 78,509	$ 76,962	$ 74,704	$ 78,342
Long-term debt due after one year:					
Consolidated	**$ 26,281**	$ 25,000	$ 23,847	$ 22,818	$ 25,169
Machinery, Energy & Transportation	**$ 9,141**	$ 8,005	$ 7,929	$ 8,436	$ 8,960
Financial Products	**$ 17,140**	$ 16,995	$ 15,918	$ 14,382	$ 16,209
Total debt:					
Consolidated	**$ 37,657**	$ 36,553	$ 34,878	$ 36,783	$ 38,013
Machinery, Energy & Transportation	**$ 9,162**	$ 8,015	$ 7,936	$ 9,152	$ 9,486
Financial Products	**$ 28,495**	$ 28,538	$ 26,942	$ 27,631	$ 28,527

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."

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 2019 Form 10-K.

OVERVIEW

Our sales and revenues for 2019 were $53.800 billion, a 2 percent decrease from 2018 sales and revenues of $54.722 billion. The decrease was primarily due to lower ***sales volume.*** The sales volume decline was mostly due to changes in dealer inventories, partially offset by higher end-user demand. Sales were lower in ***EAME*** and Asia/Pacific, while North America and ***Latin America*** were about flat. Sales declined in ***Energy & Transportation*** and ***Construction Industries***, while ***Resource Industries*** was about flat. Profit per share for 2019 was $10.74, compared to profit per share of $10.26 in 2018. Profit was $6.093 billion in 2019, compared with $6.147 billion in 2018. The decrease was primarily due to higher tax expense as operating profit was about flat. Operating profit was about flat as favorable ***price realization***, lower selling, general and administrative (SG&A) and research and development (R&D) expenses and higher Financial Products' profit were offset by higher ***manufacturing costs***, lower sales volume and unfavorable ***currency*** impacts.

Fourth-quarter 2019 sales and revenues were $13.144 billion, down $1.198 billion, or 8 percent, from $14.342 billion in the fourth quarter of 2018. Fourth-quarter 2019 profit was $1.97 per share, compared with $1.78 per share in the fourth quarter of 2018. Fourth-quarter 2019 profit was $1.098 billion, compared with $1.048 billion in 2018.

Highlights for 2019 include:

- Sales and revenues in 2019 were $53.800 billion, down 2 percent from 2018. Sales declined in Energy & Transportation and Construction Industries, while Resource Industries was about flat.
- Operating profit as a percent of sales and revenues was 15.4 percent in 2019, compared with 15.2 percent in 2018.
- Profit was $10.74 per share for 2019, and excluding the items in the table below, ***adjusted profit per share*** was $11.06. For 2018 profit was $10.26 per share, and excluding the items in the table below, adjusted profit per share was $11.22.
- In order for our results to be more meaningful to our readers, we have separately quantified the impact of several significant items:

(Dollars in millions except per share data)	Full Year 2019 Profit Before Taxes	Full Year 2019 Profit Per Share	Full Year 2018 Profit Before Taxes	Full Year 2018 Profit Per Share
Profit	$ 7,812	$ 10.74	$ 7,822	$ 10.26
Mark-to-market losses [1]	468	0.64	495	0.64
U.S. tax reform impact	—	(0.31)	—	(0.17)
Restructuring costs [2]	—	—	386	0.50
Deferred tax valuation allowance adjustments	—	—	—	(0.01)
Adjusted profit	$ 8,280	$ 11.06	$ 8,703	$ 11.22

[1] Profit per share at statutory tax rates.

[2] Profit per share for 2018 restructuring costs were at statutory tax rates. 2019 restructuring costs were not material.

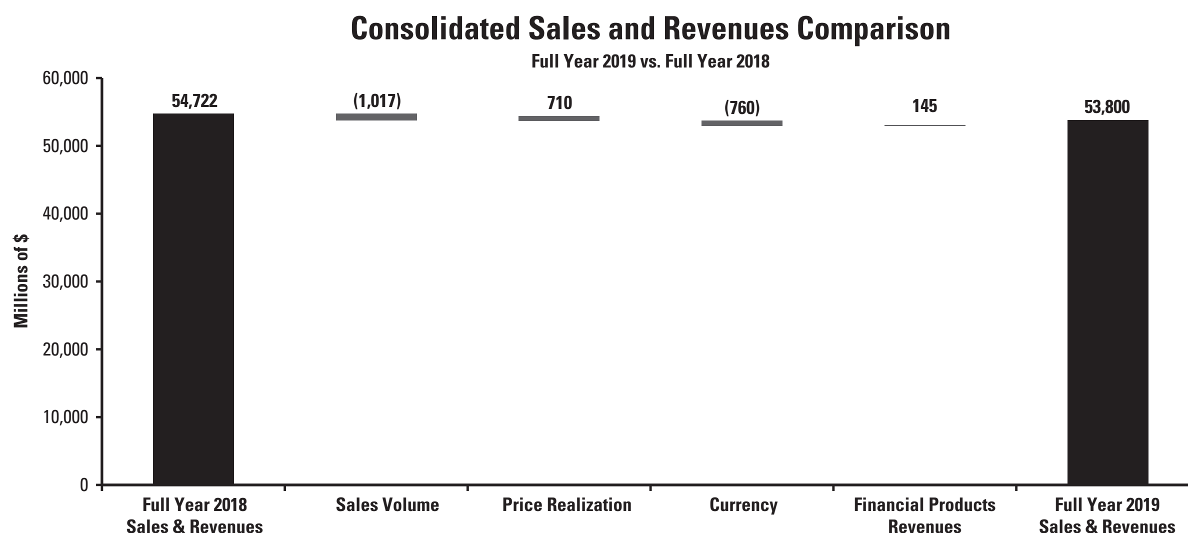
- Enterprise operating cash flow for 2019 was about $6.9 billion, compared with about $6.6 billion in 2018. ***Machinery, Energy & Transportation (ME&T)*** operating cash flow for 2019 was about $4.9 billion, more than sufficient to cover capital expenditures and dividends. ME&T operating cash flow for 2018 was about $6.3 billion.

Notes:

- Glossary of terms included on pages 34-35; first occurrence of terms shown in bold italics.
- Information on non-GAAP financial measures is included on pages 43-44.
- Some amounts within this report are rounded to the millions or billions and may not add. In addition, the sum of the components reported across periods may not equal the total amount reported year-to-date due to rounding.

2019 COMPARED WITH 2018

CONSOLIDATED SALES AND REVENUES



The chart above graphically illustrates reasons for the change in consolidated sales and revenues between 2018 (at left) and 2019 (at right). Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues were $53.800 billion in 2019, a decrease of $922 million, or 2 percent, compared with $54.722 billion in 2018. The decrease was mostly due to lower sales volume driven by changes in dealer inventories, partially offset by higher end-user demand. Unfavorable currency impacts, primarily from a weaker euro, Australian dollar, Chinese yuan and Brazilian real, were mostly offset by favorable price realization. Sales decreased in Energy & Transportation and Construction Industries, while Resource Industries was about flat. Sales decreased in EAME and Asia/Pacific, while North America and Latin America were about flat.

North America sales were about flat compared with prior year as favorable price realization was mostly offset by lower sales volume. Sales volume declined primarily due to changes in dealer inventories as dealers increased inventories more during 2018 than 2019, partially offset by higher end-user demand.

Sales were about flat in Latin America as higher sales volume was offset by an unfavorable currency impact from a weaker Brazilian real. Sales volume increased due to higher end-user demand which was mostly offset by changes in dealer inventories as dealers increased inventories more during 2018 than 2019.

EAME sales decreased 6 percent primarily due to lower sales volume and the unfavorable impact of a weaker euro, partially offset by higher price realization. The decrease in sales volume was primarily due to changes in dealer inventories. Dealers increased inventories during 2018 and decreased inventories during 2019.

Asia/Pacific sales declined 4 percent primarily due to unfavorable currency impacts of a weaker Australian dollar and Chinese yuan and lower sales volume. Sales volume decreased due to changes in dealer inventories, partially offset by higher end-user demand. Dealer inventories increased more during 2018 than 2019.

Dealer machine and engine inventories increased about $2.3 billion in 2018, compared with an increase of about $800 million in 2019. Dealers are independent, and the reasons for changes in their inventory levels vary, 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 expect dealer inventories to decline about $1.0 to $1.5 billion during 2020.

Sales and Revenues by Segment

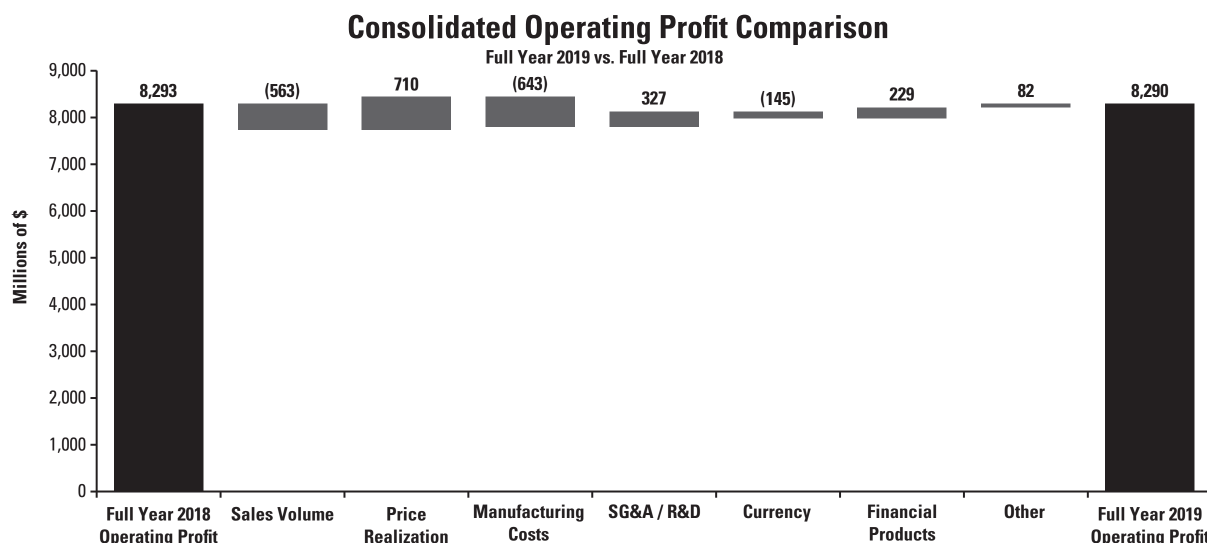
(Millions of dollars)	2018	Sales Volume	Price Realization	Currency	Inter-Segment/ Other	2019	$ Change	% Change
Construction Industries	$ 23,237	$ (560)	$ 349	$ (349)	$ (28)	$ 22,649	$ (588)	(3%)
Resource Industries	10,270	(260)	306	(121)	81	10,276	6	—%
Energy & Transportation	22,785	(116)	55	(286)	(341)	22,097	(688)	(3%)
All Other Segment	482	(24)	—	(3)	45	500	18	4%
Corporate Items and Eliminations	(4,952)	(57)	—	(1)	243	(4,767)	185	
Machinery, Energy & Transportation	51,822	(1,017)	710	(760)	—	50,755	(1,067)	(2%)
Financial Products Segment	3,279	—	—	—	155	3,434	155	5%
Corporate Items and Eliminations	(379)	—	—	—	(10)	(389)	(10)	
Financial Products Revenues	2,900	—	—	—	145	3,045	145	5%
Consolidated Sales and Revenues	$ 54,722	$ (1,017)	$ 710	$ (760)	$ 145	$ 53,800	$ (922)	(2%)

Sales and Revenues by Geographic Region

(Millions of dollars)	North America $	North America % Chg	Latin America $	Latin America % Chg	EAME $	EAME % Chg	Asia/Pacific $	Asia/Pacific % Chg	External Sales and Revenues $	External Sales and Revenues % Chg	Inter-Segment $	Inter-Segment % Chg	Total Sales and Revenues $	Total Sales and Revenues % Chg
2019														
Construction Industries	$ 11,455	7%	$ 1,533	4%	$ 4,012	(9%)	$ 5,556	(14%)	$ 22,556	(2%)	$ 93	(23%)	$ 22,649	(3%)
Resource Industries	3,632	8%	1,533	(7%)	1,836	(17%)	2,812	5%	9,813	(1%)	463	21%	10,276	—%
Energy & Transportation	8,864	(8%)	1,389	4%	4,994	1%	3,238	12%	18,485	(2%)	3,612	(9%)	22,097	(3%)
All Other Segment	25	(60%)	7	133%	28	56%	67	(4%)	127	(18%)	373	14%	500	4%
Corporate Items and Eliminations	(192)		—		(20)		(14)		(226)		(4,541)		(4,767)	
Machinery, Energy & Transportation	23,784	—%	4,462	—%	10,850	(6%)	11,659	(4%)	50,755	(2%)	—	—%	50,755	(2%)
Financial Products Segment	2,235	4%	299	6%	408	5%	492	7%	3,434 [1]	5%	—	—%	3,434	5%
Corporate Items and Eliminations	(234)		(51)		(35)		(69)		(389)		—		(389)	
Financial Products Revenues	2,001	4%	248	6%	373	3%	423	10%	3,045	5%	—	—%	3,045	5%
Consolidated Sales and Revenues	$ 25,785	1%	$ 4,710	—%	$ 11,223	(6%)	$ 12,082	(3%)	$ 53,800	(2%)	$ —	—%	$ 53,800	(2%)
2018														
Construction Industries	$ 10,754		$ 1,479		$ 4,410		$ 6,473		$ 23,116		$ 121		$ 23,237	
Resource Industries	3,357		1,647		2,217		2,667		9,888		382		10,270	
Energy & Transportation	9,685		1,331		4,934		2,882		18,832		3,953		22,785	
All Other Segment	63		3		18		70		154		328		482	
Corporate Items and Eliminations	(155)		—		(11)		(2)		(168)		(4,784)		(4,952)	
Machinery, Energy & Transportation	23,704		4,460		11,568		12,090		51,822		—		51,822	
Financial Products Segment	2,153		281		387		458		3,279 [1]		—		3,279	
Corporate Items and Eliminations	(234)		(46)		(26)		(73)		(379)		—		(379)	
Financial Products Revenues	1,919		235		361		385		2,900		—		2,900	
Consolidated Sales and Revenues	$ 25,623		$ 4,695		$ 11,929		$ 12,475		$ 54,722		$ —		$ 54,722	

[1] Includes revenues from Machinery, Energy & Transportation of $524 million and $470 million in 2019 and 2018, respectively.

CONSOLIDATED OPERATING PROFIT



The chart above graphically illustrates reasons for the change in consolidated operating profit between 2018 (at left) and 2019 (at right). 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 was $8.290 billion in 2019, about flat with $8.293 billion in 2018. Favorable price realization mostly offset higher manufacturing costs. Lower sales volume offset favorable selling, general and administrative (SG&A) and research and development (R&D) expenses and higher profit from Financial Products.

Manufacturing costs increased due to higher warranty expense, increased variable labor and burden, unfavorable cost absorption, and higher material costs. Cost absorption was unfavorable as inventory increased during 2018, compared with a decrease during 2019. The increase was partially offset by lower period manufacturing costs driven by lower short-term incentive compensation expense and the favorable impact of restructuring and cost-reduction actions.

SG&A/R&D expenses decreased due to lower short-term incentive compensation expense, partially offset by investments aligned with the company's strategic growth initiatives.

Short-term incentive compensation expense is directly related to financial and operational performance, measured against targets set annually. Short-term incentive compensation expense in 2018 was about $1.4 billion, compared with about $700 million in 2019.

For 2020, we expect short-term incentive compensation expense will be about $800 million. We also expect lower manufacturing costs.

Operating profit margin was 15.4 percent in 2019, compared with 15.2 percent in 2018.

Profit by Segment

(Millions of dollars)	2019	2018	$ Change	% Change
Construction Industries	$ 3,931	$ 4,174	$ (243)	(6%)
Resource Industries	1,629	1,603	26	2%
Energy & Transportation	3,910	3,938	(28)	(1%)
All Other Segment	4	23	(19)	(83%)
Corporate Items and Eliminations	(1,504)	(1,583)	79	
Machinery, Energy & Transportation	7,970	8,155	(185)	(2%)
Financial Products Segment	832	505	327	65%
Corporate Items and Eliminations	(81)	17	(98)	
Financial Products	751	522	229	44%
Consolidating Adjustments	(431)	(384)	(47)	
Consolidated Operating Profit	$ **8,290**	$ **8,293**	$ **(3)**	—%

Other Profit/Loss and Tax Items

- Interest expense excluding Financial Products in 2019 was $421 million, compared with $404 million in 2018. The increase was due to higher average debt outstanding during 2019 than 2018.
- Other income (expense) in 2019 was expense of $57 million, compared with expense of $67 million in 2018. The decrease was due to a lower expected return on ***pension and other postretirement benefit (OPEB)*** plan assets more than offset by lower foreign exchange losses, unrealized and realized gains on marketable securities at Insurance Services and the favorable impact of commodity hedges.
- The provision for income taxes for 2019 reflected an annual effective tax rate of 25.2 percent, compared with 24.1 percent for 2018, excluding the discrete items discussed in the following paragraph. The increase from 2018 was largely driven by the application of U.S. tax reform provisions to the earnings of certain non-U.S. subsidiaries, which do not have a calendar fiscal year-end. These provisions did not apply to these subsidiaries in 2018.

  The provision for income taxes also included the following:

  - A tax benefit of $178 million to adjust previously unrecognized tax benefits as a result of receipt of additional guidance in 2019 related to the calculation of the mandatory deemed repatriation of non-U.S. earnings due to U.S. tax reform. In 2018, the mandatory deemed repatriation estimate increased by $50 million.
  - A tax benefit of $41 million in 2019, compared with $56 million in 2018, for the settlement of stock-based compensation awards with associated tax deductions in excess of cumulative U.S. GAAP compensation expense.
  - A net benefit of $183 million in 2018 to adjust deferred tax balances. (See Note – 6 "Income Taxes" of Part II, Item 8 "Financial Statements and Supplementary Data" for more information.)

Construction Industries

Construction Industries' total sales were $22.649 billion for 2019, a decrease of $588 million, or 3 percent, compared with $23.237 billion for 2018. The decrease was primarily due to lower sales volume driven by changes in dealer inventories, partially offset by higher end-user demand. Dealer inventories increased significantly more during 2018 than during 2019. Favorable price realization was offset by unfavorable currency impacts from a weaker euro, Chinese yuan and Australian dollar.

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

- In North America, the sales increase was primarily due to higher demand for construction equipment and favorable price realization.
- Sales were higher in Latin America. While construction activities remained at low levels, the increase was driven by road and non-residential construction activities.
- Sales decreased in EAME primarily due to changes in dealer inventories and the unfavorable impact of a weaker euro, partially offset by favorable price realization. Dealer inventories increased during 2018, compared with a decrease during 2019.
- Sales in Asia/Pacific decreased mostly due to lower demand, including changes in dealer inventories, and unfavorable currency impacts. The unfavorable currency impacts were due to a weaker Chinese yuan and Australian dollar. Dealers increased inventories during 2018 and decreased inventories during 2019. The lower demand was primarily in China due to continued competitive pressures. In addition, demand was lower across the region.

Construction Industries' profit was $3.931 billion in 2019, a decrease of $243 million, or 6 percent, compared with $4.174 billion in 2018. The decrease was primarily due to lower sales volume, including an unfavorable mix of products, and higher manufacturing costs, which were partially offset by favorable price realization and lower SG&A/R&D expenses. Manufacturing costs increased primarily due to unfavorable variable labor and burden. Lower SG&A/R&D expenses were due to lower short-term incentive compensation expense, partially offset by investments aligned with the company's strategic growth initiatives.

Construction Industries' profit as a percent of total sales was 17.4 percent in 2019, compared with 18.0 percent in 2018.

Resource Industries

Resource Industries' total sales were $10.276 billion in 2019, about flat with $10.270 billion in 2018. Higher end-user demand for equipment and favorable price realization were offset by changes in dealer inventories and unfavorable currency impacts, primarily the weaker Australian dollar and euro. Higher end-user demand was driven by increased capital investment by mining customers to support ongoing mine site operations. End-user demand also increased for our non-residential construction and quarry and aggregate customers. Dealers increased inventories more significantly during 2018 than during 2019.

Resource Industries' profit was $1.629 billion in 2019, an increase of $26 million, or 2 percent, compared with $1.603 billion in 2018. The improvement was mostly due to favorable price realization, partially offset by higher manufacturing costs. Manufacturing costs increased due to higher warranty expense, unfavorable cost absorption, increased variable labor and burden and higher material costs, partially offset by the favorable period manufacturing costs due to the impact of restructuring and cost-reduction actions and lower short-term incentive compensation expense. Cost absorption was unfavorable as inventory increased more during 2018 than 2019.

Resource Industries' profit as a percent of total sales was 15.9 percent in 2019, compared with 15.6 percent in 2018.

Energy & Transportation

Sales by Application

(Millions of dollars)	2019	2018	$ Change	% Change
Oil and Gas	$ 5,205	$ 5,763	$ (558)	(10%)
Power Generation	4,474	4,334	140	3%
Industrial	3,749	3,640	109	3%
Transportation	5,057	5,095	(38)	(1%)
External Sales	18,485	18,832	(347)	(2%)
Inter-Segment	3,612	3,953	(341)	(9%)
Total Sales	$ 22,097	$ 22,785	$ (688)	(3%)

Energy & Transportation's total sales were $22.097 billion in 2019, compared with $22.785 billion in 2018. Sales declined primarily due to lower inter-segment engine sales and unfavorable currency impacts, primarily from the weaker euro and Australian dollar.

- Oil and Gas – Sales decreased in North America primarily due to lower new equipment demand for well servicing and the timing of turbine project deliveries for gas compression and production. Lower sales in North America were partially offset by increases in all other regions, primarily Asia/Pacific.
- Power Generation – Sales increased mostly due to higher deliveries of diesel reciprocating engines in North America and higher turbine sales across all regions. The increase was partially offset by lower diesel reciprocating engine sales in EAME and Asia/Pacific driven by unfavorable currency impacts and lower volume.
- Industrial – Sales improved primarily in North America and Asia/Pacific driven by higher end-user demand.
- Transportation – Sales were about flat as lower locomotive sales were offset by stronger marine demand.

Energy & Transportation's profit was $3.910 billion for 2019, a decrease of $28 million, or 1 percent, compared with $3.938 billion for 2018. The decrease was mostly due to lower sales volumes, partially offset by lower SG&A/R&D expenses. Lower SG&A/R&D expenses were primarily due to lower short-term incentive compensation expense. Higher manufacturing costs were more than offset by favorable price realization and favorable other operating (income) expenses.

Energy & Transportation's profit as a percent of total sales was 17.7 percent in 2019, compared with 17.3 percent in 2018.

Financial Products Segment

Financial Products' segment revenues were $3.434 billion, an increase of $155 million, or 5 percent, from 2018. The increase was primarily due to higher average financing rates in North America and Asia/Pacific, an increase in earned premiums from Insurance Services across all regions and higher average ***earning assets*** in North America. These favorable impacts were partially offset by the absence of fees associated with an intercompany credit facility in North America.

Financial Products' segment profit was $832 million in 2019, compared with $505 million in 2018. Most of the increase was due to lower provision for credit losses at Cat Financial, driven by a lower allowance rate compared with 2018. The lower allowance rate was due to write-offs of accounts in 2019 that were reserved for in 2018, primarily in the Cat Power Finance portfolio. In addition, there was a favorable impact from an increase in net yield on average earning assets and a favorable impact from equity securities in Insurance Services. These favorable impacts were partially offset by higher SG&A expenses and the absence of the intercompany credit facility.

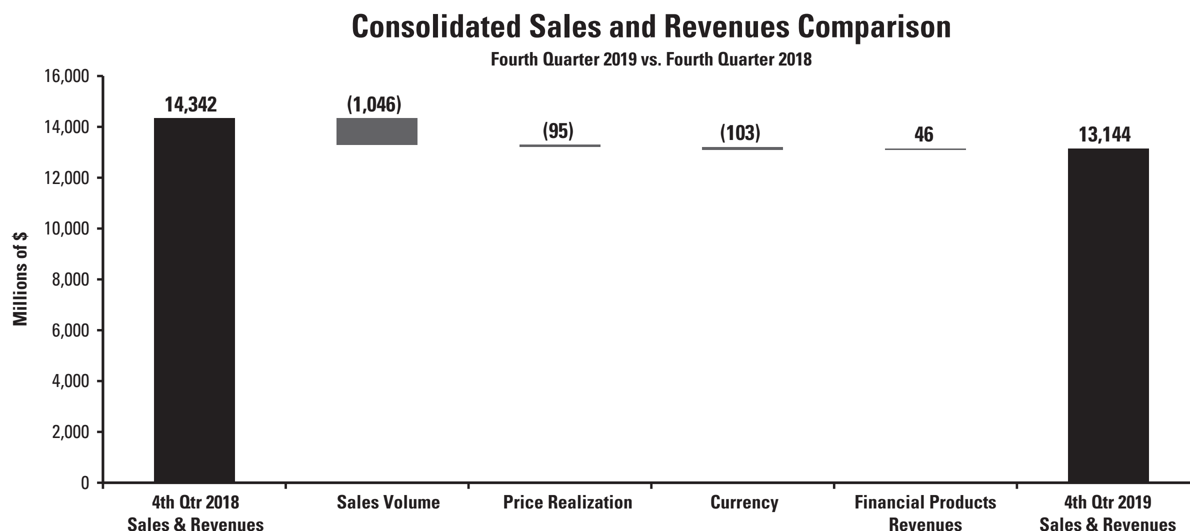
At the end of 2019, past dues at Cat Financial were 3.14 percent, compared with 3.55 percent at the end of 2018. Write-offs, net of recoveries, were $237 million for 2019, an increase from $189 million for 2018, primarily due to Mining, Caterpillar Power Finance and EAME, partially offset by a decrease in Latin America. The increase in Mining was due to a small number of customer balances written off in 2019, while the increases in Caterpillar Power Finance and EAME were concentrated in the marine portfolio and the Middle East, respectively. As of December 31, 2019, Cat Financial's allowance for credit losses totaled $424 million, or 1.50 percent of finance receivables, compared with $511 million, or 1.80 percent of finance receivables, at December 31, 2018.

Corporate Items and Eliminations

Expense for corporate items and eliminations was $1.585 billion in 2019, an increase of $19 million from 2018. The increase was primarily due to methodology differences, mostly offset by lower restructuring costs and timing differences.

FOURTH QUARTER 2019 COMPARED WITH FOURTH QUARTER 2018

CONSOLIDATED SALES AND REVENUES



The chart above graphically illustrates reasons for the change in consolidated sales and revenues between the fourth quarter of 2018 (at left) and the fourth quarter of 2019 (at right). Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues of $13.144 billion in the fourth quarter of 2019 decreased $1.198 billion, or 8 percent, compared with $14.342 billion in the fourth quarter of 2018. The decline was due to lower sales volume driven by the impact from changes in dealer inventories and lower end-user demand, primarily in Construction Industries and Resource Industries. Dealers decreased machine and engine inventories about $700 million during the fourth quarter of 2019, compared with an increase of about $200 million during the fourth quarter of 2018.

The largest sales decrease was in North America, which declined 14 percent due to lower demand, including changes in dealer inventories. Dealer inventories increased during the fourth quarter of 2018, compared with a decrease during the fourth quarter of 2019.

Sales decreased 16 percent in Latin America due to lower demand across the region.

EAME sales decreased 6 percent primarily due to changes in dealer inventories and unfavorable currency impacts, primarily from the weaker euro. Dealer inventories decreased more during the fourth quarter of 2019 than the fourth quarter of 2018.

Asia/Pacific sales were about flat as higher sales volume was offset by unfavorable price realization and currency impacts, primarily from the weaker Australian dollar. Sales volume was higher as improved end-user demand was partially offset by changes in dealer inventories. Dealer inventories increased more during the fourth quarter of 2018 than the fourth quarter of 2019.

Dealers decreased machine and engine inventories about $700 million during the fourth quarter of 2019, compared with an increase of about $200 million during the fourth quarter of 2018. Dealers are independent, and the reasons for changes in their inventory levels vary, 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.

Sales and Revenues by Segment

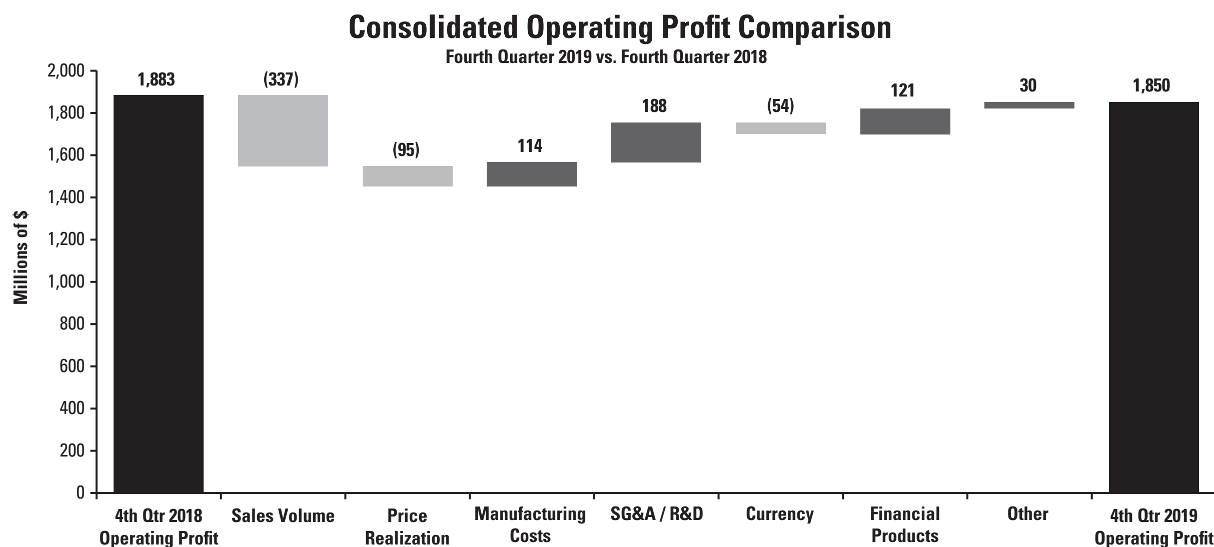
(Millions of dollars)	Fourth Quarter 2018	Sales Volume	Price Realization	Currency	Inter-Segment/ Other	Fourth Quarter 2019	$ Change	% Change
Construction Industries	$ 5,705	$ (565)	$ (86)	$ (32)	$ (2)	$ 5,020	$ (685)	(12%)
Resource Industries	2,797	(430)	17	(22)	33	2,395	(402)	(14%)
Energy & Transportation	6,287	(25)	(27)	(47)	(239)	5,949	(338)	(5%)
All Other Segment	129	(10)	—	—	24	143	14	11%
Corporate Items and Eliminations	(1,288)	(16)	1	(2)	184	(1,121)	167	
Machinery, Energy & Transportation	13,630	(1,046)	(95)	(103)	—	12,386	(1,244)	(9%)
Financial Products Segment	812	—	—	—	34	846	34	4%
Corporate Items and Eliminations	(100)	—	—	—	12	(88)	12	
Financial Products Revenues	712	—	—	—	46	758	46	6%
Consolidated Sales and Revenues	$ 14,342	$ (1,046)	$ (95)	$ (103)	$ 46	$ 13,144	$ (1,198)	(8%)

Sales and Revenues by Geographic Region

(Millions of dollars)	North America $	North America % Chg	Latin America $	Latin America % Chg	EAME $	EAME % Chg	Asia/ Pacific $	Asia/ Pacific % Chg	External Sales and Revenues $	External Sales and Revenues % Chg	Inter- Segment $	Inter- Segment % Chg	Total Sales and Revenues $	Total Sales and Revenues % Chg
Fourth Quarter 2019														
Construction Industries	$ 2,249	(18%)	$ 409	9%	$ 850	(20%)	$ 1,475	—%	$ 4,983	(12%)	$ 37	(5%)	$ 5,020	(12%)
Resource Industries	834	(8%)	313	(33%)	526	(5%)	603	(23%)	2,276	(16%)	119	38%	2,395	(14%)
Energy & Transportation	2,287	(11%)	354	(18%)	1,578	5%	947	26%	5,166	(2%)	783	(23%)	5,949	(5%)
All Other Segment	2	(88%)	—	—%	5	(17%)	22	47%	29	(26%)	114	27%	143	11%
Corporate Items and Eliminations	(50)		—		(5)		(13)		(68)		(1,053)		(1,121)	
Machinery, Energy & Transportation	5,322	(14%)	1,076	(16%)	2,954	(6%)	3,034	—%	12,386	(9%)	—	—%	12,386	(9%)
Financial Products Segment	554	2%	74	9%	102	21%	116	1%	846 [1]	4%	—	—%	846	4%
Corporate Items and Eliminations	(50)		(14)		(9)		(15)		(88)		—		(88)	
Financial Products Revenues	504	5%	60	3%	93	22%	101	2%	758	6%	—	—%	758	6%
Consolidated Sales and Revenues	$ 5,826	(13%)	$ 1,136	(15%)	$ 3,047	(5%)	$ 3,135	—%	$ 13,144	(8%)	$ —	—%	$ 13,144	(8%)
Fourth Quarter 2018														
Construction Industries	$ 2,749		$ 374		$ 1,063		$ 1,480		$ 5,666		$ 39		$ 5,705	
Resource Industries	906		466		554		785		2,711		86		2,797	
Energy & Transportation	2,569		434		1,509		753		5,265		1,022		6,287	
All Other Segment	16		2		6		15		39		90		129	
Corporate Items and Eliminations	(47)		1		(3)		(2)		(51)		(1,237)		(1,288)	
Machinery, Energy & Transportation	6,193		1,277		3,129		3,031		13,630		—		13,630	
Financial Products Segment	545		68		84		115		812 [1]		—		812	
Corporate Items and Eliminations	(66)		(10)		(8)		(16)		(100)		—		(100)	
Financial Products Revenues	479		58		76		99		712		—		712	
Consolidated Sales and Revenues	$ 6,672		$ 1,335		$ 3,205		$ 3,130		$ 14,342		$ —		$ 14,342	

[1] Includes revenues from Machinery, Energy & Transportation of $126 million and $125 million in the three months ended December 30, 2019 and 2018, respectively.

CONSOLIDATED OPERATING PROFIT



The chart above graphically illustrates reasons for the change in consolidated operating profit between the fourth quarter of 2018 (at left) and the fourth quarter of 2019 (at right). 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 2019 was $1.850 billion, a decrease of $33 million, or 2 percent, compared with $1.883 billion in the fourth quarter of 2018. The decrease was primarily due to lower sales volume, mostly offset by lower SG&A and R&D expenses and higher profit from Financial Products.

Lower SG&A/R&D expenses were mostly due to a reduction in short-term incentive compensation expense and timing of R&D expenses.

Financial Products' operating profit was higher, primarily due to lower provisions for credit losses related to the Cat Power Finance portfolio compared with the fourth quarter of 2018.

In addition, favorable manufacturing costs were mostly offset by unfavorable price realization. Manufacturing costs decreased primarily due to lower period manufacturing and material costs, partially offset by higher warranty expense. Period manufacturing costs declined mainly due to lower short-term incentive compensation and the favorable impact of restructuring and cost-reduction actions.

Short-term incentive compensation expense was about $120 million in the fourth quarter of 2019, compared with about $310 million in the fourth quarter of 2018.

Operating profit margin in the fourth quarter of 2019 was 14.1 percent, compared with 13.1 percent in the fourth quarter of 2018.

Profit (Loss) by Segment

(Millions of dollars)	Fourth Quarter 2019	Fourth Quarter 2018	$ Change	% Change
Construction Industries	$ 659	$ 845	$ (186)	(22%)
Resource Industries	261	400	(139)	(35%)
Energy & Transportation	1,165	1,079	86	8%
All Other Segment	(11)	(47)	36	77%
Corporate Items and Eliminations	(325)	(375)	50	
Machinery, Energy & Transportation	1,749	1,902	(153)	(8%)
Financial Products Segment	210	29	181	624%
Corporate Items and Eliminations	(6)	54	(60)	
Financial Products	204	83	121	146%
Consolidating Adjustments	(103)	(102)	(1)	
Consolidated Operating Profit	$ 1,850	$ 1,883	$ (33)	(2%)

Other Profit/Loss and Tax Items

- Interest expense excluding Financial Products in the fourth quarter of 2019 was $112 million, compared with $99 million in the fourth quarter of 2018. The increase was due to higher average debt outstanding during the fourth quarter of 2019, compared with the fourth quarter of 2018.
- Other income (expense) in the fourth quarter of 2019 was expense of $373 million, compared with expense of $417 million in the fourth quarter of 2018. The decrease in expense was due to the favorable impact of commodity hedges, higher realized gains and lower unrealized losses on marketable securities at Insurance Services, which were partially offset by unfavorable pension and OPEB costs.

- The provision for income taxes in the fourth quarter reflected an annual effective tax rate of 25.2 percent, compared with 24.1 percent for the full year of 2018, excluding discrete items discussed in the following paragraph. The increase from 2018 was largely driven by the application of U.S. tax reform provisions to the earnings of certain non-U.S. subsidiaries, which do not have a calendar fiscal year-end. These provisions did not apply to these subsidiaries in 2018.

  The provision for income taxes also included the following:

  - The change from the third-quarter estimated annual tax rate of 26 percent to the annual effective tax rate of 25.2 percent resulted in a $54 million tax benefit in the fourth quarter of 2019.
  - A tax benefit of $13 million in the fourth quarter of 2019, compared to $4 million in the fourth quarter of 2018, for the settlement of stock-based compensation awards with associated tax deductions in excess of cumulative U.S. GAAP compensation expense.
  - A net tax benefit of $13 million in the fourth quarter of 2018 for other discrete items.

Construction Industries

Construction Industries' total sales were $5.020 billion in the fourth quarter of 2019, a decrease of $685 million, or 12 percent, compared with $5.705 billion in the fourth quarter of 2018. The decrease was due to lower sales volume, driven mostly by the impact from changes in dealer inventories. Dealers decreased inventories during the fourth quarter of 2019, compared with dealer inventories that were about flat during the fourth quarter of 2018. Unfavorable price realization also contributed to the decline in sales.

- In North America, sales decreased due to lower demand driven by the impact from changes in dealer inventories, while end-user demand was about flat. Dealers decreased inventories during the fourth quarter of 2019, compared with an increase during the fourth quarter of 2018.
- Sales were higher in Latin America. While construction activities remained at low levels, the increase was driven by road and residential construction activities.
- In EAME, the sales decrease was primarily due to the impact from changes in dealer inventories and lower end-user demand across most of the region. Dealers decreased inventories more during the fourth quarter of 2019 than during the fourth quarter of 2018.
- Sales in Asia/Pacific were about flat as unfavorable price realization was mostly offset by a few countries' higher sales volume.

Construction Industries' profit was $659 million in the fourth quarter of 2019, a decrease of $186 million, or 22 percent, compared with $845 million in the fourth quarter of 2018. The decrease was primarily due to lower sales volume.

In addition, favorable manufacturing costs were mostly offset by unfavorable price realization. Manufacturing costs decreased due to lower period manufacturing and material costs. Period manufacturing costs declined mainly due to the favorable impact of restructuring and cost-reduction actions as well as lower short-term incentive compensation.

Construction Industries' profit as a percent of total sales was 13.1 percent in the fourth quarter of 2019, compared with 14.8 percent in the fourth quarter of 2018.

Resource Industries

Resource Industries' total sales were $2.395 billion in the fourth quarter of 2019, a decrease of $402 million, or 14 percent, compared with $2.797 billion in the fourth quarter of 2018. The decrease was due to lower sales volume, driven by changes in dealer inventories and lower end-user demand. Dealers increased inventories during the fourth quarter of 2018, compared with a decrease during the fourth quarter of 2019. While commodity prices are generally supportive of reinvestment, the company continues to believe mining customers remained disciplined in their capital expenditures due to economic uncertainty, resulting in lower sales in the quarter. In addition, end-user demand decreased for equipment supporting non-residential construction.

Resource Industries' profit was $261 million in the fourth quarter of 2019, a decrease of $139 million, or 35 percent, compared with $400 million in the fourth quarter of 2018. The decrease was mainly due to lower sales volume, partially offset by lower SG&A/R&D expenses and favorable price realization. The decrease in SG&A/R&D expenses reflected a reduction in short-term incentive compensation expense and timing of R&D expenses.

Resource Industries' profit as a percent of total sales was 10.9 percent in the fourth quarter of 2019, compared with 14.3 percent in the fourth quarter of 2018.

Energy & Transportation

Sales by Application

(Millions of dollars)	Fourth Quarter 2019	Fourth Quarter 2018	$ Change	% Change
Oil and Gas	$ 1,523	$ 1,719	$ (196)	(11%)
Power Generation	1,294	1,271	23	2%
Industrial	908	902	6	1%
Transportation	1,441	1,373	68	5%
External Sales	5,166	5,265	(99)	(2%)
Inter-Segment	783	1,022	(239)	(23%)
Total Sales	$ 5,949	$ 6,287	$ (338)	(5%)

Energy & Transportation's total sales were $5.949 billion in the fourth quarter of 2019, a decrease of $338 million, or 5 percent, compared with $6.287 billion in the fourth quarter of 2018. Sales declined primarily due to lower inter-segment engine sales and unfavorable currency impacts.

- **Oil and Gas** – Sales were lower mainly in North America. The sales decline was largely due to lower demand for reciprocating engines used in gas compression and lower turbine project deliveries.
- **Power Generation** – Sales increased slightly primarily due to higher deliveries for turbines in EAME.
- **Industrial** – Sales were about flat as slightly higher sales in North America were partially offset by lower sales in Latin America and EAME.
- **Transportation** – Sales were higher mainly due to stronger marine demand in EAME.

Energy & Transportation's profit was $1.165 billion in the fourth quarter of 2019, an increase of $86 million, or 8 percent, compared with $1.079 billion in the fourth quarter of 2018. The increase was mostly due to lower SG&A/R&D expenses, primarily due to a reduction in short-term incentive compensation expense and lower R&D project expenses. Lower manufacturing costs were mostly offset by lower sales volume.

Energy & Transportation's profit as a percent of total sales was 19.6 percent in the fourth quarter of 2019, compared with 17.2 percent in the fourth quarter of 2018.

Financial Products Segment

Financial Products' segment revenues were $846 million in the fourth quarter of 2019, an increase of $34 million, or 4 percent, from the fourth quarter of 2018. The increase was primarily due to a favorable impact from returned or repossessed equipment in Europe and higher average financing rates in North America.

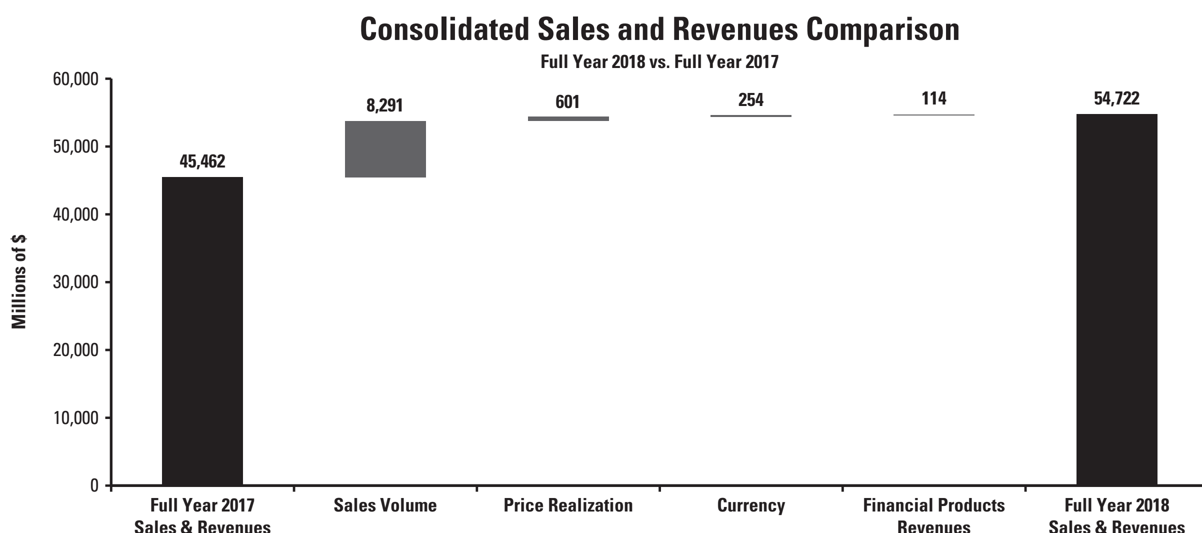
Financial Products' segment profit was $210 million in the fourth quarter of 2019, compared with $29 million in the fourth quarter of 2018. Most of the increase was due to lower provision for credit losses at Cat Financial, driven by a lower allowance rate compared with 2018. The lower allowance rate was due to write-offs of accounts in 2019 that were reserved for in 2018, primarily in the Cat Power Finance portfolio. In addition, there was a favorable impact from equity securities in Insurance Services, as well as favorable impacts from an increase in net yield on average earning assets and returned or repossessed equipment. These favorable impacts were partially offset by higher SG&A expenses.

Corporate Items and Eliminations

Expense for corporate items and eliminations was $331 million in the fourth quarter of 2019, an increase of $10 million from the fourth quarter of 2018. The increase was primarily due to methodology differences, offset by timing differences and lower restructuring costs.

2018 COMPARED WITH 2017

CONSOLIDATED SALES AND REVENUES



The chart above graphically illustrates reasons for the change in consolidated sales and revenues between 2017 (at left) and 2018 (at right). Caterpillar management utilizes these charts internally to visually communicate with the company's Board of Directors and employees.

Total sales and revenues were $54.722 billion in 2018, an increase of $9.260 billion, or 20 percent, compared with $45.462 billion in 2017. The increase was primarily due to higher sales volume driven by improved demand for equipment across the three primary segments, including changes in dealer inventories. Favorable price realization across the three primary segments also contributed to the sales improvement. In addition, sales were higher due to currency impacts, primarily from a stronger euro. Financial Products' revenues increased slightly.

Sales increased in all regions, with the largest sales increase in North America, which improved 23 percent as strong economic conditions in key end markets drove higher demand. Also contributing to higher sales was an increase in dealer inventories during 2018, compared with dealer inventories that were about flat in 2017.

Sales increased 13 percent in Latin America primarily due to stabilizing economic conditions in several countries in the region that resulted in improved demand from low levels.

EAME sales increased 16 percent primarily due to higher demand, including changes in dealer inventories. The improvement in demand was primarily in Europe. The impact of a stronger euro and favorable price realization also contributed to higher sales. Dealer inventories increased more significantly in 2018 than in 2017.

Asia/Pacific sales increased 28 percent primarily due to higher demand in several countries across the region, including changes in dealer inventories and favorable price realization. Dealer inventories increased during 2018 as compared with dealer inventories that were about flat in 2017.

Dealer machine and engine inventories increased about $2.3 billion in 2018, compared with an increase of about $100 million in 2017. Dealers are independent, and the reasons for changes in their inventory levels vary, 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.

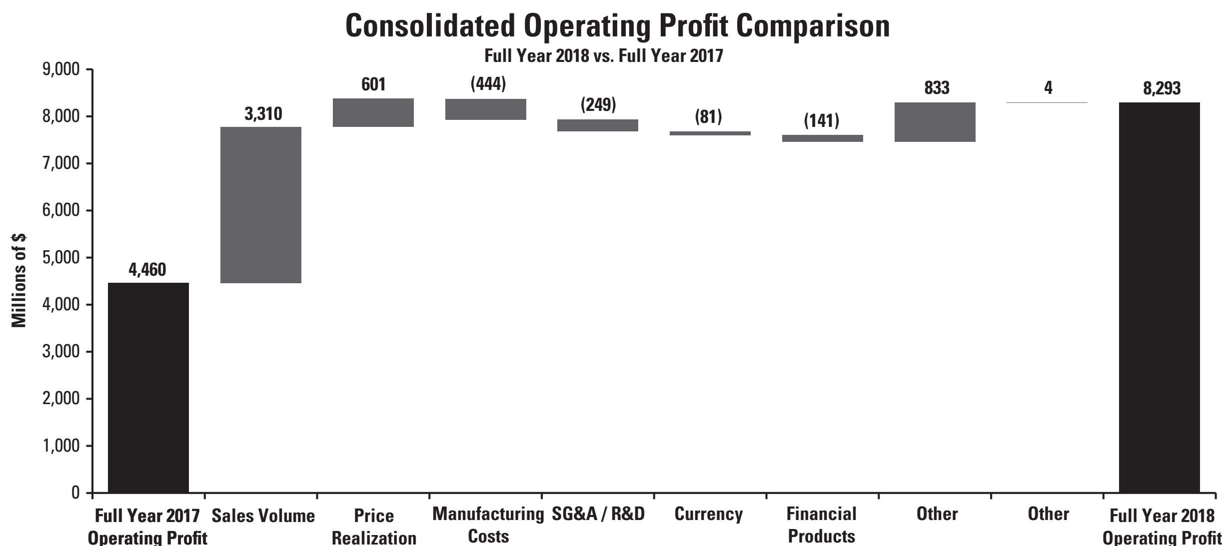
Sales and Revenues by Segment

(Millions of dollars)	2017	Sales Volume	Price Realization	Currency	Inter-Segment/ Other	2018	$ Change	% Change
Construction Industries	$ 19,240	$ 3,663	$ 122	$ 198	$ 14	$ 23,237	$ 3,997	21%
Resource Industries	7,861	2,082	316	(14)	25	10,270	2,409	31%
Energy & Transportation	19,382	2,637	163	68	535	22,785	3,403	18%
All Other Segment	570	(26)	(1)	3	(64)	482	(88)	(15)%
Corporate Items and Eliminations	(4,377)	(65)	1	(1)	(510)	(4,952)	(575)	
Machinery, Energy & Transportation	42,676	8,291	601	254	—	51,822	9,146	21%
Financial Products Segment	3,093	—	—	—	186	3,279	186	6%
Corporate Items and Eliminations	(307)	—	—	—	(72)	(379)	(72)	
Financial Products Revenues	2,786	—	—	—	114	2,900	114	4%
Consolidated Sales and Revenues	$ 45,462	$ 8,291	$ 601	$ 254	$ 114	$ 54,722	$ 9,260	20%

Sales and Revenues by Geographic Region

	North America		Latin America		EAME		Asia/Pacific		External Sales and Revenues		Inter-Segment		Total Sales and Revenues	
(Millions of dollars)	$	% Chg	$	% Chg	$	% Chg	$	% Chg	$	% Chg	$	% Chg	$	% Chg
2018														
Construction Industries	$ 10,754	23%	$ 1,479	6%	$ 4,410	17%	$ 6,473	24%	$ 23,116	21%	$ 121	13%	$ 23,237	21%
Resource Industries	3,357	30%	1,647	29%	2,217	25%	2,667	43%	9,888	32%	382	7%	10,270	31%
Energy & Transportation	9,685	22%	1,331	6%	4,934	11%	2,882	25%	18,832	18%	3,953	16%	22,785	18%
All Other Segment	63	(10%)	3	—%	18	(67%)	70	37%	154	(13%)	328	(16%)	482	(15%)
Corporate Items and Eliminations	(155)		—		(11)		(2)		(168)		(4,784)		(4,952)	
Machinery, Energy & Transportation	23,704	23%	4,460	13%	11,568	16%	12,090	28%	51,822	21%	—	—%	51,822	21%
Financial Products Segment	2,153	7%	281	(8%)	387	(7%)	458	26%	3,279	6%	—	—%	3,279	6%
Corporate Items and Eliminations	(234)		(46)		(26)		(73)		(379)		—		(379)	
Financial Products Revenues	1,919	6%	235	(10%)	361	(10%)	385	24%	2,900	4%	—	—%	2,900	4%
Consolidated Sales and Revenues	$ 25,623	22%	$ 4,695	12%	$ 11,929	15%	$ 12,475	28%	$ 54,722	20%	$ —	—%	$ 54,722	20%
2017														
Construction Industries	$ 8,742		$ 1,396		$ 3,760		$ 5,235		$ 19,133		$ 107		$ 19,240	
Resource Industries	2,582		1,281		1,775		1,866		7,504		357		7,861	
Energy & Transportation	7,959		1,261		4,431		2,313		15,964		3,418		19,382	
All Other Segment	70		3		54		51		178		392		570	
Corporate Items and Eliminations	(97)		(1)		(6)		1		(103)		(4,274)		(4,377)	
Machinery, Energy & Transportation	19,256		3,940		10,014		9,466		42,676		—		42,676	
Financial Products Segment	2,006		306		418		363		3,093		—		3,093	
Corporate Items and Eliminations	(190)		(46)		(19)		(52)		(307)		—		(307)	
Financial Products Revenues	1,816		260		399		311		2,786		—		2,786	
Consolidated Sales and Revenues	$ 21,072		$ 4,200		$ 10,413		$ 9,777		$ 45,462		$ —		$ 45,462	

CONSOLIDATED OPERATING PROFIT



The chart above graphically illustrates reasons for the change in consolidated operating profit between 2017 (at left) and 2018 (at right). 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 was $8.293 billion in 2018, an increase of $3.833 billion, or 86 percent, compared with $4.460 billion in 2017. The increase was primarily due to higher sales volume and lower restructuring costs. Higher manufacturing costs and increased SG&A/R&D expenses were mostly offset by favorable price realization.

Manufacturing costs were higher due to increased material and freight costs, partially offset by lower warranty expense. Material costs were higher primarily due to increases in steel prices. The impact of tariffs on material costs was about $110 million during 2018. Freight costs were unfavorable primarily due to supply chain inefficiencies as the industry responds to strong global demand.

SG&A/R&D expenses increased primarily due to investments aligned with the company's strategic growth initiatives.

Restructuring costs were $394 million in 2018, related to restructuring actions across the company. In 2017, we incurred $1.227 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.

Short-term incentive compensation expense is directly related to financial and operational performance, measured against targets set annually. Short-term incentive compensation expense in 2018 was about $1.4 billion, nearly the same as 2017.

Profit (Loss) by Segment

(Millions of dollars)	2018	2017	$ Change	% Change
Construction Industries	$ 4,174	$ 3,255	$ 919	28%
Resource Industries	1,603	698	905	130%
Energy & Transportation	3,938	2,856	1,082	38%
All Other Segment	23	(44)	67	152%
Corporate Items and Eliminations	(1,583)	(2,659)	1,076	
Machinery, Energy & Transportation	8,155	4,106	4,049	99%
Financial Products Segment	505	792	(287)	(36)%
Corporate Items and Eliminations	17	(116)	133	
Financial Products	522	676	(154)	(23)%
Consolidating Adjustments	(384)	(322)	(62)	
Consolidated Operating Profit	$ 8,293	$ 4,460	$ 3,833	86%

Other Profit/Loss and Tax Items

- Other income/expense in 2018 was expense of $67 million, compared with income of $153 million in 2017. The unfavorable change was primarily a result of an unfavorable impact from equity securities in Insurance Services. Effective January 1, 2018, we adopted a new U.S. GAAP accounting rule that requires our equity securities to be measured at fair value through earnings. Previously, the fair value adjustments for these securities were reported in equity until the securities were sold or an impairment was recognized. We adopted the standard using the modified retrospective approach, with no change to prior year financial statements. During 2018, we recognized a loss of $33 million related to fair value adjustments. During 2017, we recognized gains on sales of securities of $104 million. In addition, the absence of a 2017 pretax gain of $85 million on the sale of Caterpillar's equity investment in IronPlanet contributed to the unfavorable change.
- The provision for income taxes for 2018 reflects an annual effective tax rate of 24.1 percent, compared with 27.7 percent for the full year of 2017, excluding the items discussed below. The decrease was primarily due to the reduction in the U.S. corporate tax rate beginning January 1, 2018, along with other changes in the geographic mix of profits from a tax perspective.

  We have completed our accounting for the income tax effects of U.S. tax reform legislation and included measurement period adjustments in 2018 of $104 million to reduce the provisionally estimated charge of $2.371 billion recognized in 2017. A $154 million benefit revised the estimated impact of the write-down of U.S. net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent. This benefit primarily related to the decision to make an additional discretionary pension contribution of $1.0 billion to U.S. pension plans in 2018 which was treated as deductible on the 2017 U.S. tax return. A $50 million charge revised the provisionally 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 provision for income taxes in 2018 and 2017 also included non-cash benefits of $63 million and $111 million, respectively, from reductions in the valuation allowance against U.S. state deferred tax assets due to improved profits in the United States. An additional benefit of $25 million was included in 2018 due to the release of a valuation allowance for a certain non-U.S. subsidiary. The provision for income taxes in 2018 also included a charge of $59 million to correct for an error which resulted in an understatement of the valuation allowance offsetting deferred tax assets for prior years. This error had the effect of overstating profit by $17 million and $33 million for 2017 and 2016, respectively. Management has concluded that the error was not material to any period presented. In addition, a tax benefit of $56 million was recorded in 2018, compared with $64 million in 2017, for the settlement of stock-based compensation awards with associated tax deductions in excess of cumulative U.S. GAAP compensation expense.

Construction Industries

Construction Industries' total sales were $23.237 billion in 2018, compared with $19.240 billion in 2017. The increase was mostly due to higher sales volume for construction equipment. Sales were also higher due to currency impacts, primarily from a stronger euro.

- Sales volume increased primarily due to higher demand for construction equipment and changes in dealer inventories. Dealer inventories increased significantly more during 2018 than during 2017.

Sales increased in all regions.

- In North America, the sales increase was primarily due to higher demand for construction equipment, primarily to support oil and gas activities, including pipelines, non-residential building construction and infrastructure activities. In addition, sales increased due to changes in dealer inventories, which increased during 2018, compared with a slight decrease during 2017.
- Although construction activities remained weak in Latin America, sales were higher in the region.
- Sales increased in EAME primarily due to higher demand and the favorable impact of currency, mostly from a stronger euro. Higher demand was driven by increased construction activities across several countries in the region. Favorable price realization also contributed to the sales increase.
- Sales in Asia/Pacific were higher in several countries in the region, most significantly in China, stemming from increased building construction and infrastructure investment. Changes in dealer inventories contributed to the sales improvement as dealer inventories increased in 2018 and were about flat in 2017.

Construction Industries' profit was $4.174 billion in 2018, compared with $3.255 billion in 2017. The increase in profit was a result of higher sales volume and favorable price realization, partially offset by higher material and freight costs, and increased SG&A/R&D expenses, partially due to spending for strategic growth initiatives.

Construction Industries' profit as a percent of total sales was 18.0 percent in 2018, compared with 16.9 percent in 2017.

Resource Industries

Resource Industries' total sales were $10.270 billion in 2018, an increase of $2.409 billion from 2017. The increase was primarily due to higher demand for both mining and heavy construction equipment, including aftermarket parts. Favorable commodity price levels and increased mining production contributed to higher mining equipment sales. In addition, increased sales to heavy construction, quarry and aggregate customers were driven by positive global economic growth. Resource Industries' customers globally continue to focus on improving productivity and efficiency of existing machine assets, thereby extending equipment life cycles and lowering operating costs. Rebuild, overhaul and maintenance activity was robust, resulting in higher aftermarket parts sales. Favorable price realization also contributed to the sales improvement.

Resource Industries' profit was $1.603 billion in 2018, compared with $698 million in 2017. The improvement was mostly due to higher sales volume and favorable price realization, partially offset by increased manufacturing costs and unfavorable currency impacts. Manufacturing costs were unfavorable as lower warranty expense was more than offset by higher freight and material costs.

Resource Industries' profit as a percent of total sales was 15.6 percent in 2018, compared with 8.9 percent in 2017.

Energy & Transportation

Sales by Application

(Millions of dollars)	2018	2017	$ Change	% Change
Oil and Gas	$ 5,763	$ 4,424	$ 1,339	30%
Power Generation	4,334	3,551	783	22%
Industrial	3,640	3,445	195	6%
Transportation	5,095	4,544	551	12%
External Sales	18,832	15,964	2,868	18%
Inter-Segment	3,953	3,418	535	16%
Total Sales	$ 22,785	$ 19,382	$ 3,403	18%

Energy & Transportation's total sales were $22.785 billion in 2018, compared with $19.382 billion in 2017. The increase was primarily due to higher sales volume across all applications. Favorable price realization also contributed to the increase in sales.

- **Oil and Gas –** Sales increased due to higher demand in North America for well servicing and gas compression applications. Growth in U.S. onshore oil and gas drove increased sales for reciprocating engines and related aftermarket parts. Sales of turbines and turbine-related services were higher for production applications.
- **Power Generation –** Sales improved across all regions, with the largest increase in North America, primarily for reciprocating engine applications including data centers, and for aftermarket parts. In addition, sales increased in EAME from reciprocating engine projects, turbines and turbine-related services and favorable currency.
- **Industrial –** Sales were higher in Asia/Pacific and North America, primarily due to improving economic conditions supporting higher engine sales into industrial applications. Sales in EAME were about flat as economic uncertainty in a few countries in the Middle East was mostly offset by favorable currency impacts.
- **Transportation –** Sales were higher for rail services driven by acquisitions in Asia/Pacific and EAME and increased rail traffic in North America. Marine sales were higher in Asia/Pacific, led by increased activity in the ferry sector.

Energy & Transportation's profit was $3.938 billion in 2018, compared with $2.856 billion in 2017. The improvement was due to higher sales volume and favorable price realization. This was partially offset due to increased spending for strategic growth initiatives and higher freight costs.

Energy & Transportation's profit as a percent of total sales was 17.3 percent in 2018, compared with 14.7 percent in 2017.

Financial Products Segment

Financial Products' segment revenues were $3.279 billion, an increase of $186 million, or 6 percent, from 2017. The increase was primarily due to higher average financing rates and higher average earning assets in North America and Asia/Pacific. These favorable impacts were partially offset by lower intercompany lending activity in North America, lower average earning assets in Latin America and lower average financing rates in Europe.

Financial Products' segment profit was $505 million in 2018, compared with $792 million in 2017. The decrease was primarily due to an increase in the provision for credit losses at Cat Financial, an unfavorable impact from equity securities in Insurance Services and lower intercompany lending activity. These unfavorable impacts were partially offset by higher average earning assets and an increase in net yield on average earning assets.

At the end of 2018, past dues at Cat Financial were 3.55 percent, compared with 2.78 percent at the end of 2017. Write-offs, net of recoveries, were $189 million for 2018, compared with $114 million for 2017. As of December 31, 2018, Cat Financial's allowance for credit losses totaled $511 million, or 1.80 percent of finance receivables, compared with $365 million, or 1.33 percent of finance receivables at December 31, 2017. The increase in past dues, write-offs and allowance for credit losses was primarily due to weakening in the Cat Power Finance portfolio.

Corporate Items and Eliminations

Expense for corporate items and eliminations was $1.566 billion in 2018, a decrease of $1.209 billion from 2017. The decrease in expense was mostly due to lower restructuring costs and methodology differences. Restructuring costs were $394 million in 2018. In 2017, restructuring costs impacting operating profit were $1.227 billion with about half related to the closure of the facility in Gosselies, Belgium and the remainder related to other restructuring actions across the company.

RESTRUCTURING COSTS

Restructuring costs for 2019, 2018, and 2017 were as follows:

(Millions of dollars)		2019		2018		2017
Employee separations [1]	$	**48**	$	112	$	525
Contract terminations [1]		**1**		7		183
Long-lived asset impairments [1]		**65**		93		346
Defined benefit plan curtailments and termination benefits [2]		**—**		(8)		29
Other [3]		**122**		182		173
Total restructuring costs	**$**	**236**	$	386	$	1,256

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

The restructuring costs in 2019 were primarily related to restructuring actions across the company. The restructuring costs in 2018 were primarily related to ongoing facility closures across the company. 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.

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

The following table summarizes the 2018 and 2019 employee separation activity:

(Millions of dollars)		
Liability balance at December 31, 2017	$	249
Increase in liability (separation charges)		112
Reduction in liability (payments)		(276)
Liability balance at December 31, 2018	$	85
Increase in liability (separation charges)		**48**
Reduction in liability (payments)		**(85)**
Liability balance at December 31, 2019	**$**	**48**

Most of the remaining liability balance as of December 31, 2019 is expected to be paid in 2020.

In March 2017, Caterpillar informed Belgian authorities of the decision to proceed to a collective dismissal, which led 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 were phased out by the end of the second quarter of 2018. The program concluded in 2018, and we incurred a total of $647 million of restructuring costs (primarily in 2017) under this program. These costs were primarily related to employee separation costs, long-lived asset impairments and other costs which were partially offset by a LIFO inventory decrement benefit.

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 United States, additional involuntary programs throughout the company and manufacturing facility consolidations and closures. 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 $43 million, $121 million and $817 million of restructuring costs associated with these actions in 2019, 2018 and 2017, respectively. The Plan concluded in 2019, and total restructuring costs incurred since the inception of the Plan were $1,831 million.

In 2020, we expect to incur about $300 - $400 million of restructuring costs, about half for restructuring actions across the company and the remainder for strategic actions to address a small number of products. We expect that prior restructuring actions will result in an incremental benefit to operating costs, primarily Costs of goods sold and SG&A expenses of about $200 million in 2020 compared with 2019.

GLOSSARY OF TERMS

1. **Adjusted Profit Per Share** – For 2019, profit per share excluding pension and OPEB mark-to-market losses and a discrete tax benefit related to U.S. tax reform. For 2018, profit per share excluding pension and OPEB mark-to-market losses, restructuring costs, certain deferred tax valuation allowance adjustments and the impact of U.S. tax reform.
2. **All Other Segment** – Primarily includes activities such as: business strategy, product management and development, manufacturing and sourcing of filters and fluids, undercarriage, ground engaging tools, fluid transfer products, precision seals, rubber sealing and connecting components primarily for Cat® products; parts distribution; integrated logistics solutions, 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; and 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 asphalt pavers; backhoe loaders; compactors; cold planers; compact track and multi-terrain loaders; mini, small, medium and large track excavators; forestry excavators; feller bunchers; harvesters; knuckleboom loaders; motor graders; pipelayers; road reclaimers; skidders; skid steer loaders; telehandlers; small and medium track-type tractors; track-type loaders; utility vehicles; wheel excavators; compact, small and medium wheel loaders; and related parts and work tools.
5. **Corporate Items and Eliminations** – Includes corporate-level expenses; timing differences, as some expenses are reported in segment profit on a cash basis; methodology differences between segment and consolidated external reporting; certain restructuring costs; and inter-segment eliminations.
6. **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; 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).
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 Oil and Gas, Power Generation, Industrial 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 turbine machinery and integrated systems and solutions 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 Caterpillar 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. The segment also earns revenues from Machinery, Energy & Transportation, but the related costs are not allocated to operating segments. Financial Products' segment profit is determined on a pretax basis and includes other income/expense items.
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, All Other Segment and related corporate items and eliminations.
13. **Machinery, Energy & Transportation (ME&T) Other Operating (Income) Expenses** – Comprised primarily of gains/losses on disposal of long-lived assets, gains/losses on divestitures and legal settlements and accruals.
14. **Manufacturing Costs** – Manufacturing costs exclude the impacts of currency and represent the volume-adjusted change for variable costs and the absolute dollar change for period manufacturing costs. 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. 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 repairs, depreciation on manufacturing assets, facility support, procurement, factory scheduling, manufacturing planning and operations management.
15. **Mark-to-market 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.

16. **Pension and Other Postemployment Benefit (OPEB)** – The company's defined-benefit pension and postemployment benefit plans.
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, heavy construction, 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; autonomous ready vehicles and solutions; 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 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.
19. **Restructuring Costs** – May include costs for employee separation, long-lived asset impairments and contract terminations. These costs are included in Other operating (income) expenses except for defined-benefit plan curtailment losses and special termination benefits, which are included in Other income (expense). Restructuring costs also include other exit-related costs which may consist of accelerated depreciation, inventory write-downs, building demolition, equipment relocation and project management costs and LIFO inventory decrement benefits from inventory liquidations at closed facilities, all of which are 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 sales 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. **Services** – Enterprise services include, but are not limited to, aftermarket parts, Financial Products' revenues and other service-related revenues. Machinery, Energy & Transportation segments exclude most Financial Products' revenues.

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 2019, we experienced favorable liquidity conditions globally in both our ME&T and Financial Products' operations. On a consolidated basis, we ended 2019 with $8.28 billion of cash, an increase of $427 million from year-end 2018. We intend to maintain a strong cash and liquidity position.

Consolidated operating cash flow for 2019 was $6.91 billion, up from $6.56 billion in 2018. The increase was due to favorable changes in working capital in 2019, mostly offset by lower profit adjusted for non-cash items, which included lower accruals for short-term incentive compensation payments, and a larger discretionary pension contribution. Within working capital, changes to inventories, accounts receivable, customer advances and accrued expenses favorably impacted cash flow but were partially offset by changes in accounts payable. See further discussion of operating cash flow under ME&T and Financial Products.

Total debt as of December 31, 2019 was $37.66 billion, an increase of $1.10 billion from year-end 2018. Debt related to Financial Products decreased $43 million. Debt related to ME&T increased $1.15 billion in 2019, primarily due to the issuance of debt to finance a discretionary pension contribution, which was partially offset by the impact of new accounting guidance on a previously failed sale-leaseback transaction in Japan. On September 19, 2019, we issued $1.0 billion of 3.250% Senior Notes due 2049 and $500 million of 2.600% Senior Notes due 2029. During 2019, we repurchased $4.05 billion of Caterpillar common stock.

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, 2019 was $2.75 billion. Information on our Credit Facility is as follows:

- The 364-day facility of $3.15 billion (of which $0.82 billion is available to ME&T) expires in September 2020.
- The three-year facility, as amended and restated in September 2019, of $2.73 billion (of which $0.72 billion is available to ME&T) expires in September 2022.
- The five-year facility, as amended and restated in September 2019, of $4.62 billion (of which $1.21 billion is available to ME&T) expires in September 2024.

At December 31, 2019, Caterpillar's consolidated net worth was $14.63 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, 2019, Cat Financial's covenant interest coverage ratio was 1.77 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.

In addition, at December 31, 2019, Cat Financial's six-month covenant leverage ratio was 7.65 to 1 and year-end covenant leverage ratio was 7.46 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, 2019, there were no borrowings under the Credit Facility.

Our total credit commitments and available credit as of December 31, 2019 were:

(Millions of dollars)	December 31, 2019 Consolidated	Machinery, Energy & Transportation	Financial Products
Credit lines available:			
Global credit facilities	$ 10,500	$ 2,751	$ 7,749
Other external	4,999	194	4,805
Total credit lines available	15,499	2,945	12,554
Less: Commercial paper outstanding	(4,168)	—	(4,168)
Less: Utilized credit	(1,247)	—	(1,247)
Available credit	$ 10,084	$ 2,945	$ 7,139

The other consolidated credit lines with banks as of December 31, 2019 totaled $5.00 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 credit rating agencies. Moody's rates our debt as "low-A", while Fitch and S&P maintain a "mid-A" debt rating. This split rating has not had a material impact on our borrowing costs or our overall financial health. However, a downgrade of our credit ratings by any of the major credit rating agencies would result in increased borrowing costs and could make access to certain credit markets more difficult. In the event economic conditions deteriorate such that access to debt markets becomes unavailable, ME&T's 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 $4.87 billion in 2019, compared with $6.35 billion in 2018. The decrease was primarily due to lower profit in 2019 adjusted for non-cash items, which included lower accruals for short-term compensation payments, and a larger discretionary pension contribution partially offset by favorable changes in working capital. Within working capital, changes to inventories, accounts receivable, customer advances and accrued expenses favorably impacted cash flow but were partially offset by changes in accounts payable.

Net cash used for investing activities in 2019 was $48 million, compared with net cash used of $1.19 billion in 2018. The change was primarily due to decreased ME&T lending with Financial Products during 2019 and the acquisitions of ECM S.p.A. and Downer Freight Rail in 2018.

Net cash used for financing activities during 2019 was $4.48 billion, compared with net cash used of $5.47 billion in 2018. The change was primarily due to the issuance of $1.5 billion of long-term debt used to fund a discretionary pension contribution. This was partially offset by an increase in repurchases of Caterpillar common stock of $249 million and an increase in dividends paid of $181 million.

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 — Our top priority is to maintain a strong financial position in support of a mid-A rating. We track a diverse group of financial metrics that focus on liquidity, leverage, cash flow and margins which align with our cash deployment actions and the various methodologies used by the major credit rating agencies.

Operational excellence and commitments — Capital expenditures were $1.07 billion during 2019, compared to $1.22 billion in 2018. We expect ME&T's capital expenditures in 2020 to be about $1.2 billion. We made $1.81 billion of contributions to our pension and other postretirement benefit plans during 2019, including a $1.5 billion discretionary U.S. pension plan contribution. By comparison, we made $1.35 billion of contributions to our pension and other postretirement plans in 2018, including a $1.0 billion discretionary contribution made to our U.S. pension plans. We expect to make approximately $280 million of contributions to our pension and OPEB plans in 2020.

Fund strategic growth initiatives and return capital to shareholders — We intend to utilize our liquidity and debt capacity to fund targeted investments that drive long-term profitable growth focused in the areas of expanded offerings and services, including acquisitions.

As part of our new capital allocation strategy, ME&T free cash flow is a liquidity measure we will use going forward to determine the cash generated and available for financing activities including debt repayments, dividends and share repurchases. We define ME&T free cash flow as cash from ME&T operations excluding discretionary pension and other postretirement benefit plan contributions less capital expenditures. A goal of our new capital allocation strategy is to return substantially all ME&T free cash flow to shareholders in the form of dividends and share repurchases, while maintaining our mid-A rating.

Our share repurchase plans are subject to the company's cash deployment priorities and are evaluated on an ongoing basis considering the financial condition of the company and the economic outlook, corporate cash flow, the company's liquidity needs and the health and stability of global credit markets. The timing and amount of future repurchases may vary depending on market conditions and investing priorities. In July 2018, the Board of Directors approved an authorization to repurchase up to $10 billion of Caterpillar common stock (the 2018 Authorization) effective January 1, 2019, with no expiration. In 2019, we repurchased $4.05 billion of Caterpillar common stock, with

$5.95 billion remaining under the 2018 Authorization as of December 31, 2019. Caterpillar's basic shares outstanding as of December 31, 2019 were approximately 550 million.

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. Dividends totaled $2.13 billion in 2019, representing 86 cents per share paid in each of the first and second quarters and $1.03 per share paid in each of the third and fourth quarters.

Financial Products

Financial Products operating cash flow was $1.50 billion in 2019, compared with $1.52 billion in 2018. Net cash used for investing activities was $414 million in 2019, compared with $2.78 billion in 2018. The change was primarily due to the impact of net intercompany purchased receivables and higher collections of finance receivables. Net cash used for financing activities in 2019 was $991 million, compared with net cash provided by financing activities of $1.26 billion in 2018. The change was primarily due to lower portfolio funding requirements and lower net intercompany borrowings, partially offset by a lower dividend payment to ME&T.

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, 2019, minimum payments for these obligations were:

(Millions of dollars)	2020	2021-2022	2023-2024	After 2024	Total
Long-term debt:					
Machinery, Energy & Transportation	$ 16	$ 1,919	$ 1,102	$ 6,716	$ 9,753
Financial Products	6,198	12,508	4,334	341	23,381
Total long-term debt [1]	6,214	14,427	5,436	7,057	33,134
Operating leases	185	225	110	175	695
Postretirement benefit obligations [2]	280	705	745	1,860	3,590
Purchase obligations:					
Accounts payable [3]	5,957	—	—	—	5,957
Purchase orders [4]	5,103	3	—	—	5,106
Other contractual obligations [5]	160	87	26	—	273
Total purchase obligations	11,220	90	26	—	11,336
Interest on long-term debt [6]	909	1,291	834	6,362	9,396
Other long-term obligations [7]	685	546	159	90	1,480
Total contractual obligations	$ 19,493	$ 17,284	$ 7,310	$ 15,544	$ 59,631

[1] Amounts exclude unamortized discounts, debt issuance costs, and fair value adjustments.
[2] Amounts represent expected contributions to our pension and other postretirement benefit plans through 2029, offset by expected Medicare Part D subsidy receipts.
[3] Amount represents invoices received and recorded as liabilities in 2019, but scheduled for payment in 2020. 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, 2019 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 finance 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 and IT consulting contracts and outsourcing contracts for benefit plan administration and software system support.

The total amount of gross unrecognized tax benefits for uncertain tax positions, including positions impacting only the timing of tax benefits, was $1,778 million at December 31, 2019. 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".

RECENT ACCOUNTING PRONOUNCEMENTS

For a discussion of recent accounting pronouncements, see Note 1J — "New accounting guidance" 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, warranty liability, 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 value of Cat Financial's leased equipment is determined based on its estimated end-of-term market value. We estimate the residual value of leased equipment at the inception of the lease based on a number of factors, including historical wholesale market sales prices, past remarketing experience and any known significant market/product trends. The following critical factors are also considered in our residual value estimates: lease term, market size and demand, total expected hours of usage, machine configuration, application, location, model changes, quantities, third-party residual guarantees and contractual customer purchase options.

Upon termination of the lease, the equipment is either purchased by the lessee or sold to a third party, in which case we may record a gain or a loss for the difference between the estimated residual value and the sale price.

During the term of our leases, we monitor residual values. For operating leases, adjustments to depreciation expense reflecting changes in residual value estimates are recorded prospectively on a straight-line basis. For finance leases, residual value adjustments are recognized through a reduction of finance revenue over the remaining lease term.

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, 2019, the aggregate residual value of equipment on operating leases was $2.15 billion. Without consideration of other factors such as third-party residual guarantees or contractual customer purchase options, a 10 percent 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. If the carrying value is higher than the fair value, the difference would be 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 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 2019 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.

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.

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 – We sponsor defined benefit pension plans and/or other postretirement benefit plans (retirement healthcare and life insurance) to employees in many of our locations throughout the world. There are assumptions used in the accounting for these defined benefit plans that include discount rate, expected return on plan assets, expected rate of compensation increase, the future health care trend rate, mortality and other economic

and demographic assumptions. The actuarial assumptions we use may change or differ significantly from actual results, which may result in a material impact to our consolidated financial statements.

The effects of actual results differing from our assumptions and the effects of changing assumptions are considered actuarial gains or losses. We utilize a mark-to-market approach in recognizing 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.

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. 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.
- The mortality assumption is used to estimate the life expectancy of plan participants. An increase in the life expectancy of plan participants will result in an increase in our obligation and expense.

Postretirement Benefit Plan Actuarial Assumptions Sensitivity

The effects of a one percentage-point change in certain actuarial assumptions on 2019 pension and OPEB costs and obligations are as follows:

	2019 Benefit Cost		Year-end Benefit Obligation	
(Millions of dollars)	One percentage-point increase	One percentage-point decrease	One percentage-point increase	One percentage-point decrease
U.S. Pension benefits:				
Assumed discount rate	$ 54	$ (71)	$ (1,893)	$ 2,305
Expected rate of compensation increase	2	(2)	—	—
Expected long-term rate of return on plan assets	(122)	122	—	—
Non-U.S. Pension benefits:				
Assumed discount rate	7	(10)	(634)	610
Expected rate of compensation increase	5	(4)	41	(35)
Expected long-term rate of return on plan assets	(39)	39	—	—
Other postretirement benefits:				
Assumed discount rate	8	(10)	(366)	437
Expected rate of compensation increase	—	—	1	(1)
Expected long-term rate of return on plan assets	(3)	3	—	—
Assumed health care cost trend rate	13	(11)	158	(133)

Actuarial Assumptions

	U.S. Pension Benefits			Non-U.S. Pension Benefits			Other Postretirement Benefits		
	2019	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Weighted-average assumptions used to determine benefit obligation, end of year:									
Discount rate	**3.2%**	4.2%	3.5%	**1.9%**	2.5%	2.4%	**3.2%**	4.2%	3.6%
Rate of compensation increase [1]	**—%**	4.0%	4.0%	**2.0%**	3.0%	4.0%	**4.0%**	4.0%	4.0%
Weighted-average assumptions used to determine net periodic benefit cost:									
Discount rate used to measure service cost	**4.3%**	3.7%	4.2%	**2.5%**	2.3%	2.4%	**4.1%**	3.5%	3.9%
Discount rate used to measure interest cost	**3.9%**	3.2%	3.3%	**2.3%**	2.2%	2.3%	**3.9%**	3.2%	3.3%
Expected rate of return on plan assets	**5.9%**	6.3%	6.7%	**3.8%**	5.2%	5.9%	**7.2%**	7.5%	7.5%
Rate of compensation increase	**4.0%**	4.0%	4.0%	**3.0%**	4.0%	4.0%	**4.1%**	4.0%	4.0%
Health care cost trend rates at year-end:									
Health care trend rate assumed for next year							**6.1%**	6.1%	6.1%
Rate that the cost trend rate gradually declines to							**5.0%**	5.0%	5.0%
Year that the cost trend rate reaches ultimate rate							**2025**	2025	2022

[1] Effective December 31, 2019, all U.S. pension benefits were frozen, and accordingly this assumption is no longer applicable.

See Note 12 – "Postemployment benefit plans" of Part II, Item 8 "Financial Statement and Supplemental Data" 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 $1.7 billion and $1.5 billion as of December 31, 2019 and 2018, 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. Our income tax positions and analysis are based on currently enacted tax law. Future changes in tax law or related interpretations could significantly impact the provision for income taxes, the amount of taxes payable, and the deferred tax asset and liability balances. Changes in tax law are reflected in the period of enactment with related interpretations considered in the period received.

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. For tax years 2007 to 2012 including the impact of a loss carryback to 2005, the IRS has proposed to tax in the United States profits earned from certain parts transactions by Caterpillar SARL (CSARL), based on the IRS examination team's application of "substance-over-form" or "assignment-of-income" judicial doctrines. CSARL is primarily taxable locally in Switzerland. 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.

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. 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. 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.

Additional information related to income taxes is included in Note 6 - "Income taxes" of Part II, Item 8 "Financial statements and Supplementary Data."

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 27, 2020, the Brazilian Federal Environmental Agency ("IBAMA") issued Caterpillar Brasil Ltda a notice of violation regarding allegations around the requirements for use of imported oils at the Piracicaba, Brazil facility. We have instituted processes to address the allegations. While we are still discussing resolution of these allegations with IBAMA, the initial notice from IBAMA included a proposed fine of approximately $370,000. We do not expect this fine or our response to address the allegations to have a material adverse effect on the Company's consolidated results of operations, financial position or liquidity.

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 one current employee of MGE and two former employees of MGE involving the same conduct alleged by CADE. On July 8, 2019, CADE found MGE, one of its current employees and two of its former employees liable for anticompetitive conduct. CBL was dismissed from the proceeding without any finding of liability. MGE intends to appeal CADE's findings. 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.

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 exposure), contracts, employment issues, environmental matters, intellectual property rights, taxes (other than income taxes)

and securities laws. The aggregate range of reasonably possible losses in excess of accrued liabilities, if any, associated with these 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.

The table below summarizes the amounts of net periodic benefit cost recognized for 2019, 2018 and 2017, respectively, and includes expected cost for 2020.

(Millions of dollars)	2020 Expected	2019	2018	2017
U.S. Pension Benefits	$ (308)	$ (7)	$ (149)	$ (85)
Non-U.S. Pension Benefits	(4)	19	(69)	(22)
Other Postretirement Benefits	150	158	138	148
Mark-to-market loss (gain)	— [1]	468	495	301
Total net periodic benefit cost (benefit)	$ (162)	$ 638	$ 415	$ 342

[1] Expected net periodic benefit cost (benefit) does not include an estimate for mark-to-market gains or losses.

- **Expected decrease in expense in 2020 compared to 2019** – Excluding the impact of mark-to-market gains and losses, our net periodic benefit cost is expected to decrease $332 million in 2020. This decrease is primarily due to lower interest cost as a result of lower discount rates at year-end 2019, elimination of service cost for our U.S. pension plans freezing benefit accruals and higher expected return on plan assets due to a higher asset base at year-end 2019.
- **Increase in expense in 2019 compared to 2018** – Primarily due to lower expected return on plan assets (U.S. pension plans had an expected rate of return of 5.9 percent in 2019 compared to 6.3 percent in 2018) and higher interest costs due to higher discount rates at year-end 2018.
- **Increase in expense in 2018 compared to 2017** – Primarily due to higher net mark-to-market losses in 2018 compared to 2017. This was partially offset by a higher expected return on plan assets and curtailment gains compared to curtailment and termination charges in 2017.

The primary factors that resulted in mark-to-market losses for 2019, 2018 and 2017 are described below. The net mark-to-market losses were included in Other income (expense) in the Results of Operations.

- **2019 net mark-to-market loss of $468 million** – Primarily due to lower discount rates at the end of 2019 compared to the end of 2018. This was partially offset by a higher actual return on plan assets compared to the expected return on plan assets (U.S. pension plans had an actual rate of return of 22.3 percent compared to an expected rate of return of 5.9 percent).
- **2018 net mark-to-market loss of $495 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 negative 5.4 percent compared to an expected rate of return of 6.3 percent). This was partially offset by higher discount rates at the end of 2018 compared to the end of 2017.
- **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).

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 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 net loss of $20 million in the first quarter of 2017 for curtailment and termination benefits.

SENSITIVITY

Foreign Exchange Rate Sensitivity

ME&T operations use foreign currency forward and option contracts to manage unmatched foreign currency cash inflow and outflow. Our objective is to minimize the risk of exchange rate movements that would reduce the U.S. dollar value of our foreign currency cash flow. Our policy allows for managing anticipated foreign currency cash flow for up to approximately five years. Based on the anticipated and firmly committed cash inflow and outflow for our ME&T operations for the next 12 months and the foreign currency derivative instruments in place at year-end, a hypothetical 10 percent weakening of the U.S. dollar relative to all other currencies would adversely affect our expected 2020 cash flow for our ME&T operations by approximately $225 million. Last year similar assumptions and calculations yielded a potential $250 million adverse impact on 2019 cash flow. We determine our net exposures by calculating the difference in cash inflow and outflow by currency and adding or subtracting outstanding foreign currency derivative instruments. We multiply these net amounts by 10 percent to determine the sensitivity.

In managing foreign currency risk for our Financial Products operations, our 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. Since our policy allows the use of foreign currency forward, option and cross currency contracts to offset the risk of currency mismatch between our assets and liabilities and exchange rate risk associated with future transactions denominated in foreign currencies, a 10 percent change in the value of the U.S. dollar relative to all other currencies would not have a material effect on our consolidated financial position, results of operations or cash flow. Neither our policy nor the effect of a 10 percent change in the value of the U.S. dollar has changed from that reported at the end of last year.

The effect of the hypothetical change in exchange rates ignores the effect this movement may have on other variables, including competitive risk. If it were possible to quantify this competitive impact, the results would probably be different from the sensitivity effects shown above. In addition, it is unlikely that all currencies would uniformly strengthen or weaken relative to the U.S. dollar. In reality, some currencies may weaken while others may strengthen. Our primary exposure (excluding competitive risk) is to exchange rate movements in the Swiss franc, Chinese yuan, Japanese yen, Indian rupee, and Australian dollar.

Interest Rate Sensitivity

For our ME&T operations, we have the option to use interest rate contracts to lower the cost of borrowed funds by attaching fixed-to-floating interest rate contracts to fixed-rate debt, and by entering into forward rate agreements on future debt issuances. A hypothetical 100 basis point adverse move in interest rates along the entire interest rate yield curve would have a minimal impact to the 2020 pre-tax earnings of ME&T. Last year, similar assumptions and calculations yielded a minimal impact to 2019 pre-tax earnings.

For our Financial Products operations, we use interest rate derivative instruments primarily to meet our match-funding objectives and strategies. We have a match-funding policy that addresses the interest rate risk by aligning the interest rate profile (fixed or floating rate and duration) of our debt portfolio with the interest rate profile of our finance receivable portfolio within predetermined range on an ongoing basis. In connection with that policy, we use interest rate derivative instruments to modify the debt structure to match assets within the finance receivable portfolio. Match funding reduces the volatility of margins between interest-bearing assets and interest-bearing liabilities, regardless of which direction interest rates move.

In order to properly manage sensitivity to changes in interest rates, Financial Products measures the potential impact of different interest rate assumptions on pre-tax earnings. All on-balance sheet positions, including derivative financial instruments, are included in the analysis. The primary assumptions included in the analysis are that there are no new fixed rate assets or liabilities, the proportion of fixed rate debt to fixed rate assets remains unchanged and the level of floating rate assets and debt remain constant. An analysis of the December 31, 2019 balance sheet, using these assumptions, estimates the impact of a 100 basis point immediate and sustained adverse change in interest rates to have a minimal impact on 2020 pre-tax earnings. Last year, similar assumptions and calculations yielded a minimal impact to 2019 pre-tax earnings.

This analysis does not necessarily represent our current outlook of future market interest rate movement, nor does it consider any actions management could undertake in response to changes in interest rates. Accordingly, no assurance can be given that actual results would be consistent with the results of our estimate.

NON-GAAP FINANCIAL MEASURES

The following definitions are provided for the non-GAAP financial measures used in this report. These non-GAAP financial measures have no standardized meaning prescribed by U.S. GAAP and therefore are unlikely to be comparable to the calculation of similar measures for other companies. Management does not intend these items to be considered in isolation or as a substitute for the related GAAP measures.

We believe it is important to separately quantify the profit impact of several significant items in order for our results to be meaningful to our readers. These items consist of (i) pension and OPEB mark-to-market losses resulting from plan remeasurements, (ii) U.S. tax reform impact, (iii) restructuring costs in 2018, which were incurred to generate longer-term benefits and (iv) certain deferred tax valuation allowance adjustments. We do not consider these items indicative of earnings from ongoing business activities and believe the non-GAAP measures will provide investors with useful perspective on underlying business results and trends and aid with assessing our period-over-period results. In addition, we provide a calculation of ME&T free cash flow as we believe it is an important measure for investors to determine the cash generation available for financing activities including debt repayments, dividends and share repurchases.

Reconciliations of adjusted operating profit margin to the most directly comparable GAAP measure, operating profit as a percent of sales and revenues are as follows:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2019	**2018**	**2019**	**2018**
Operating profit as a percent of total sales and revenues	**14.1%**	13.1%	**15.4%**	15.2%
Restructuring costs [1]	**—%**	0.7%	**—%**	0.7%
Adjusted operating profit margin	**14.1%**	13.8%	**15.4%**	15.9%

[1] 2019 Restructuring costs were not material.

Reconciliations of adjusted profit before taxes to the most directly comparable GAAP measure, consolidated profit before taxes, are as follows:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
(Millions of dollars)	2019	2018	2019	2018
Profit before taxes	$ 1,365	$ 1,367	$ 7,812	$ 7,822
Mark-to-market losses	$ 468	$ 495	$ 468	$ 495
Restructuring costs	$ —	$ 93	$ —	$ 386
Adjusted profit before taxes	$ 1,833	$ 1,955	$ 8,280	$ 8,703

Reconciliations of adjusted profit per share to the most directly comparable GAAP measure, profit per share - diluted, are as follows:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
	2019	2018	2019	2018
Profit per share - diluted	$ 1.97	$ 1.78	$ 10.74	$ 10.26
Per share mark-to-market losses [1]	$ 0.65	$ 0.66	$ 0.64	$ 0.64
Per share U.S. tax reform impact	$ —	$ 0.09	$ (0.31)	$ (0.17)
Per share restructuring costs [2]	$ —	$ 0.13	$ —	$ 0.50
Per share deferred tax valuation allowance adjustments	$ —	$ (0.11)	$ —	$ (0.01)
Adjusted profit per share	$ 2.63	$ 2.55	$ 11.06	$ 11.22

[1] At statutory tax rates.

[2] 2018 restructuring costs were at statutory tax rates. 2019 restructuring costs were not material.

Reconciliations of ME&T free cash flow to the most directly comparable GAAP measure, net cash provided by operating activities are as follows:

	Twelve Months Ended December 31,	
(Millions of dollars)	2019	2018
ME&T net cash provided by operating activities [1]	$ 4,871	$ 6,347
ME&T discretionary pension contributions	$ 1,500	$ 1,000
ME&T capital expenditures	$ (1,074)	$ (1,221)
ME&T free cash flow	$ 5,297	$ 6,126

[1] See reconciliation of ME&T net cash provided by operating activities to consolidated net cash provided by operating activities on page 47.

Supplemental Consolidating Data

We are providing supplemental consolidating data for the purpose of additional analysis. The data has been grouped as follows:

Consolidated – Caterpillar Inc. and its subsidiaries.

Machinery, Energy & Transportation – Caterpillar defines Machinery, Energy & Transportation as it is presented in the supplemental data as Caterpillar Inc. and its subsidiaries with Financial Products accounted for on the equity basis. Machinery, Energy & Transportation information relates to the design, manufacturing and marketing of our products. Financial Products' information relates to the financing to customers and dealers for the purchase and lease of Caterpillar and other equipment. The nature of these businesses is different, especially with regard to the financial position and cash flow items. Caterpillar management utilizes this presentation internally to highlight these differences. We also believe this presentation will assist readers in understanding our business.

Financial Products – Our finance and insurance subsidiaries, primarily Cat Financial and Insurance Services.

Consolidating Adjustments – Eliminations of transactions between Machinery, Energy & Transportation and Financial Products.

Pages 45 to 47 reconcile Machinery, Energy & Transportation with Financial Products on the equity basis to Caterpillar Inc. consolidated financial information.

Supplemental Data for Results of Operations

For The Years Ended December 31

	Consolidated			Supplemental consolidating data								
				Machinery, Energy & Transportation [1]			Financial Products			Consolidating Adjustments		
(Millions of dollars)	2019	2018	2017	2019	2018	2017	2019	2018	2017	2019	2018	2017
Sales and revenues:												
Sales of Machinery, Energy & Transportation	$ 50,755	$ 51,822	$ 42,676	$ 50,755	$ 51,822	$ 42,676	$ —	$ —	$ —	$ —	$ —	$ —
Revenues of Financial Products	3,045	2,900	2,786	—	—	—	3,571	3,362	3,167	(526) [2]	(462) [2]	(381) [2]
Total sales and revenues	53,800	54,722	45,462	50,755	51,822	42,676	3,571	3,362	3,167	(526)	(462)	(381)
Operating costs:												
Cost of goods sold	36,630	36,997	31,260	36,634	36,998	31,261	—	—	—	(4) [3]	(1) [3]	(1) [3]
Selling, general and administrative expenses	5,162	5,478	4,999	4,444	4,675	4,411	737	825	604	(19) [3]	(22) [3]	(16) [3]
Research and development expenses	1,693	1,850	1,842	1,693	1,850	1,842	—	—	—	—	—	—
Interest expense of Financial Products	754	722	646	—	—	—	786	756	667	(32) [4]	(34) [4]	(21) [4]
Other operating (income) expenses	1,271	1,382	2,255	14	144	1,056	1,297	1,259	1,220	(40) [3]	(21) [3]	(21) [3]
Total operating costs	45,510	46,429	41,002	42,785	43,667	38,570	2,820	2,840	2,491	(95)	(78)	(59)
Operating profit	8,290	8,293	4,460	7,970	8,155	4,106	751	522	676	(431)	(384)	(322)
Interest expense excluding Financial Products	421	404	531	429	448	622	—	—	—	(8) [4]	(44) [4]	(91) [4]
Other income (expense)	(57)	(67)	153	(560)	(391)	(170)	80	(16)	92	423 [5]	340 [5]	231 [5]
Consolidated profit before taxes	7,812	7,822	4,082	6,981	7,316	3,314	831	506	768	—	—	—
Provision (benefit) for income taxes	1,746	1,698	3,339	1,512	1,574	3,317	234	124	22	—	—	—
Profit (loss) of consolidated companies	6,066	6,124	743	5,469	5,742	(3)	597	382	746	—	—	—
Equity in profit (loss) of unconsolidated affiliated companies	28	24	16	28	24	16	—	—	—	—	—	—
Equity in profit of Financial Products' subsidiaries	—	—	—	575	362	738	—	—	—	(575) [6]	(362) [6]	(738) [6]
Profit of consolidated and affiliated companies	6,094	6,148	759	6,072	6,128	751	597	382	746	(575)	(362)	(738)
Less: Profit (loss) attributable to noncontrolling interests	1	1	5	(21)	(19)	(3)	22	20	8	—	—	—
Profit [7]	$ 6,093	$ 6,147	$ 754	$ 6,093	$ 6,147	$ 754	$ 575	$ 362	$ 738	$ (575)	$ (362)	$ (738)

1 Represents Caterpillar Inc. and its subsidiaries with Financial Products accounted for on the equity basis.
2 Elimination of Financial Products' revenues earned from Machinery, Energy & Transportation.
3 Elimination of net expenses recorded by Machinery, Energy & Transportation paid to Financial Products.
4 Elimination of interest expense recorded between Financial Products and Machinery, Energy & Transportation.
5 Elimination of discount recorded by Machinery, Energy & Transportation on receivables sold to Financial Products and of interest earned between Machinery, Energy & Transportation and Financial Products.
6 Elimination of Financial Products' profit due to equity method of accounting.
7 Profit attributable to common shareholders.

Supplemental Data for Financial Position

At December 31

			Supplemental consolidating data					
	Consolidated		Machinery, Energy & Transportation [1]		Financial Products		Consolidating Adjustments	
(Millions of dollars)	**2019**	**2018**	**2019**	**2018**	**2019**	**2018**	**2019**	**2018**
Assets								
Current assets:								
Cash and short-term investments	**$ 8,284**	$ 7,857	**$ 7,299**	$ 6,968	**$ 985**	$ 889	**$ —**	$ —
Receivables - trade and other	**8,568**	8,802	**3,737**	4,677	**451**	401	**4,380 [2,3]**	3,724 [2,3]
Receivables - finance	**9,336**	8,650	**—**	—	**14,489**	13,989	**(5,153) [3]**	(5,339) [3]
Prepaid expenses and other current assets	**1,739**	1,765	**1,290**	1,227	**529**	583	**(80) [4]**	(45) [4]
Inventories	**11,266**	11,529	**11,266**	11,529	**—**	—	**—**	—
Total current assets	**39,193**	38,603	**23,592**	24,401	**16,454**	15,862	**(853)**	(1,660)
Property, plant and equipment - net	**12,904**	13,574	**8,606**	9,085	**4,298**	4,489	**—**	—
Long-term receivables - trade and other	**1,193**	1,161	**348**	302	**152**	204	**693 [2,3]**	655 [2,3]
Long-term receivables - finance	**12,651**	13,286	**—**	—	**13,354**	13,951	**(703) [3]**	(665) [3]
Investments in Financial Products subsidiaries	**—**	—	**4,260**	3,672	**—**	—	**(4,260) [5]**	(3,672) [5]
Noncurrent deferred and refundable income taxes	**1,411**	1,439	**2,002**	2,015	**117**	116	**(708) [6]**	(692) [6]
Intangible assets	**1,565**	1,897	**1,565**	1,897	**—**	—	**—**	—
Goodwill	**6,196**	6,217	**6,196**	6,217	**—**	—	**—**	—
Other assets	**3,340**	2,332	**1,868**	886	**1,572**	1,446	**(100) [7]**	—
Total assets	**$ 78,453**	$ 78,509	**$ 48,437**	$ 48,475	**$ 35,947**	$ 36,068	**$ (5,931)**	$ (6,034)
Liabilities								
Current liabilities:								
Short-term borrowings	**$ 5,166**	$ 5,723	**$ 5**	$ —	**$ 5,161**	$ 5,723	**$ —**	$ —
Short-term borrowings with consolidated companies	**—**	—	**—**	—	**600**	1,500	**(600) [8]**	(1,500) [8]
Accounts payable	**5,957**	7,051	**5,918**	6,972	**212**	194	**(173) [9]**	(115) [9]
Accrued expenses	**3,750**	3,573	**3,415**	3,212	**335**	361	**—**	—
Accrued wages, salaries and employee benefits	**1,629**	2,384	**1,580**	2,350	**49**	34	**—**	—
Customer advances	**1,187**	1,243	**1,187**	1,243	**—**	—	**—**	—
Dividends payable	**567**	495	**567**	495	**—**	—	**—**	—
Other current liabilities	**2,155**	1,919	**1,689**	1,532	**566**	433	**(100) [6,10]**	(46) [6,10]
Long-term debt due within one year	**6,210**	5,830	**16**	10	**6,194**	5,820	**—**	—
Total current liabilities	**26,621**	28,218	**14,377**	15,814	**13,117**	14,065	**(873)**	(1,661)
Long-term debt due after one year	**26,281**	25,000	**9,151**	8,015	**17,140**	16,995	**(10) [8]**	(10) [8]
Liability for postemployment benefits	**6,599**	7,455	**6,599**	7,455	**—**	—	**—**	—
Other liabilities	**4,323**	3,756	**3,681**	3,111	**1,430**	1,336	**(788) [6]**	(691) [6]
Total liabilities	**63,824**	64,429	**33,808**	34,395	**31,687**	32,396	**(1,671)**	(2,362)
Commitments and contingencies								
Shareholders' equity								
Common stock	**5,935**	5,827	**5,935**	5,827	**919**	919	**(919) [5]**	(919) [5]
Treasury stock	**(24,217)**	(20,531)	**(24,217)**	(20,531)	**—**	—	**—**	—
Profit employed in the business	**34,437**	30,427	**34,437**	30,427	**3,997**	3,543	**(3,997) [5]**	(3,543) [5]
Accumulated other comprehensive income (loss)	**(1,567)**	(1,684)	**(1,567)**	(1,684)	**(828)**	(943)	**828 [5]**	943 [5]
Noncontrolling interests	**41**	41	**41**	41	**172**	153	**(172) [5]**	(153) [5]
Total shareholders' equity	**14,629**	14,080	**14,629**	14,080	**4,260**	3,672	**(4,260)**	(3,672)
Total liabilities and shareholders' equity	**$ 78,453**	$ 78,509	**$ 48,437**	$ 48,475	**$ 35,947**	$ 36,068	**$ (5,931)**	$ (6,034)

1 Represents Caterpillar Inc. and its subsidiaries with Financial Products accounted for on the equity basis.
2 Elimination of receivables between Machinery, Energy & Transportation and Financial Products.
3 Reclassification of Machinery, Energy & Transportation's trade receivables purchased by Financial Products and Financial Products' wholesale inventory receivables.
4 Elimination of Machinery, Energy & Transportation's insurance premiums that are prepaid to Financial Products.
5 Elimination of Financial Products' equity which is accounted for by Machinery, Energy & Transportation on the equity basis.
6 Reclassification reflecting required netting of deferred tax assets/liabilities by taxing jurisdiction.
7 Elimination of other intercompany assets between Machinery, Energy & Transportation and Financial Products.
8 Elimination of debt between Machinery, Energy & Transportation and Financial Products.
9 Elimination of payables between Machinery, Energy & Transportation and Financial Products.
10 Elimination of prepaid insurance in Financial Products' other liabilities.

Supplemental Data for Statement of Cash Flow

For the Years Ended December 31

			Supplemental consolidating data					
	Consolidated		Machinery, Energy & Transportation [1]		Financial Products		Consolidating Adjustments	
(Millions of dollars)	2019	2018	2019	2018	2019	2018	2019	2018
Cash flow from operating activities:								
Profit (loss) of consolidated and affiliated companies	$ 6,094	$ 6,148	$ 6,072	$ 6,128	$ 597	$ 382	$ (575) [2]	$ (362) [2]
Adjustments for non-cash items:								
Depreciation and amortization	2,577	2,766	1,713	1,895	864	871	—	—
Undistributed profit of Financial Products	—	—	(550)	—	—	—	550 [3]	—
Actuarial (gain) loss on pension and postretirement benefits	468	495	468	495	—	—	—	—
Provision (benefit) for deferred income taxes	28	220	15	149	13	71	—	—
Other	675	1,006	456	434	(215)	178	434 [4]	394 [4]
Financial Products' dividend in excess of profit	—	—	—	57	—	—	—	(57) [5]
Changes in assets and liabilities, net of acquisitions and divestitures:								
Receivables - trade and other	171	(1,619)	4	(396)	15	6	152 [4,6]	(1,229) [4,6]
Inventories	274	(1,579)	250	(1,528)	—	—	24 [4]	(51) [4]
Accounts payable	(1,025)	709	(983)	771	20	(55)	(62) [4]	(7) [4]
Accrued expenses	172	101	187	71	(13)	30	(2) [4]	—
Accrued wages, salaries and employee benefits	(757)	(162)	(772)	(141)	15	(21)	—	—
Customer advances	(10)	(183)	(8)	(183)	—	—	(2) [4]	—
Other assets-net	(93)	41	(166)	16	38	(14)	35 [4]	39 [4]
Other liabilities-net	(1,662)	(1,385)	(1,815)	(1,421)	169	75	(16) [4]	(39) [4]
Net cash provided by (used for) operating activities	6,912	6,558	4,871	6,347	1,503	1,523	538	(1,312)
Cash flow from investing activities:								
Capital expenditures—excluding equipment leased to others	(1,056)	(1,276)	(1,036)	(1,168)	(20)	(108)	—	—
Expenditures for equipment leased to others	(1,613)	(1,640)	(38)	(53)	(1,616)	(1,667)	41 [4]	80 [4]
Proceeds from disposals of leased assets and property, plant and equipment	1,153	936	164	152	1,092	811	(103) [4]	(27) [4]
Additions to finance receivables	(12,777)	(12,183)	—	—	(14,270)	(13,595)	1,493 [6]	1,412 [6,7]
Collections of finance receivables	12,183	10,901	—	—	13,537	12,513	(1,354) [6]	(1,612) [6]
Net intercompany purchased receivables	—	—	—	—	640	(1,046)	(640) [6]	1,046 [6]
Proceeds from sale of finance receivables	235	477	—	—	235	477	—	—
Net intercompany borrowings	—	—	900	112	3	31	(903) [8]	(143) [8]
Investments and acquisitions (net of cash acquired)	(47)	(392)	(47)	(392)	—	—	—	—
Proceeds from sale of businesses and investments (net of cash sold)	41	16	3	22	38	—	—	(6) [7]
Proceeds from sale of securities	529	442	32	162	497	280	—	—
Investments in securities	(552)	(506)	(27)	(24)	(525)	(482)	—	—
Other-net	(24)	13	1	2	(25)	10	—	1 [9]
Net cash provided by (used for) investing activities	(1,928)	(3,212)	(48)	(1,187)	(414)	(2,776)	(1,466)	751
Cash flow from financing activities:								
Dividends paid	(2,132)	(1,951)	(2,132)	(1,951)	(25)	(419)	25 [10]	419 [10]
Common stock issued, including treasury shares reissued	238	313	238	313	—	1	—	(1) [9]
Common shares repurchased	(4,047)	(3,798)	(4,047)	(3,798)	—	—	—	—
Net intercompany borrowings	—	—	(3)	(31)	(900)	(112)	903 [8]	143 [8]
Proceeds from debt issued (original maturities greater than three months)	9,841	8,907	1,479	57	8,362	8,850	—	—
Payments on debt (original maturities greater than three months)	(8,297)	(7,829)	(12)	(7)	(8,285)	(7,822)	—	—
Short-term borrowings - net (original maturities three months or less)	(138)	762	5	—	(143)	762	—	—
Other-net	(3)	(54)	(3)	(54)	—	—	—	—
Net cash provided by (used for) financing activities	(4,538)	(3,650)	(4,475)	(5,471)	(991)	1,260	928	561
Effect of exchange rate changes on cash	(44)	(126)	(40)	(111)	(4)	(15)	—	—
Increase (decrease) in cash and short-term investments and restricted cash	402	(430)	308	(422)	94	(8)	—	—
Cash and short-term investments and restricted cash at beginning of period	7,890	8,320	6,994	7,416	896	904	—	—
Cash and short-term investments and restricted cash at end of period	$ 8,292	$ 7,890	$ 7,302	$ 6,994	$ 990	$ 896	$ —	$ —

1 Represents Caterpillar Inc. and its subsidiaries with Financial Products accounted for on the equity basis.
2 Elimination of Financial Products' profit after tax due to equity method of accounting.
3 Elimination of non-cash adjustment for the undistributed earnings from Financial Products.
4 Elimination of non-cash adjustments and changes in assets and liabilities related to consolidated reporting.
5 Elimination of Financial Products' dividend to Machinery, Energy & Transportation in excess of Financial Products' profit.
6 Reclassification of Financial Products' cash flow activity from investing to operating for receivables that arose from the sale of inventory.
7 Elimination of proceeds received from Financial Products related to Machinery, Energy & Transportation's sale of businesses and investments.
8 Elimination of net proceeds and payments to/from Machinery, Energy & Transportation and Financial Products.
9 Elimination of change in investment and common stock related to Financial Products.
10 Elimination of dividend from Financial Products to Machinery, Energy & Transportation.

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk.

Information required by Item 7A appears in Note 1 — "Operations and summary of significant accounting policies," Note 4 — "Derivative financial instruments and risk management," Note 18 — "Fair value disclosures" and Note 19 — "Concentration of credit risk" of Part II, Item 8 "Financial Statements and Supplementary Data." Other information required by Item 7A is included in Part II, Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations."

ITEM 8. Financial Statements and Supplementary Data.

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Caterpillar Inc. (company) is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Rule 13a-15(f) under the Exchange Act. Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Management assessed the effectiveness of the company's internal control over financial reporting as of December 31, 2019. In making this assessment, we used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework* (2013). Based on our assessment we concluded that, as of December 31, 2019, the company's internal control over financial reporting was effective based on those criteria.

The effectiveness of the company's internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm. Their report appears on pages 50-51.

/s/ D. James Umpleby III

D. James Umpleby III

Chief Executive Officer

/s/ Andrew R.J. Bonfield

Andrew R.J. Bonfield

Chief Financial Officer

February 19, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Shareholders of Caterpillar Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated statement of financial position of Caterpillar Inc. and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of results of operations, comprehensive income (loss), changes in shareholders' equity, and cash flow for each of the three years in the period ended December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

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

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Uncertain Tax Position - Caterpillar SARL IRS Examination

As described in Note 6 to the consolidated financial statements, as a result of the audits of the Company's U.S. 2007 to 2012 income tax returns, including the impact of a loss carryback to 2005, the Internal Revenue Service ("IRS") has proposed to tax in the U.S. profits earned from certain parts transactions by Caterpillar SARL ("CSARL"). This proposal is based on the IRS examination team's application of the "substance-over-form" or "assignment-of-income" judicial doctrines. As described by management, the Company is vigorously contesting the proposed increases to tax and penalties for these years of approximately $2.3 billion, as management believes that the relevant transactions complied with applicable tax laws and did not violate judicial doctrines. As disclosed by management, the purchase of parts by CSARL from unrelated parties and the subsequent sale of those parts to unrelated dealers outside the U.S. have substantial legal, commercial, and economic consequences for the parties involved. Management has 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 the Company's unrecognized tax benefits. The Company has filed U.S. income tax returns on this same basis for years after 2012.

The principal considerations for our determination that performing procedures relating to the uncertain tax position arising from the CSARL IRS Examination is a critical audit matter are there was significant judgment by management in evaluating the amount of the benefit that is more likely than not to be sustained related to the position, which in turn led to a high degree of auditor judgment, subjectivity and effort in performing procedures to evaluate whether the position was more likely than not to be sustained. Also, the audit effort involved the use of professionals with specialized skill and knowledge to assist in evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the uncertain tax position arising from the CSARL IRS Examination. These procedures also included, among others, (i) evaluating management's process for determining the reasonableness of the uncertain tax position, including reading certain intercompany and third-party agreements which are relevant to evaluating the legal form and substance of the CSARL transaction flows; (ii) evaluating management's assessment of whether the position was more likely than not to produce a tax benefit and the determination by management of the largest amount of benefit that is more likely than not to be sustained related to this position; and (iii) evaluating the Revenue Agent Reports ("RARs") from the IRS and management's protests of the RARs. Professionals with specialized skill and knowledge were used to assist in evaluating the applicable tax laws and judicial doctrines related to this matter as well as changes in relevant tax regulations, rulings, and case law.

/s/ PricewaterhouseCoopers LLP

Peoria, Illinois
February 19, 2020

We have served as the Company's auditor since 1925.

STATEMENT 1 Caterpillar Inc.

Consolidated Results of Operations for the Years Ended December 31

(Dollars in millions except per share data)

	2019	2018	2017
Sales and revenues:			
Sales of Machinery, Energy & Transportation	**$ 50,755**	$ 51,822	$ 42,676
Revenues of Financial Products	**3,045**	2,900	2,786
Total sales and revenues	**53,800**	54,722	45,462
Operating costs:			
Cost of goods sold	**36,630**	36,997	31,260
Selling, general and administrative expenses	**5,162**	5,478	4,999
Research and development expenses	**1,693**	1,850	1,842
Interest expense of Financial Products	**754**	722	646
Other operating (income) expenses	**1,271**	1,382	2,255
Total operating costs	**45,510**	46,429	41,002
Operating profit	**8,290**	8,293	4,460
Interest expense excluding Financial Products	**421**	404	531
Other income (expense)	**(57)**	(67)	153
Consolidated profit before taxes	**7,812**	7,822	4,082
Provision (benefit) for income taxes	**1,746**	1,698	3,339
Profit of consolidated companies	**6,066**	6,124	743
Equity in profit (loss) of unconsolidated affiliated companies	**28**	24	16
Profit of consolidated and affiliated companies	**6,094**	6,148	759
Less: Profit (loss) attributable to noncontrolling interests	**1**	1	5
Profit [1]	**$ 6,093**	$ 6,147	$ 754
Profit per common share	**$ 10.85**	$ 10.39	$ 1.27
Profit per common share — diluted [2]	**$ 10.74**	$ 10.26	$ 1.26
Weighted-average common shares outstanding (millions)			
- Basic	**561.6**	591.4	591.8
- Diluted [2]	**567.5**	599.4	599.3

[1] Profit attributable to common shareholders.

[2] Diluted by assumed exercise of stock-based compensation awards, using the treasury stock method.

See accompanying notes to Consolidated Financial Statements.

STATEMENT 2

Caterpillar Inc.

Consolidated Comprehensive Income (Loss) for the Years Ended December 31

(Millions of dollars)

	2019	2018	2017
Profit (loss) of consolidated and affiliated companies	**$ 6,094**	$ 6,148	$ 759
Other comprehensive income (loss), net of tax:			
Foreign currency translation, net of tax (provision)/benefit of: 2019 - $(5); 2018 - $(24); 2017 - $96	**16**	(396)	765
Pension and other postretirement benefits:			
Current year prior service credit (cost), net of tax (provision)/benefit of: 2019 - $0; 2018 - $(6); 2017 - $(26)	**(4)**	(6)	48
Amortization of prior service (credit) cost, net of tax (provision)/benefit of: 2019 - $10; 2018 - $8; 2017 - $9	**(30)**	(28)	(16)
Derivative financial instruments:			
Gains (losses) deferred, net of tax (provision)/benefit of: 2019 - $(14); 2018 - $(19); 2017 - $2	**43**	61	(3)
(Gains) losses reclassified to earnings, net of tax (provision)/benefit of: 2019 - $15; 2018 - $31; 2017 - $(44)	**(51)**	(100)	77
Available-for-sale securities:			
Gains (losses) deferred, net of tax (provision)/benefit of: 2019 - $(10); 2018 - $3; 2017 - $(23)	**35**	(12)	41
(Gains) losses reclassified to earnings, net of tax (provision)/benefit of: 2019 - $0; 2018 - $0; 2017 - $35	**—**	—	(65)
Total other comprehensive income (loss), net of tax	**9**	(481)	847
Comprehensive income (loss)	**6,103**	5,667	1,606
Less: comprehensive income attributable to the noncontrolling interests	**1**	1	5
Comprehensive income (loss) attributable to shareholders	**$ 6,102**	$ 5,666	$ 1,601

See accompanying notes to Consolidated Financial Statements.

STATEMENT 3 **Caterpillar Inc.**

Consolidated Financial Position at December 31

(Dollars in millions)

	2019	2018
Assets		
Current assets:		
Cash and short-term investments	$ 8,284	$ 7,857
Receivables – trade and other	8,568	8,802
Receivables – finance	9,336	8,650
Prepaid expenses and other current assets	1,739	1,765
Inventories	11,266	11,529
Total current assets	39,193	38,603
Property, plant and equipment – net	12,904	13,574
Long-term receivables – trade and other	1,193	1,161
Long-term receivables – finance	12,651	13,286
Noncurrent deferred and refundable income taxes	1,411	1,439
Intangible assets	1,565	1,897
Goodwill	6,196	6,217
Other assets	3,340	2,332
Total assets	$ 78,453	$ 78,509
Liabilities		
Current liabilities:		
Short-term borrowings:		
Machinery, Energy & Transportation	$ 5	$ —
Financial Products	5,161	5,723
Accounts payable	5,957	7,051
Accrued expenses	3,750	3,573
Accrued wages, salaries and employee benefits	1,629	2,384
Customer advances	1,187	1,243
Dividends payable	567	495
Other current liabilities	2,155	1,919
Long-term debt due within one year:		
Machinery, Energy & Transportation	16	10
Financial Products	6,194	5,820
Total current liabilities	26,621	28,218
Long-term debt due after one year:		
Machinery, Energy & Transportation	9,141	8,005
Financial Products	17,140	16,995
Liability for postemployment benefits	6,599	7,455
Other liabilities	4,323	3,756
Total liabilities	63,824	64,429
Commitments and contingencies (Notes 21 and 22)		
Shareholders' equity		
Common stock of $1.00 par value:		
Authorized shares: 2,000,000,000 Issued shares: (2019 and 2018 – 814,894,624 shares) at paid-in amount	5,935	5,827
Treasury stock: (2019 - 264,812,014 shares; and 2018 – 239,351,886 shares) at cost	(24,217)	(20,531)
Profit employed in the business	34,437	30,427
Accumulated other comprehensive income (loss)	(1,567)	(1,684)
Noncontrolling interests	41	41
Total shareholders' equity	14,629	14,080
Total liabilities and shareholders' equity	$ 78,453	$ 78,509

See accompanying notes to Consolidated Financial Statements.

STATEMENT 4 **Caterpillar Inc.**

Changes in Consolidated Shareholders' Equity for the Years Ended December 31

(Dollars in millions)	Common stock	Treasury stock	Profit employed in the business	Accumulated other comprehensive income (loss)	Noncontrolling interests	Total
Balance at January 1, 2017	**$ 5,277**	**$ (17,478)**	**$ 27,392**	**$ (2,039)**	**$ 76**	**$ 13,228**
Profit (loss) of consolidated and affiliated companies	—	—	754	—	5	759
Foreign currency translation, net of tax	—	—	—	765	—	765
Pension and other postretirement benefits, net of tax	—	—	—	32	—	32
Derivative financial instruments, net of tax	—	—	—	74	—	74
Available-for-sale securities, net of tax	—	—	—	(24)	—	(24)
Change in ownership from noncontrolling interests	4	—	—	—	(3)	1
Dividends declared	—	—	(1,845)	—	—	(1,845)
Distribution to noncontrolling interests	—	—	—	—	(9)	(9)
Common shares issued from treasury stock for stock-based compensation: 11,139,748	93	473	—	—	—	566
Stock-based compensation expense	206	—	—	—	—	206
Other	13	—	—	—	—	13
Balance at December 31, 2017	**$ 5,593**	**$ (17,005)**	**$ 26,301**	**$ (1,192)**	**$ 69**	**$ 13,766**
Adjustments to adopt new accounting guidance						
Revenue recognition	—	—	(12)	—	—	(12)
Tax accounting for intra-entity asset transfers	—	—	(35)	—	—	(35)
Recognition and measurement of financial assets and liabilities	—	—	11	(11)	—	—
Balance at January 1, 2018	**$ 5,593**	**$ (17,005)**	**$ 26,265**	**$ (1,203)**	**$ 69**	**$ 13,719**
Profit (loss) of consolidated and affiliated companies	—	—	6,147	—	1	6,148
Foreign currency translation, net of tax	—	—	—	(396)	—	(396)
Pension and other postretirement benefits, net of tax	—	—	—	(34)	—	(34)
Derivative financial instruments, net of tax	—	—	—	(39)	—	(39)
Available-for-sale securities, net of tax	—	—	—	(12)	—	(12)
Change in ownership from noncontrolling interests	(25)	—	—	—	(28)	(53)
Dividends declared	—	—	(1,985)	—	—	(1,985)
Distribution to noncontrolling interests	—	—	—	—	(1)	(1)
Common shares issued from treasury stock for stock-based compensation: 5,590,641	41	272	—	—	—	313
Stock-based compensation expense	197	—	—	—	—	197
Common shares repurchased: 27,673,675 [1]	—	(3,798)	—	—	—	(3,798)
Other	21	—	—	—	—	21
Balance at December 31, 2018	**$ 5,827**	**$ (20,531)**	**$ 30,427**	**$ (1,684)**	**$ 41**	**$ 14,080**

(Continued)

STATEMENT 4 **Caterpillar Inc.**

Changes in Consolidated Shareholders' Equity for the Years Ended December 31

(Dollars in millions)	Common stock	Treasury stock	Profit employed in the business	Accumulated other comprehensive income (loss)	Noncontrolling interests	Total
Balance at December 31, 2018	**$ 5,827**	**$ (20,531)**	**$ 30,427**	**$ (1,684)**	**$ 41**	**$ 14,080**
Adjustments to adopt new accounting guidance [2]						
Lease accounting	—	—	235	—	—	235
Reclassification of certain tax effects from accumulated other comprehensive income	—	—	(108)	108	—	—
Balance at January 1, 2019	**$ 5,827**	**$ (20,531)**	**$ 30,554**	**$ (1,576)**	**$ 41**	**$ 14,315**
Profit (loss) of consolidated and affiliated companies	—	—	6,093	—	1	6,094
Foreign currency translation, net of tax	—	—	—	16	—	16
Pension and other postretirement benefits, net of tax	—	—	—	(34)	—	(34)
Derivative financial instruments, net of tax	—	—	—	(8)	—	(8)
Available-for-sale securities, net of tax	—	—	—	35	—	35
Dividends declared [3]	—	—	(2,210)	—	—	(2,210)
Distribution to noncontrolling interests	—	—	—	—	(3)	(3)
Common shares issued from treasury stock for stock-based compensation: 5,126,379	(4)	242	—	—	—	238
Stock-based compensation expense	205	—	—	—	—	205
Common shares repurchased: 30,586,507 [1]	—	(3,928)	—	—	—	(3,928)
Other	(93)	—	—	—	2	(91)
Balance at December 31, 2019	**$ 5,935**	**$ (24,217)**	**$ 34,437**	**$ (1,567)**	**$ 41**	**$ 14,629**

1 See Note 16 regarding shares repurchased.
2 See Note 1J regarding new accounting guidance.
3 Dividends per share of common stock of $3.95, $3.36 and $3.11 were declared in the years ended December 31, 2019, 2018 and 2017, respectively.

See accompanying notes to Consolidated Financial Statements.

STATEMENT 5 **Caterpillar Inc.**

Consolidated Statement of Cash Flow for the Years Ended December 31

(Millions of dollars)	2019	2018	2017
Cash flow from operating activities:			
Profit (loss) of consolidated and affiliated companies	**$ 6,094**	$ 6,148	$ 759
Adjustments for non-cash items:			
Depreciation and amortization	**2,577**	2,766	2,877
Actuarial (gain) loss on pension and postretirement benefits	**468**	495	301
Provision (benefit) for deferred income taxes	**28**	220	1,213
Other	**675**	1,006	750
Changes in assets and liabilities, net of acquisitions and divestitures:			
Receivables – trade and other	**171**	(1,619)	(1,151)
Inventories	**274**	(1,579)	(1,295)
Accounts payable	**(1,025)**	709	1,478
Accrued expenses	**172**	101	175
Accrued wages, salaries and employee benefits	**(757)**	(162)	1,187
Customer advances	**(10)**	(183)	(8)
Other assets – net	**(93)**	41	(192)
Other liabilities – net	**(1,662)**	(1,385)	(388)
Net cash provided by (used for) operating activities	**6,912**	6,558	5,706
Cash flow from investing activities:			
Capital expenditures – excluding equipment leased to others	**(1,056)**	(1,276)	(898)
Expenditures for equipment leased to others	**(1,613)**	(1,640)	(1,438)
Proceeds from disposals of leased assets and property, plant and equipment	**1,153**	936	1,164
Additions to finance receivables	**(12,777)**	(12,183)	(11,953)
Collections of finance receivables	**12,183**	10,901	12,018
Proceeds from sale of finance receivables	**235**	477	127
Investments and acquisitions (net of cash acquired)	**(47)**	(392)	(59)
Proceeds from sale of businesses and investments (net of cash sold)	**41**	16	100
Proceeds from sale of securities	**529**	442	932
Investments in securities	**(552)**	(506)	(1,048)
Other – net	**(24)**	13	89
Net cash provided by (used for) investing activities	**(1,928)**	(3,212)	(966)
Cash flow from financing activities:			
Dividends paid	**(2,132)**	(1,951)	(1,831)
Common stock issued, including treasury shares reissued	**238**	313	566
Common shares repurchased	**(4,047)**	(3,798)	—
Proceeds from debt issued (original maturities greater than three months):			
- Machinery, Energy & Transportation	**1,479**	57	361
- Financial Products	**8,362**	8,850	8,702
Payments on debt (original maturities greater than three months):			
- Machinery, Energy & Transportation	**(12)**	(7)	(1,465)
- Financial Products	**(8,285)**	(7,822)	(6,923)
Short-term borrowings – net (original maturities three months or less)	**(138)**	762	(3,058)
Other – net	**(3)**	(54)	(9)
Net cash provided by (used for) financing activities	**(4,538)**	(3,650)	(3,657)
Effect of exchange rate changes on cash	**(44)**	(126)	38
Increase (decrease) in cash and short-term investments and restricted cash	**402**	(430)	1,121
Cash and short-term investments and restricted cash at beginning of period	**7,890**	8,320	7,199
Cash and short-term investments and restricted cash at end of period	**$ 8,292**	$ 7,890	$ 8,320

All short-term investments, which consist primarily of highly liquid investments with original maturities of three months or less, are considered to be cash equivalents.

See accompanying notes to Consolidated Financial Statements.

1. Operations and summary of significant accounting policies

A. Nature of operations

Information in our financial statements and related commentary are presented in the following categories:

> **Machinery, Energy & Transportation** (ME&T) – Represents the aggregate total of Construction Industries, Resource Industries, Energy & Transportation and All Other operating segment and related corporate items and eliminations.
>
> **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.

Our products are sold primarily under the brands "Caterpillar," "CAT," design versions of "CAT" and "Caterpillar," "EMD," "FG Wilson," "MaK," "MWM," "Perkins," "Progress Rail," "SEM" and "Solar Turbines".

We conduct operations in our ME&T lines of business under highly competitive conditions, including intense price competition. We place great emphasis on the high quality and performance of our products and our dealers' service support. Although no one competitor is believed to produce all of the same types of equipment that we do, there are numerous companies, large and small, which compete with us in the sale of each of our products.

Our machines are distributed principally through a worldwide organization of dealers (dealer network), 46 located in the United States and 119 located outside the United States, serving 191 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 67 distributors covering 178 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 150 distributors covering 109 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.

The Financial Products line of business also conducts operations under highly competitive conditions. Financing for users of Caterpillar products is available through a variety of competitive sources, principally commercial banks and finance and leasing companies. We offer various financing plans designed to increase the opportunity for sales of our products and generate financing income for our company. A significant portion of Financial Products activity is conducted in North America, with additional offices in Latin America, Asia/Pacific, Europe, Africa and the Middle East.

B. Basis of presentation

The consolidated financial statements include the accounts of Caterpillar Inc. and its subsidiaries where we have a controlling financial interest.

Investments in companies where our ownership exceeds 20 percent and we do not have a controlling interest or where the ownership is less than 20 percent and for which we have a significant influence are accounted for by the equity method.

We consolidate all variable interest entities (VIEs) where Caterpillar Inc. is the primary beneficiary. For VIEs, we assess whether we are the primary beneficiary as prescribed by the accounting guidance on the consolidation of VIEs. The primary beneficiary of a VIE is the party that has both the power to direct the activities that most significantly impact the entity's economic performance and the obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE. See Note 21 for further discussion on a consolidated VIE.

We have affiliates, suppliers and dealers that are VIEs of which we are not the primary beneficiary. Although we have provided financial support, we do not have the power to direct the activities that most significantly impact the economic performance of each entity. Our maximum exposure to loss from these VIEs for which we are not the primary beneficiary was $133 million and $131 million as of December 31, 2019 and 2018, respectively.

Cat Financial has end-user customers that are VIEs of which we are not the primary beneficiary. Although we have provided financial support to these entities and therefore have a variable interest, we do not have the power to direct the activities that most significantly impact their economic performance. Our maximum exposure to loss from our involvement with these VIEs is limited to the credit risk inherently present in the financial support that we have provided. These risks are evaluated and reflected in our financial statements as part of our overall portfolio of finance receivables and related allowance for credit losses.

Shipping and handling costs are included in Cost of goods sold in Statement 1. Other operating (income) expenses primarily include Cat Financial's depreciation of equipment leased to others, Insurance Services' underwriting expenses, (gains) losses on disposal of long-lived assets, long-lived asset impairment charges, legal settlements and accruals, contract termination costs and employee separation charges.

Prepaid expenses and other current assets in Statement 3 primarily include prepaid insurance, contract assets, right of return assets, prepaid and refundable income taxes, assets held for sale, core to be returned for remanufacturing, restricted cash and other short-term investments.

Certain amounts for prior years have been reclassified to conform with the current-year financial statement presentation.

C. Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is principally determined using the last-in, first-out (LIFO) method. The value of inventories on the LIFO basis represented about 60 percent and 65 percent of total inventories at December 31, 2019 and 2018, respectively.

If the FIFO (first-in, first-out) method had been in use, inventories would have been $2,086 million and $2,009 million higher than reported at December 31, 2019 and 2018, respectively.

D. Depreciation and amortization

Depreciation of plant and equipment is computed principally using accelerated methods. Depreciation on equipment leased to others, primarily for Financial Products, is computed using the straight-line method over the term of the lease. The depreciable basis is the original cost of the equipment less the estimated residual value of the equipment at the end of the lease term. In 2019, 2018 and 2017, Cat Financial depreciation on equipment leased to others was $813 million, $819 million and $810 million, respectively, and was included in Other operating (income) expenses in Statement 1. In 2019, 2018 and 2017, consolidated depreciation expense was $2,253 million, $2,435 million and $2,555 million, respectively. Amortization of purchased finite-lived intangibles is computed principally using the straight-line method, generally not to exceed a period of 20 years.

E. Foreign currency translation

The functional currency for most of our ME&T consolidated companies is the U.S. dollar. The functional currency for most of our Financial Products and affiliates accounted for under the equity method is the respective local currency. Gains and losses resulting from the remeasurement of foreign currency amounts to the functional currency are included in Other income (expense) in Statement 1. Gains and losses resulting from translating assets and liabilities from the functional currency to U.S. dollars are included in Accumulated other comprehensive income (loss) in Statement 3.

F. Derivative financial instruments

Our earnings and cash flow are subject to fluctuations due to changes in foreign currency exchange rates, interest rates and commodity prices. Our Risk Management Policy (policy) allows for the use of derivative financial instruments to prudently manage foreign currency exchange rate, interest rate and commodity price exposures. Our policy specifies that derivatives are not to be used for speculative purposes. Derivatives that we use are primarily foreign currency forward, option and cross currency contracts, interest rate contracts and commodity forward and option contracts. All derivatives are recorded at fair value. See Note 4 for more information.

G. Income taxes

The provision for income taxes is determined using the asset and liability approach taking into account guidance related to uncertain tax positions. Tax laws require items to be included in tax filings at different times than the items are reflected in the financial statements. A current liability is recognized for the estimated taxes payable for the current year. Deferred taxes represent the future tax consequences expected to occur when the reported amounts of assets and liabilities are recovered or paid. Deferred taxes are adjusted for enacted changes in tax rates and tax laws. Valuation allowances are recorded to reduce deferred tax assets when it is more likely than not that a tax benefit will not be realized. See Note 6 for further discussion.

H. Goodwill

For acquisitions accounted for as a business combination, goodwill represents the excess of the cost over the fair value of the net assets acquired. We are required to test goodwill for impairment, at the reporting unit level, annually and when events or circumstances make it more likely than not that an impairment may have occurred. A reporting unit is an operating segment or one level below an operating segment (referred to as a component) to which goodwill is assigned when initially recorded. We assign goodwill to reporting units based on our integration plans and the expected synergies resulting from the acquisition. Because Caterpillar is a highly integrated company, the businesses we acquire are sometimes combined with or integrated into existing reporting units. When changes occur in the composition of our operating segments or reporting units, goodwill is reassigned to the affected reporting units based on their relative fair values.

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. If the carrying value is higher than the fair value, the difference would be recognized as an impairment loss. See Note 10 for further details.

I. Estimates in financial statements

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America 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; warranty liability and reserves for product liability and insurance losses, postretirement benefits, post-sale discounts, credit losses and income taxes.

J. New accounting guidance

Adoption of new accounting standards

Lease accounting – (Accounting Standards Update (ASU) 2016-02) - In February 2016, the Financial Accounting Standards Board (FASB) issued accounting guidance that revises the accounting for leases. Under the new guidance, lessees are required to recognize a right-of-use asset and a lease liability for substantially all leases. The new guidance continues to classify leases as either financing or operating, with classification affecting the pattern of expense recognition. The accounting applied by a lessor under the new guidance is substantially equivalent to prior lease accounting guidance. The new guidance was effective January 1, 2019 and was applied using a modified retrospective approach through a cumulative effect adjustment to retained earnings as of January 1, 2019. The prior period comparative information has not been recast and continues to be reported under the accounting guidance in effect for those periods.

The new guidance provides a number of optional practical expedients in transition. We elected the "package of practical expedients," which allows us not to reassess under the new guidance our prior conclusions about lease identification, lease classification and initial direct costs. We did not elect the use-of-hindsight practical expedient. In addition, the new guidance provides practical expedients for an entity's ongoing lessee accounting. For certain property and information technology equipment leases, we have elected to separate payments for lease components from non-lease components. For all other leases, we have elected not to separate lease and non-lease components. We have elected the short-term lease recognition exemption for all leases that qualify, which means we have not recognized right-of-use assets or lease liabilities for these leases with a term of twelve months or less.

The most significant effects of adoption relate to the recognition of right-of-use assets and lease liabilities on our balance sheet for operating leases and providing new disclosures about our leasing activities. In addition, we derecognized existing assets and debt obligations for a sale-leaseback transaction that qualified for sale accounting under the new guidance. The gain associated with this change in accounting was recognized through opening retained earnings as of January 1, 2019. The adoption did not have a material impact on our financial statements.

In March 2019, the FASB issued Leases - Codification improvements (ASU 2019-01) which amended the new leasing guidance. Under these amendments, lessors that are not manufacturers or dealers will use their cost, less any discounts that may apply, as the fair value of the underlying asset, and lessors within the scope of Financial Services-Depository and Lending guidance will present all principal payments received under leases within investment activities on the statement of cash flows. We adopted the new guidance effective January 1, 2019, and the adoption did not have a material impact to our financial statements.

See Note 20 for additional information.

The cumulative effect of initially applying the new lease guidance to our consolidated financial statements on January 1, 2019 was as follows:

Consolidated Statement of Financial Position

(Millions of dollars)	Balance as of December 31, 2018	Cumulative Impact from Adopting New Lease Guidance	Balance as of January 1, 2019
Assets			
Prepaid expenses and other current assets	$ 1,765	$ (17)	$ 1,748
Property, plant and equipment - net	$ 13,574	$ (26)	$ 13,548
Noncurrent deferred and refundable income taxes	$ 1,439	$ (77)	$ 1,362
Other assets	$ 2,332	$ 713	$ 3,045
Liabilities			
Accrued expenses	$ 3,573	$ (27)	$ 3,546
Other current liabilities	$ 1,919	$ 209	$ 2,128
Long-term debt due after one year Machinery, Energy & Transportation	$ 8,005	$ (362)	$ 7,643
Other liabilities	$ 3,756	$ 538	$ 4,294
Shareholders' equity			
Profit employed in the business	$ 30,427	$ 235	$ 30,662

We adopted the following ASUs effective January 1, 2019, none of which had a material impact on our financial statements:

ASU	Description
2017 - 08	Premium amortization on purchased callable debt securities
2017 - 12	Derivatives and hedging - Targeted improvements
2018 - 02	Reclassification of certain tax effects from accumulated other comprehensive income

Accounting standards issued but not yet adopted

Credit losses (ASU 2016-13) – In June 2016, the FASB issued accounting guidance to introduce a new model for recognizing credit losses on financial instruments based on an estimate of current expected credit losses. The new guidance will apply to loans, accounts receivable, trade receivables, other financial assets measured at amortized cost, loan commitments and other off-balance sheet credit exposures. The new guidance will also apply to debt securities and other financial assets measured at fair value through other comprehensive income. The new guidance was effective January 1, 2020. We do not expect the adoption to have a material impact on our financial statements.

We consider the applicability and impact of all ASUs. ASUs not listed above were assessed and either determined to be not applicable or not expected to have a material impact on our financial statements.

2. Sales and revenue recognition

A. Sales of Machinery, Energy & Transportation

Sales of ME&T are recognized when all the following criteria are satisfied: (i) a contract with an independently owned and operated dealer or an end user exists which has commercial substance; (ii) it is probable we will collect the amount charged to the dealer or end user; and (iii) we have completed our performance obligation whereby the dealer or end user has obtained control of the product. A contract with commercial substance exists once we receive and accept a purchase order under a dealer sales agreement, or once we enter into a contract with an end user. If collectibility is not probable, the sale is deferred and not recognized until collection is probable or payment is received. Control of our products typically transfers when title and risk of ownership of the product has transferred to the dealer or end user. Typically, where product is produced and sold in the same country, title and risk of ownership transfer when the product is shipped. Products that are exported from a country for sale typically transfer title and risk of ownership at the border of the destination country.

Our remanufacturing operations are primarily focused on the remanufacture of Cat engines and components and rail related products. In this business, used engines and related components (core) are inspected, cleaned and remanufactured. In connection with the sale of our remanufactured product to dealers, we collect a deposit that is repaid if the dealer returns an acceptable core within a specified time period. Caterpillar owns and has title to the cores when they are returned from dealers. The rebuilt engine or component (the core plus any new content) is then sold as a remanufactured product to dealers and end users. Revenue is recognized pursuant to the same transfer of control criteria as ME&T sales noted above. At the time of sale, the deposit is recognized in Other current liabilities in Statement 3, and the core to be returned is recognized as an asset in Prepaid expenses and other current assets in Statement 3 at the estimated replacement cost (based on historical experience with usable cores). Upon receipt of an acceptable core, we repay the deposit and relieve the liability. The returned core asset is then transferred into inventory. In the event that the deposit is forfeited (i.e., upon failure by the dealer to return an acceptable core in the specified time period), we recognize the core deposit and the cost of the core in Sales and Cost of goods sold, respectively.

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. Generally, the cost of these discounts is estimated for each product by model by geographic region based on historical experience and known changes in merchandising programs. The cost of these discounts is reported as a reduction to the transaction price when the product sale is recognized. A corresponding post-sale discount reserve is accrued in Statement 3, which represents discounts we expect to pay on units sold. If discounts paid differ from those estimated, the difference is reported as a change in the transaction price.

Except for replacement parts, no right of return exists on the sale of our products. We estimate replacement part returns based on historical experience and recognize a parts return asset in Prepaid expenses and other current assets in Statement 3, which represents our right to recover replacement parts we expect will be returned. We also recognize a refund liability in Other current liabilities in Statement 3 for the refund we expect to pay for returned parts. If actual replacement part returns differ from those estimated, the difference in the estimated replacement part return asset and refund liability is recognized in Cost of goods sold and Sales, respectively.

Our standard dealer invoice terms are established by marketing region. Our invoice terms for end user sales are established by the responsible business unit. Payments from dealers are due shortly after the time of sale. When a sale is made to a dealer, the dealer is responsible for payment even if the product is not sold to an end user. Dealers and end users must make payment within the established invoice terms to avoid potential interest costs. Interest at or above prevailing market rates may be charged on any past due balance, and generally our practice is to not forgive this interest. In addition, Cat Financial provides wholesale inventory financing for a dealer's purchase of inventory. Wholesale inventory receivables have varying payment terms and are included in Receivables – trade and other and Long-term receivables – trade and other in Statement 3. See Note 7 for further information. Trade receivables from dealers and end users were $7,648 million, $7,743 million and $6,399 million as of December 31, 2019, December 31, 2018 and January 1, 2018, respectively, and are recognized in Receivables – trade and other in Statement 3. Long-term trade receivables from dealers and end users were $693 million, $674 million and $639 million as of December 31, 2019, December 31, 2018 and January 1, 2018, respectively, and are recognized in Long-term receivables – trade and other in Statement 3.

We establish a bad debt allowance for ME&T receivables when it becomes probable that the receivable will not be collected. Our allowance for bad debts is not significant.

We invoice in advance of recognizing the sale of certain products. We recognize advanced customer payments as a contract liability in Customer advances and Other liabilities in Statement 3. Contract liabilities were $1,654 million, $1,680 million and $1,868 million as of December 31, 2019, December 31, 2018 and January 1, 2018, respectively. We reduce the contract liability when revenue is recognized. During 2019, we recognized $1,171 million of revenue that was recorded as a contract liability at the beginning of 2019. During 2018, we recognized $1,294 million of revenue that was recorded as a contract liability at the beginning of 2018.

We have elected the practical expedient to not adjust the amount of revenue to be recognized under a contract with a dealer or end user for the effects of time value of money when the timing difference between receipt of payment and recognition of revenue is less than one year.

As of December 31, 2019, we have entered into contracts with dealers and end users for which sales have not been recognized as we have not satisfied our performance obligations and transferred control of the products. The dollar amount of unsatisfied performance obligations for contracts with an original duration greater than one year is $6.2 billion, of which $2.4 billion is expected to be completed and revenue recognized in the twelve months following December 31, 2019. We have elected the practical expedient to not disclose unsatisfied performance obligations with an original contract duration of one year or less. Contracts with an original duration of one year or less are primarily sales to dealers for machinery, engines and replacement parts.

Sales and other related taxes are excluded from the transaction price. Shipping and handling costs associated with outbound freight after control over a product has transferred are accounted for as a fulfillment cost and are included in Cost of goods sold.

We provide a standard manufacturer's warranty of our products at no additional cost. At the time a sale is recognized, we record estimated future warranty costs. See Note 21 for further discussion of our product warranty liabilities.

See Note 23 for further disaggregated sales and revenues information.

B. Revenues of Financial Products

Revenues of Financial Products are generated primarily from finance revenue on finance receivables and rental payments on operating leases. Finance revenue is recorded over the life of the related finance receivable using the interest method, including the accretion of certain direct origination costs that are deferred. Revenue from rental payments received on operating leases is recognized on a straight-line basis over the term of the lease.

Recognition of finance revenue and rental revenue is suspended and the account is placed on non-accrual status when management determines that collection of future income is not probable (generally after 120 days past due). Recognition is resumed, and previously suspended income is recognized, when the account becomes current and collection of remaining amounts is considered probable. See Note 7 for more information.

Revenues are presented net of sales and other related taxes.

3. Stock-based compensation

Our stock-based compensation plans primarily provide for the granting of stock options, stock-settled stock appreciation rights (SARs), restricted stock units (RSUs) and performance-based restricted stock units (PRSUs) to Officers and other key employees, as well as non-employee Directors. Stock options permit a holder to buy Caterpillar stock at the stock's price when the option was granted. SARs permit a holder the right to receive the value in shares of the appreciation in Caterpillar stock that occurred from the date the right was granted up to the date of exercise. RSUs are agreements to issue shares of Caterpillar stock at the time of vesting. PRSUs are similar to RSUs and include performance conditions in the vesting terms of the award.

Our long-standing practices and policies specify that all stock-based compensation awards are approved by the Compensation Committee (the Committee) of the Board of Directors. The award approval process specifies the grant date, value and terms of the award. The same terms and conditions are consistently applied to all employee grants, including Officers. The Committee approves all individual Officer grants. The number of stock-based compensation award units included in an individual's award is determined based on the methodology approved by the Committee. The exercise price methodology approved by the Committee is the closing price of the Company stock on the date of the grant. In June of 2014, shareholders approved the Caterpillar Inc. 2014 Long-Term Incentive Plan (the Plan) under which all new stock-based compensation awards are granted. In June of 2017, the Plan was amended

and restated. The Plan initially provided that up to 38,800,000 Common Shares would be reserved for future issuance under the Plan, subject to adjustment in certain events. Subsequent to the shareholder approval of the amendment and restatement of the Plan, an additional 36,000,000 Common Shares became available for all awards under the Plan.

Common stock issued from Treasury stock under the plans totaled 5,126,379 for 2019, 5,590,641 for 2018 and 11,139,748 for 2017. The total number of shares authorized for equity awards under the amended and restated Caterpillar Inc. 2014 Long-Term Incentive Plan is 74,800,000, of which 40,754,720 shares remained available for issuance as of December 31, 2019.

Stock option and RSU awards generally vest according to a three-year graded vesting schedule. One-third of the award will become vested on the first anniversary of the grant date, one-third of the award will become vested on the second anniversary of the grant date and one-third of the award will become vested on the third anniversary of the grant date. PRSU awards generally have a three-year performance period and cliff vest at the end of the period based upon achievement of performance targets established at the time of grant.

Upon separation from service, if the participant is 55 years of age or older with more than five years of service, the participant meets the criteria for a "Long Service Separation." Award terms for stock option and RSU grants allow for continued vesting as of each vesting date specified in the award document for employees who meet the criteria for a "Long Service Separation" and fulfill a requisite service period of six months. Compensation expense for eligible employees for the grants was recognized over the period from the grant date to the end date of the six-month requisite service period. For employees who become eligible for a "Long Service Separation" subsequent to the end date of the six-month requisite service period and prior to the completion of the vesting period, compensation expense is recognized over the period from the grant date to the date eligibility is achieved.

For PRSU awards granted in 2018 and 2017, only a prorated number of shares may vest at the end of the performance period based upon achievement of the performance target, with the proration based upon the number of months of continuous employment during the three-year performance period. Employees with a "Long Service Separation" must also fulfill a six-month requisite service period in order to be eligible for the prorated vesting of outstanding PRSU awards granted in 2018 and 2017. Compensation expense for the 2018 and 2017 PRSU grants is being recognized on a straight-line basis over the three-year performance period for all participants. Award terms for the 2019 PRSU grant allowed for continued vesting upon achievement of the performance target specified in the award document for employees who meet the criteria for a "Long Service Separation" and fulfill a requisite service period of six months. Compensation expense for the 2019 PRSU grant with respect to employees who have met the criteria for a "Long Service Separation" is recognized over the period from the grant date to the end of the six-month requisite service period. For employees who become eligible for a "Long Service Separation" subsequent to the end date of the six-month requisite service period and prior to the completion of the vesting period, compensation expense is recognized over the period from the grant date to the date eligibility is achieved.

At grant, option awards and SARs have a term life of ten years. For awards granted prior to 2016, if the "Long Service Separation" criteria are met, the vested options/SARs have a life that is the lesser of ten years from the original grant date or five years from the separation date. For awards granted beginning in 2016, the vested options have a life equal to ten years from the original grant date.

Accounting guidance on share-based payments requires companies to estimate the fair value of options/SARs on the date of grant using an option-pricing model. The fair value of our option/SAR grants was estimated using a lattice-based option-pricing model. The lattice-based option-pricing model considers a range of assumptions related to volatility, risk-free interest rate and historical employee behavior. Expected volatility was based on historical Caterpillar stock price movement and current implied volatilities from traded options on Caterpillar stock. The risk-free interest rate was based on U.S. Treasury security yields at the time of grant. The weighted-average dividend yield was based on historical information. The expected life was determined from the lattice-based model. The lattice-based model incorporated exercise and post vesting forfeiture assumptions based on analysis of historical data. The following table provides the assumptions used in determining the fair value of the Option awards for the years ended December 31, 2019, 2018 and 2017, respectively.

	Grant Year		
	2019	2018	2017
Weighted-average dividend yield	**2.6%**	2.7%	3.4%
Weighted-average volatility	**29.1%**	30.2%	29.2%
Range of volatilities	**25.1-38.7%**	21.5-33.0%	22.1-33.0%
Range of risk-free interest rates	**2.48-2.68%**	2.02-2.87%	0.81-2.35%
Weighted-average expected lives	**7 years**	8 years	8 years

Beginning with the 2018 grant, RSU and PRSU awards are credited with dividend equivalent units on each date that a cash dividend is paid to holders of Common Stock. The fair value of the RSU and PRSU awards granted in 2019 and 2018 was determined as the closing stock price on the date of the grant. Prior to 2018, RSU and PRSU awards were not credited with dividend equivalent units and the fair value was determined by reducing the stock price on the date of the grant by the present value of the estimated dividends to be paid during the vesting period. The estimated dividends were based on Caterpillar's quarterly divided per share at the time of the grant.

Please refer to Tables I and II below for additional information on our stock-based compensation awards.

TABLE I - Financial Information Related to Stock-based Compensation

	Stock options / SARs		RSUs		PRSUs	
	Shares	Weighted-Average Exercise Price	Shares	Weighted-Average Grant Date Fair Value	Shares	Weighted-Average Grant Date Fair Value
Outstanding at January 1, 2019	17,841,669	$ 91.93	1,566,070	$ 112.99	735,299	$ 115.18
Granted to officers and key employees [1]	1,499,524	$ 138.35	687,294	$ 138.61	359,122	$ 138.67
Exercised	(4,808,237)	$ 83.81	—	$ —	—	$ —
Vested	—	$ —	(820,927)	$ 99.76	(399,811)	$ 95.66
Forfeited / expired	(67,962)	$ 123.36	(63,234)	$ 133.39	(24,495)	$ 125.89
Outstanding at December 31, 2019	14,464,994	$ 99.29	1,369,203	$ 132.88	670,115	$ 144.46
Exercisable at December 31, 2019	11,154,215	$ 89.84				

Stock options/SARs outstanding and exercisable as of December 31, 2019:

	Outstanding				Exercisable			
Exercise Prices	Shares Outstanding at 12/31/19	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Aggregate Intrinsic Value [2]	Shares Outstanding at 12/31/19	Weighted-Average Remaining Contractual Life (Years)	Weighted-Average Exercise Price	Aggregate Intrinsic Value [2]
$57.85-83.00	5,775,829	5.52	$ 78.64	$ 399	5,775,829	5.52	$ 78.64	$ 399
$89.75-96.31	4,680,238	5.38	$ 94.56	249	3,833,786	4.96	$ 94.31	205
$102.13-110.09	1,052,650	1.75	$ 106.48	43	1,052,650	1.75	$ 106.48	43
$138.35-138.51	1,496,071	9.29	$ 138.35	14	5,119	8.71	$ 138.51	—
$141.32-151.12	1,460,206	8.30	$ 150.97	—	486,831	8.30	$ 150.97	—
	14,464,994		$ 99.29	$ 705	11,154,215		$ 89.84	$ 647

1 No SARs were granted during the year ended December 31, 2019.

2 The difference between a stock award's exercise price and the underlying stock's closing market price at December 31, 2019, for awards with market price greater than the exercise price. Amounts are in millions of dollars.

The computations of weighted-average exercise prices and aggregate intrinsic values are not applicable to RSUs or PRSUs since these awards represent an agreement to issue shares of stock at the time of vesting. At December 31, 2019, there were 1,369,203 outstanding RSUs with a weighted average remaining contractual life of 1.5 years and 670,115 outstanding PRSUs with a weighted-average remaining contractual life of 1.5 years.

TABLE II - Additional Stock-based Award Information

(Dollars in millions except per share data)	2019	2018	2017
Stock options/SARs activity:			
Weighted-average fair value per share of stock awards granted	$ 40.98	$ 46.09	$ 25.01
Intrinsic value of stock awards exercised	$ 264	$ 348	$ 504
Fair value of stock awards vested [1]	$ 100	$ 86	$ 191
Cash received from stock awards exercised	$ 298	$ 370	$ 629
RSUs activity:			
Weighted-average fair value per share of stock awards granted	$ 138.61	$ 150.58	$ 90.11
Fair value of stock awards vested [2]	$ 110	$ 180	$ 189
PRSUs activity:			
Weighted-average fair value per share of stock awards granted	$ 138.67	$ 150.98	$ 86.78
Fair value of stock awards vested [2]	$ 59	$ 70	$ 20

1 Based on the grant date fair value.

2 Based on the underlying stock's closing market price on the vesting date.

In accordance with guidance on share-based payments, stock-based compensation expense is based on the grant date fair value and is classified within Cost of goods sold, Selling, general and administrative expenses and Research and development expenses corresponding to the same line item as the cash compensation paid to respective employees, officers and non-employee directors. Stock-based compensation expense is recognized on a straight-line basis over the requisite service period for awards with terms that specify cliff or graded vesting and contain only service conditions.

Stock-based compensation expense for PRSUs is based on the probable number of shares expected to vest and is recognized primarily on a straight-line basis.

Before tax, stock-based compensation expense for 2019, 2018 and 2017 was $205 million, $197 million and $206 million, respectively, with a corresponding income tax benefit of $35 million, $36 million and $40 million, respectively.

The amount of stock-based compensation expense capitalized for the years ended December 31, 2019, 2018 and 2017 did not have a significant impact on our financial statements.

At December 31, 2019, there was $161 million of total unrecognized compensation cost from stock-based compensation arrangements granted under the plans, which is related to non-vested stock-based awards. The compensation expense is expected to be recognized over a weighted-average period of approximately 1.6 years.

We currently use shares in treasury stock to satisfy share award exercises.

The cash tax benefits realized from stock awards exercised for 2019, 2018 and 2017 were $89 million, $103 million and $205 million, respectively. We use the direct only method and tax law ordering approach to calculate the tax effects of stock-based compensation.

4. Derivative financial instruments and risk management

Our earnings and cash flow are subject to fluctuations due to changes in foreign currency exchange rates, interest rates and commodity prices. Our Risk Management Policy (policy) allows for the use of derivative financial instruments to prudently manage foreign currency exchange rate, interest rate and commodity price exposures. Our policy specifies that derivatives are not to be used for speculative purposes. Derivatives that we use are primarily foreign currency forward, option and cross currency contracts, interest rate contracts and commodity forward and option contracts. Our derivative activities are subject to the management, direction and control of our senior financial officers. Risk management practices, including the use of financial derivative instruments, are presented to the Audit Committee of the Board of Directors at least annually.

All derivatives are recognized in Statement 3 at their fair value. On the date the derivative contract is entered into, we designate the derivative as (1) a hedge of the fair value of a recognized asset or liability (fair value hedge), (2) a hedge of a forecasted transaction or the variability of cash flow (cash flow hedge) or (3) an undesignated instrument. Changes in the fair value of a derivative that is qualified, designated and highly effective as a fair value hedge, along with the gain or loss on the hedged recognized asset or liability that is attributable to the hedged risk, are recorded in current earnings. Changes in the fair value of a derivative that is qualified, designated and highly effective as a cash flow hedge are recorded in Accumulated other comprehensive income (loss) (AOCI), to the extent effective, in Statement 3 until they are reclassified to earnings in the same period or periods during which the hedged transaction affects earnings. Changes in the fair value of undesignated derivative instruments are reported in current earnings. Cash flows from designated derivative financial instruments are classified within the same category as the item being hedged on Statement 5. Cash flows from undesignated derivative financial instruments are included in the investing category on Statement 5.

We formally document all relationships between hedging instruments and hedged items, as well as the risk-management objective and strategy for undertaking various hedge transactions. This process includes linking all derivatives that are designated as fair value hedges to specific assets and liabilities in Statement 3 and linking cash flow hedges to specific forecasted transactions or variability of cash flow.

We also formally assess, both at the hedge's inception and on an ongoing basis, whether the designated derivatives that are used in hedging transactions are highly effective in offsetting changes in fair values or cash flow of hedged items. When a derivative is determined not to be highly effective as a hedge or the underlying hedged transaction is no longer probable, we discontinue hedge accounting prospectively, in accordance with the derecognition criteria for hedge accounting.

A. Foreign currency exchange rate risk

Foreign currency exchange rate movements create a degree of risk by affecting the U.S. dollar value of sales made and costs incurred in foreign currencies. Movements in foreign currency rates also affect our competitive position as these changes may affect business practices and/or pricing strategies of non-U.S.-based competitors. Additionally, we have balance sheet positions denominated in foreign currencies, thereby creating exposure to movements in exchange rates.

Our ME&T operations purchase, manufacture and sell products in many locations around the world. As we have a diversified revenue and cost base, we manage our future foreign currency cash flow exposure on a net basis. We use foreign currency forward and option contracts to manage unmatched foreign currency cash inflow and outflow. Our objective is to minimize the risk of exchange rate movements that would reduce the U.S. dollar value of our foreign currency cash flow. Our policy allows for managing anticipated foreign currency cash flow for up to approximately five years. As of December 31, 2019, the maximum term of these outstanding contracts was approximately 60 months.

We generally designate as cash flow hedges at inception of the contract any Australian dollar, Brazilian real, British pound, Canadian dollar, Chinese yuan, Indian rupee, Japanese yen, Mexican peso, Singapore dollar or Thailand baht forward or option contracts that meet the requirements for hedge accounting and the maturity extends beyond the current quarter-end. Designation is performed on a specific exposure basis to support hedge accounting. The remainder of ME&T foreign currency contracts are undesignated.

As of December 31, 2019, $1 million of deferred net losses, net of tax, included in equity (AOCI in Statement 3), are expected to be reclassified to current earnings (Other income (expense) in Statement 1) over the next twelve months when earnings are affected by the hedged transactions. The actual amount recorded in Other income (expense) will vary based on exchange rates at the time the hedged transactions impact earnings.

In managing foreign currency risk for our Financial Products operations, our 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. Our policy allows the use of foreign currency forward, option and cross currency contracts to offset the risk of currency mismatch between our assets and liabilities and exchange rate risk associated with future transactions denominated in foreign currencies. Our foreign currency forward and option contracts are primarily undesignated. We designate fixed-to-fixed cross currency contracts as cash flow hedges to protect against movements in exchange rates on foreign currency fixed-rate assets and liabilities.

B. Interest rate risk

Interest rate movements create a degree of risk by affecting the amount of our interest payments and the value of our fixed-rate debt. Our practice is to use interest rate contracts to manage our exposure to interest rate changes.

Our ME&T operations generally use fixed-rate debt as a source of funding. Our objective is to minimize the cost of borrowed funds. Our policy allows us to enter into fixed-to-floating interest rate contracts and forward rate agreements to meet that objective. We designate fixed-to-floating interest rate contracts as fair value hedges at inception of the contract, and we designate certain forward rate agreements as cash flow hedges at inception of the contract.

Financial Products operations has a match-funding policy that addresses interest rate risk by aligning the interest rate profile (fixed or floating rate and duration) of Cat Financial's debt portfolio with the interest rate profile of our receivables portfolio within

predetermined ranges on an ongoing basis. In connection with that policy, we use 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.

Our policy allows us to use fixed-to-floating, floating-to-fixed and floating-to-floating interest rate contracts to meet the match-funding objective. We designate fixed-to-floating interest rate contracts as fair value hedges to protect debt against changes in fair value due to changes in the benchmark interest rate. We designate most floating-to-fixed interest rate contracts as cash flow hedges to protect against the variability of cash flows due to changes in the benchmark interest rate.

We have, at certain times, liquidated fixed-to-floating and floating-to-fixed interest rate contracts at both ME&T and Financial Products. The gains or losses associated with these contracts at the time of liquidation are amortized into earnings over the original term of the previously designated hedged item.

C. Commodity price risk

Commodity price movements create a degree of risk by affecting the price we must pay for certain raw materials. Our policy is to use commodity forward and option contracts to manage the commodity risk and reduce the cost of purchased materials.

Our ME&T operations purchase base and precious metals embedded in the components we purchase from suppliers. Our suppliers pass on to us price changes in the commodity portion of the component cost. In addition, we are subject to price changes on energy products such as natural gas and diesel fuel purchased for operational use.

Our objective is to minimize volatility in the price of these commodities. Our policy allows us to enter into commodity forward and option contracts to lock in the purchase price of a portion of these commodities within a five-year horizon. All such commodity forward and option contracts are undesignated.

The location and fair value of derivative instruments reported in Statement 3 are as follows:

	Consolidated Statement of Financial Position Location	Asset (Liability) Fair Value	
		Years ended December 31,	
(Millions of dollars)		**2019**	2018
Designated derivatives			
Foreign exchange contracts			
Machinery, Energy & Transportation	Receivables — trade and other	**$ 18**	$ 16
Machinery, Energy & Transportation	Long-term receivables — trade and other	**9**	—
Machinery, Energy & Transportation	Accrued expenses	**(20)**	(26)
Machinery, Energy & Transportation	Other liabilities	**—**	(9)
Financial Products	Receivables — trade and other	**54**	53
Financial Products	Long-term receivables — trade and other	**13**	35
Financial Products	Accrued expenses	**(3)**	(9)
Interest rate contracts			
Financial Products	Receivables — trade and other	**—**	1
Financial Products	Long-term receivables — trade and other	**5**	3
Financial Products	Accrued expenses	**(25)**	(40)
		$ 51	$ 24
Undesignated derivatives			
Foreign exchange contracts			
Machinery, Energy & Transportation	Receivables — trade and other	**$ 1**	$ 2
Machinery, Energy & Transportation	Accrued expenses	**—**	(21)
Financial Products	Receivables — trade and other	**7**	15
Financial Products	Long-term receivables — trade and other	**5**	5
Financial Products	Accrued expenses	**(22)**	(14)
Commodity contracts			
Machinery, Energy & Transportation	Receivables — trade and other	**4**	1
Machinery, Energy & Transportation	Accrued expenses	**(1)**	(31)
		$ (6)	$ (43)

The total notional amounts of the derivative instruments are as follows:

	Years ended December 31,	
(Millions of dollars)	**2019**	2018
Machinery, Energy & Transportation	**$ 2,563**	$ 1,834
Financial Products	**$ 8,931**	$ 10,210

The notional amounts of the derivative financial instruments do not represent amounts exchanged by the parties. The amounts exchanged by the parties are calculated by reference to the notional amounts and by other terms of the derivatives, such as foreign currency exchange rates, interest rates or commodity prices.

The effect of derivatives designated as hedging instruments on Statement 1 is as follows:

Cash Flow Hedges

(Millions of dollars)

	Year ended December 31, 2019			
		Recognized in Earnings		
	Amount of Gains (Losses) Recognized in AOCI	**Classification of Gains (Losses)**	**Amount of Gains (Losses) Reclassified from AOCI**	**Amount of the line items in Statement 1**
Foreign exchange contracts				
Machinery, Energy & Transportation	$ 34	Sales of Machinery, Energy & Transportation	$ 11	$ 50,755
		Cost of goods sold	(3)	36,630
Financial Products	93	Interest expense of Financial Products	33	754
		Other income (expense)	37	(57)
Interest rate contracts				
Machinery, Energy & Transportation	—	Interest expense excluding Financial Products	(4)	421
Financial Products	(70)	Interest expense of Financial Products	(8)	754
	$ 57		$ 66	

	Year ended December 31, 2018			
		Recognized in Earnings		
	Amount of Gains (Losses) Recognized in AOCI (Effective Portion)	Classification of Gains (Losses)	Amount of Gains (Losses) Reclassified from AOCI to Earnings	Recognized in Earnings (Ineffective Portion)
Foreign exchange contracts				
Machinery, Energy & Transportation	$ (47)	Other income (expense)	$ (33)	$ —
Financial Products	165	Other income (expense)	148	—
		Interest expense of Financial Products	19	—
Interest rate contracts				
Machinery, Energy & Transportation	—	Interest expense excluding Financial Products	(3)	—
Financial Products	(38)	Interest expense of Financial Products	—	—
	$ 80		$ 131	$ —

	Year ended December 31, 2017			
		Recognized in Earnings		
	Amount of Gains (Losses) Recognized in AOCI (Effective Portion)	Classification of Gains (Losses)	Amount of Gains (Losses) Reclassified from AOCI to Earnings	Recognized in Earnings (Ineffective Portion)
Foreign exchange contracts				
Machinery, Energy & Transportation	$ 72	Other income (expense)	$ (40)	$ —
Financial Products	(77)	Other income (expense)	(81)	—
		Interest expense of Financial Products	6	—
Interest rate contracts				
Machinery, Energy & Transportation	—	Interest expense excluding Financial Products	(9)	—
Financial Products	—	Interest expense of Financial Products	3	—
	$ (5)		$ (121)	$ —

The effect of derivatives not designated as hedging instruments on Statement 1 is as follows:

(Millions of dollars)	Classification of Gains (Losses)	Years ended December 31, 2019	2018	2017
Foreign exchange contracts				
Machinery, Energy & Transportation	Other income (expense)	$ **13**	$ (54)	$ 72
Financial Products	Other income (expense)	**(37)**	19	9
Commodity contracts				
Machinery, Energy & Transportation	Other income (expense)	**18**	(39)	30
		$ **(6)**	$ (74)	$ 111

We enter into International Swaps and Derivatives Association (ISDA) master netting agreements within ME&T and Financial Products that permit the net settlement of amounts owed under their respective derivative contracts. Under these master netting agreements, net settlement generally permits the company or the counterparty to determine the net amount payable for contracts due on the same date and in the same currency for similar types of derivative transactions. The master netting agreements generally also provide for net settlement of all outstanding contracts with a counterparty in the case of an event of default or a termination event.

Collateral is generally not required of the counterparties or of our company under the master netting agreements. As of December 31, 2019 and 2018, no cash collateral was received or pledged under the master netting agreements.

The effect of the net settlement provisions of the master netting agreements on our derivative balances upon an event of default or termination event is as follows:

December 31, 2019

(Millions of dollars)	Gross Amount of Recognized Assets	Gross Amounts Offset in the Statement of Financial Position	Net Amount of Assets Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position: Financial Instruments	Cash Collateral Received	Net Amount of Assets
Derivatives						
Machinery, Energy & Transportation	$ **32**	$ **—**	$ **32**	$ **(13)**	$ **—**	$ **19**
Financial Products	**84**	**—**	**84**	**(21)**	**—**	**63**
Total	$ **116**	$ **—**	$ **116**	$ **(34)**	$ **—**	$ **82**

December 31, 2019

(Millions of dollars)	Gross Amount of Recognized Liabilities	Gross Amounts Offset in the Statement of Financial Position	Net Amount of Liabilities Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position: Financial Instruments	Cash Collateral Pledged	Net Amount of Liabilities
Derivatives						
Machinery, Energy & Transportation	$ **(21)**	$ **—**	$ **(21)**	$ **13**	$ **—**	$ **(8)**
Financial Products	**(50)**	**—**	**(50)**	**21**	**—**	**(29)**
Total	$ **(71)**	$ **—**	$ **(71)**	$ **34**	$ **—**	$ **(37)**

December 31, 2018

(Millions of dollars)	Gross Amount of Recognized Assets	Gross Amounts Offset in the Statement of Financial Position	Net Amount of Assets Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position: Financial Instruments	Cash Collateral Received	Net Amount of Assets
Derivatives						
Machinery, Energy & Transportation	$ 19	$ —	$ 19	$ (19)	$ —	$ —
Financial Products	112	—	112	(34)	—	78
Total	$ 131	$ —	$ 131	$ (53)	$ —	$ 78

December 31, 2018

(Millions of dollars)	Gross Amount of Recognized Liabilities	Gross Amounts Offset in the Statement of Financial Position	Net Amount of Liabilities Presented in the Statement of Financial Position	Gross Amounts Not Offset in the Statement of Financial Position: Financial Instruments	Gross Amounts Not Offset in the Statement of Financial Position: Cash Collateral Pledged	Net Amount of Liabilities
Derivatives						
Machinery, Energy & Transportation	$ (87)	$ —	$ (87)	$ 19	$ —	$ (68)
Financial Products	(63)	—	(63)	34	—	(29)
Total	$ (150)	$ —	$ (150)	$ 53	$ —	$ (97)

5. Other income (expense)

(Millions of dollars)	2019	2018	2017
	Years ended December 31,		
Investment and interest income	$ **202**	$ 195	$ 122
Foreign exchange gains (losses) [1]	**(67)**	(201)	(213)
License fee income	**121**	125	100
Gains (losses) on sale of securities and affiliated companies	**30**	4	187 [2]
Net periodic pension and OPEB income (cost), excluding service cost	**(363)**	(118)	(54)
Gains (losses) on equity securities measured at fair value [3]	**35**	(33)	—
Miscellaneous income (loss)	**(15)**	(39)	11
Total	$ **(57)**	$ (67)	$ 153

1 Includes gains (losses) from foreign exchange derivative contracts. See Note 4 for further details.
2 Includes pretax gain of $85 million related to the sale of Caterpillar's equity interest in Iron Planet Holdings Inc.
3 Beginning January 1, 2018, the unrealized gains and losses arising from the revaluation of equity securities are included in Other income (expense) in Statement 1.

6. Income taxes

Reconciliation of the U.S. federal statutory rate to effective rate:

(Millions of dollars)	2019		2018		2017	
	Years ended December 31,					
Taxes at U.S. statutory rate	$ **1,641**	**21.0%**	$ 1,643	21.0%	$ 1,429	35.0%
(Decreases) increases resulting from:						
Non-U.S. subsidiaries taxed at other than the U.S. rate	**365**	**4.7%**	282	3.6%	(282)	(6.9)%
State and local taxes, net of federal [1]	**59**	**0.8%**	22	0.3%	27	0.7%
Interest and penalties, net of tax	**34**	**0.4%**	33	0.4%	28	0.7%
U.S. tax incentives	**(149)**	**(1.9)%**	(106)	(1.3)%	(52)	(1.3)%
Net excess tax benefits from stock-based compensation	**(41)**	**(0.5)%**	(56)	(0.7)%	(64)	(1.6)%
Mandatory deemed repatriation of non-U.S. earnings	**(178)**	**(2.3)%**	50	0.7%	1,775	43.5%
U.S. deferred tax rate change	**—**	**—%**	(154)	(2.0)%	596	14.6%
Valuation allowances	**—**	**—%**	(29)	(0.4)%	(111)	(2.7)%
Other—net	**15**	**0.2%**	13	0.1%	(7)	(0.2)%
Provision (benefit) for income taxes	$ **1,746**	**22.4%**	$ 1,698	21.7%	$ 3,339	81.8%

1 Excludes amounts included in valuation allowances and mandatory deemed repatriation of non-U.S. earnings.

Included in the line item above labeled "Non-U.S. subsidiaries taxed at other than the U.S. rate" are the effects of local and U.S. taxes related to earnings of non-U.S. subsidiaries, changes in the amount of unrecognized tax benefits associated with these earnings, losses at non-U.S. subsidiaries without local tax benefits due to valuation allowances and other permanent differences between tax and U.S. GAAP results. Although not individually significant by jurisdiction, pre-tax permanent differences due to nondeductible net foreign exchange gains/losses of non-U.S. subsidiaries were approximately $36 million of net losses in 2019, $180 million of net losses in 2018 and $160 million of net gains in 2017.

Included in the line item above labeled "Valuation allowances" are decreases in the valuation allowance for U.S. state deferred tax assets resulting in a $63 million non-cash benefit in 2018, net of federal deferred tax adjustment at 21 percent, compared to a $111 million non-cash benefit in 2017, net of federal deferred tax adjustment at 35 percent. The primary driver of the decreases in the U.S. state valuation allowance was improved U.S. GAAP profits expected to recur in certain state jurisdictions. Also included in 2018 was a decrease in the valuation allowance for a non-U.S. subsidiary of $25 million offset by a charge of $59 million to correct for an error which resulted in an understatement of the valuation allowance offsetting deferred tax assets for prior years. This error had the effect of overstating profit by $17 million for the year ended December 31, 2017. Management has concluded that the error was not material to any period presented.

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. In 2018, measurement period adjustments of $104 million reduced the provisionally estimated charge of $2.371 billion recognized during the fourth quarter of 2017. A $154 million benefit revised the estimated impact of the write-down of U.S. net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent. This benefit primarily related to the decision to make an additional discretionary pension contribution of $1.0 billion to U.S. pension plans in 2018 which was treated as deductible on the 2017 U.S. tax return. A $50 million charge revised 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. During 2019, a $178 million tax benefit was recorded to adjust previously unrecognized tax benefits as a result of receipt of additional guidance related to the calculation of the mandatory deemed repatriation of non-U.S. earnings.

As a result of U.S. tax reform legislation, distributions of profits from non-U.S. subsidiaries are not expected to cause a significant incremental 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. Undistributed profits of non-U.S. subsidiaries of approximately $14 billion are considered indefinitely reinvested. Determination of the amount of unrecognized deferred tax liability related to indefinitely reinvested profits is not feasible primarily due to our legal entity structure and the complexity of U.S. and local tax laws.

The components of profit (loss) before taxes were:

(Millions of dollars)	Years ended December 31, 2019	2018	2017
U.S.	**$ 2,888**	$ 2,131	$ 240
Non-U.S.	**4,924**	5,691	3,842
	$ 7,812	$ 7,822	$ 4,082

Profit before taxes, as shown above, is based on the location of the entity to which such earnings are attributable. Where an entity's earnings are subject to taxation, however, may not correlate solely to where an entity is located. Thus, the income tax provision shown below as U.S. or non-U.S. may not correspond to the earnings shown above.

The components of the provision (benefit) for income taxes were:

(Millions of dollars)	Years ended December 31, 2019	2018	2017
Current tax provision (benefit):			
U.S. [1]	**$ 405**	$ 179	$ 963
Non-U.S.	**1,261**	1,291	1,124
State (U.S.)	**52**	8	39
	1,718	1,478	2,126
Deferred tax provision (benefit):			
U.S. [1]	**17**	298	1,385
Non-U.S.	**(7)**	4	(17)
State (U.S.)	**18**	(82)	(155)
	28	220	1,213
Total provision (benefit) for income taxes	**$ 1,746**	$ 1,698	$ 3,339

[1] Includes U.S. taxes related to non-U.S. earnings. We account for U.S. taxes on global intangible low-taxed income as a period cost.

We paid net income tax and related interest of $1,847 million, $1,429 million and $1,404 million in 2019, 2018 and 2017, respectively.

Accounting for income taxes under U.S. GAAP requires that individual tax-paying entities of the company offset all deferred tax liabilities and assets within each particular tax jurisdiction and present them as a noncurrent deferred tax liability or asset in the Consolidated Financial Position. Amounts in different tax jurisdictions cannot be offset against each other. The amount of deferred income taxes at December 31, included on the following lines in Statement 3, are as follows:

(Millions of dollars)	December 31, 2019	December 31, 2018
Assets:		
Noncurrent deferred and refundable income taxes	**$ 1,324**	$ 1,363
Liabilities:		
Other liabilities	**414**	331
Deferred income taxes—net	**$ 910**	$ 1,032

The components of deferred tax assets and liabilities were:

(Millions of dollars)	December 31, 2019	December 31, 2018
Deferred income tax assets:		
Tax carryforwards	**$ 1,218**	$ 1,312
Postemployment benefits other than pensions	**876**	793
Pension	**445**	785
Warranty reserves	**263**	237
Research expenditures	**219**	—
Allowance for credit losses	**171**	155
Post sale discounts	**200**	158
Other employee compensation and benefits	**197**	186
Lease obligations	**157**	—
Stock-based compensation	**107**	121
Other—net	**250**	298
	4,103	4,045
Deferred income tax liabilities:		
Capital and intangible assets, including lease basis differences	**(1,574)**	(1,381)
Bond discount	**(122)**	(127)
Translation	**(194)**	(190)
Other outside basis differences	**(257)**	(271)
Undistributed profits of non-U.S. subsidiaries	**(118)**	(129)
	(2,265)	(2,098)
Valuation allowance for deferred tax assets	**(928)**	(915)
Deferred income taxes—net	**$ 910**	$ 1,032

At December 31, 2019, approximately $1,320 million of U.S. state tax net operating losses (NOLs) and $125 million of U.S. state tax credit carryforwards were available. The state NOLs primarily expire over the next twenty years. The state tax credit carryforwards primarily expire over the next fifteen years, with some credits having an unlimited carryforward period. In total, we have established a valuation allowance of $172 million related to certain of these carryforwards.

At December 31, 2019, approximately $264 million of U.S. foreign tax credits were available for carryforward. These credits expire in 2028.

At December 31, 2019, amounts and expiration dates of net operating loss and interest carryforwards in various non-U.S. taxing jurisdictions were:

(Millions of dollars)						
2020	2021	2022	2023-2025	2026-2040	Unlimited	Total
$ 104	$ 53	$ 81	$ 59	$ 451	$ 3,627	$ 4,375

At December 31, 2019, non-U.S. entities that have not yet demonstrated consistent and/or sustainable profitability to support the realization of net deferred tax assets have recorded valuation allowances of $750 million, including certain entities in Luxembourg.

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits for uncertain tax positions, including positions impacting only the timing of tax benefits, follows.

Reconciliation of unrecognized tax benefits: [1]

(Millions of dollars)	Years ended December 31, 2019	2018	2017
Balance at January 1,	$ **1,796**	$ 1,286	$ 1,032
Additions for tax positions related to current year	**72**	61	270
Additions for tax positions related to prior years	**112**	461	20
Reductions for tax positions related to prior years	**(201)**	(5)	(27)
Reductions for settlements [2]	**—**	(6)	(9)
Reductions for expiration of statute of limitations	**(1)**	(1)	—
Balance at December 31,	$ **1,778**	$ 1,796	$ 1,286
Amount that, if recognized, would impact the effective tax rate	$ **1,616**	$ 1,716	$ 1,209

1 Foreign currency impacts are included within each line as applicable.
2 Includes cash payment or other reduction of assets to settle liability.

We classify interest and penalties on income taxes as a component of the provision for income taxes. We recognized a net provision for interest and penalties of $43 million, $42 million and $38 million during the years ended December 31, 2019, 2018 and 2017, respectively. The total amount of interest and penalties accrued was $233 million and $190 million as of December 31, 2019 and 2018, respectively.

On January 31, 2018, we received a Revenue Agent's Report from the IRS indicating the end of the field examination of our U.S. income tax returns for 2010 to 2012. In the audits of 2007 to 2012 including the impact of a loss carryback to 2005, the IRS has proposed to tax in the United States profits earned from certain parts transactions by Caterpillar SARL (CSARL), based on the IRS examination team's application of the "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. We have filed U.S. income tax returns on this same basis for years after 2012. Based on the information currently available, we do not anticipate a significant change to our unrecognized tax benefits for this position within the next 12 months. 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.

With the exception of a loss carryback to 2005, tax years prior to 2007 are generally no longer subject to U.S. tax assessment. In our major non-U.S. jurisdictions including Australia, Brazil, China, Germany, India, Japan, Mexico, Switzerland, Singapore and the U.K., tax years are typically subject to examination for three to ten years. Due to the uncertainty related to the timing and potential outcome of audits, we cannot estimate the range of reasonably possible change in unrecognized tax benefits in the next 12 months.

7. Cat Financial Financing Activities

A. Wholesale inventory receivables

Wholesale inventory receivables are receivables of Cat Financial that arise when Cat Financial provides financing for a dealer's purchase of inventory. These receivables are included in Receivables—trade and other and Long-term receivables—trade and other in Statement 3 and were $1,401 million and $1,308 million, at December 31, 2019 and 2018, respectively.

Contractual maturities of outstanding wholesale inventory receivables:

(Millions of dollars)	December 31, 2019 Wholesale Loans	Wholesale Leases	Total
Amounts Due In			
2020	$ **630**	$ **65**	$ **695**
2021	**235**	**48**	**283**
2022	**166**	**32**	**198**
2023	**61**	**22**	**83**
2024	**27**	**14**	**41**
Thereafter	**21**	**16**	**37**
Total	**1,140**	**197**	**1,337**
Guaranteed residual value [1]	**25**	**50**	**75**
Unguaranteed residual value	**—**	**33**	**33**
Less: Unearned income	**(10)**	**(34)**	**(44)**
Total	$ **1,155**	$ **246**	$ **1,401**

1 For Wholesale loans, represents residual value on failed sale leasebacks.

Cat Financial's wholesale inventory receivables generally may be repaid or refinanced without penalty prior to contractual maturity. Accordingly, this presentation should not be regarded as a forecast of future cash collections.

Please refer to Note 18 and Table III for fair value information.

B. Finance receivables

Finance receivables are receivables of Cat Financial and are reported in Statement 3 net of an allowance for credit losses.

Contractual maturities of outstanding finance receivables:

	December 31, 2019		
(Millions of dollars)	Retail Loans	Retail Leases	Total
Amounts Due In			
2020	$ 6,280	$ 3,134	$ 9,414
2021	3,582	2,005	5,587
2022	2,610	1,076	3,686
2023	1,634	472	2,106
2024	622	182	804
Thereafter	417	62	479
Total	15,145	6,931	22,076
Guaranteed residual value [1]	53	390	443
Unguaranteed residual value	—	798	798
Less: Unearned income	(265)	(655)	(920)
Total	$ 14,933	$ 7,464	$ 22,397

[1] For Retail loans, represents residual value on failed sale leasebacks.

Cat Financial's finance receivables generally may be repaid or refinanced without penalty prior to contractual maturity. Accordingly, this presentation should not be regarded as a forecast of future cash collections.

Please refer to Note 18 and Table III for fair value information.

C. Allowance for credit losses

The allowance for credit losses is an estimate of the losses inherent in Cat Financial's 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 Cat Financial's 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, Cat Financial estimates the current fair market value of the collateral less selling costs. Cat Financial also considers 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 the 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.

Cat Financial's allowance for credit losses is segregated into two portfolio segments:

- Customer – Finance receivables with end-user customers.
- Dealer – Finance receivables with Caterpillar dealers.

A portfolio segment is the level at which the Company develops a systematic methodology for determining its allowance for credit losses.

Cat Financial further evaluates portfolio segments by the class of finance receivables, which is defined as a level of information (below a portfolio segment) in which the finance receivables have the same initial measurement attribute and a similar method for assessing and monitoring credit risk. Typically, Cat Financial's finance receivables within a geographic area have similar credit risk profiles and methods for assessing and monitoring credit risk. Cat Financial's classes, which align with management reporting for credit losses, are as follows:

- North America – Finance receivables originated in the United States and Canada.
- EAME – Finance receivables originated in Europe, Africa, Middle East and the Commonwealth of Independent States.
- Asia Pacific – Finance receivables originated in Australia, New Zealand, China, Japan, Southeast Asia and India.
- Mining – Finance receivables related to large mining customers worldwide.
- Latin America – Finance receivables originated in Mexico and Central and South American countries.
- Caterpillar Power Finance – Finance receivables originated worldwide related to marine vessels with Caterpillar engines and Caterpillar electrical power generation, gas compression and co-generation systems and non-Caterpillar equipment that is powered by these systems.

An analysis of the allowance for credit losses was as follows:

(Millions of dollars)	December 31, 2019 Customer	Dealer	Total
Allowance for Credit Losses:			
Balance at beginning of year	$ 486	$ 21	$ 507
Receivables written off	(281)	—	(281)
Recoveries on receivables previously written off	44	—	44
Provision for credit losses	138	24	162
Other	(12)	—	(12)
Balance at end of year	$ 375	$ 45	$ 420
Individually evaluated for impairment	$ 178	$ 39	$ 217
Collectively evaluated for impairment	197	6	203
Ending Balance	$ 375	$ 45	$ 420
Recorded Investment in Finance Receivables:			
Individually evaluated for impairment	$ 594	$ 78	$ 672
Collectively evaluated for impairment	18,093	3,632	21,725
Ending Balance	$ 18,687	$ 3,710	$ 22,397

(Millions of dollars)	December 31, 2018 Customer	Dealer	Total
Allowance for Credit Losses:			
Balance at beginning of year	$ 353	$ 9	$ 362
Receivables written off	(235)	—	(235)
Recoveries on receivables previously written off	46	—	46
Provision for credit losses	337	12	349
Other	(15)	—	(15)
Balance at end of year	$ 486	$ 21	$ 507
Individually evaluated for impairment	$ 288	$ 14	$ 302
Collectively evaluated for impairment	198	7	205
Ending Balance	$ 486	$ 21	$ 507
Recorded Investment in Finance Receivables:			
Individually evaluated for impairment	$ 858	$ 78	$ 936
Collectively evaluated for impairment	18,152	3,338	21,490
Ending Balance	$ 19,010	$ 3,416	$ 22,426

Credit quality of finance receivables

At origination, Cat Financial evaluates credit risk 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. On an ongoing basis, Cat Financial monitors credit quality based on past-due status and collection experience as there is a meaningful correlation between the past-due status of customers and the risk of loss.

In determining past-due status, Cat Financial considers the entire recorded investment in finance receivable past due when any installment is over 30 days past due. The tables below summarize the recorded investment of finance receivables by aging category.

(Millions of dollars)	December 31, 2019 31-60 Days Past Due	61-90 Days Past Due	91+ Days Past Due	Total Past Due	Current	Total Finance Receivables	91+ Still Accruing
Customer							
North America	$ 72	$ 23	$ 55	$ 150	$ 8,038	$ 8,188	$ 15
EAME	30	31	141	202	2,955	3,157	4
Asia Pacific	40	14	29	83	2,440	2,523	8
Mining	5	—	19	24	1,851	1,875	—
Latin America	41	23	80	144	1,136	1,280	2
Caterpillar Power Finance	10	10	225	245	1,419	1,664	—
Dealer							
North America	—	—	—	—	2,136	2,136	—
EAME	—	—	—	—	342	342	—
Asia Pacific	—	—	—	—	437	437	—
Mining	—	—	—	—	4	4	—
Latin America	—	—	78	78	712	790	—
Caterpillar Power Finance	—	—	—	—	1	1	—
Total	$ 198	$ 101	$ 627	$ 926	$ 21,471	$ 22,397	$ 29

(Millions of dollars)	December 31, 2018 31-60 Days Past Due	61-90 Days Past Due	91+ Days Past Due	Total Past Due	Current	Total Finance Receivables	91+ Still Accruing
Customer							
North America	$ 65	$ 18	$ 84	$ 167	$ 7,825	$ 7,992	$ 14
EAME	19	9	153	181	2,850	3,031	5
Asia Pacific	24	9	8	41	2,409	2,450	5
Mining	28	1	9	38	1,642	1,680	—
Latin America	38	29	71	138	1,421	1,559	—
Caterpillar Power Finance	10	1	384	395	1,903	2,298	—
Dealer							
North America	—	—	—	—	1,895	1,895	—
EAME	—	—	—	—	333	333	—
Asia Pacific	—	—	—	—	466	466	—
Mining	—	—	—	—	4	4	—
Latin America	—	—	78	78	638	716	—
Caterpillar Power Finance	—	—	—	—	2	2	—
Total	$ 184	$ 67	$ 787	$ 1,038	$ 21,388	$ 22,426	$ 24

Impaired finance receivables

For all classes, a finance receivable is considered impaired, based on current information and events, if it is probable that Cat Financial will be unable to collect all amounts due according to the contractual terms. Impaired finance receivables include finance receivables that have been restructured and are considered to be troubled debt restructurings.

There were $78 million of impaired finance receivables with a related allowance of $39 million and $14 million as of December 31, 2019 and 2018, respectively, for the Dealer portfolio segment, all of which was in Latin America. There were no impaired finance receivables as of December 31, 2017 for the Dealer portfolio segment. Cat Financial's recorded investment in impaired finance receivables and the related unpaid principal balances and allowances for the Customer portfolio segment were as follows:

(Millions of dollars)	**December 31, 2019** Recorded Investment	**Unpaid Principal Balance**	**Related Allowance**	December 31, 2018 Recorded Investment	Unpaid Principal Balance	Related Allowance
Impaired Finance Receivables With No Allowance Recorded						
North America	**$ 6**	**$ 6**	**$ —**	$ 10	$ 10	$ —
EAME	**—**	**—**	**—**	1	1	—
Asia Pacific	**—**	**—**	**—**	—	—	—
Mining	**22**	**22**	**—**	33	33	—
Latin America	**8**	**8**	**—**	29	29	—
Caterpillar Power Finance	**58**	**58**	**—**	69	83	—
Total	**$ 94**	**$ 94**	**$ —**	$ 142	$ 156	$ —
Impaired Finance Receivables With An Allowance Recorded						
North America	**$ 30**	**$ 30**	**$ 11**	$ 40	$ 41	$ 14
EAME	**61**	**61**	**29**	92	92	57
Asia Pacific	**8**	**8**	**2**	4	4	2
Mining	**37**	**36**	**9**	56	55	26
Latin America	**58**	**58**	**20**	75	75	25
Caterpillar Power Finance	**306**	**319**	**107**	449	455	164
Total	**$ 500**	**$ 512**	**$ 178**	$ 716	$ 722	$ 288
Total Impaired Finance Receivables						
North America	**$ 36**	**$ 36**	**$ 11**	$ 50	$ 51	$ 14
EAME	**61**	**61**	**29**	93	93	57
Asia Pacific	**8**	**8**	**2**	4	4	2
Mining	**59**	**58**	**9**	89	88	26
Latin America	**66**	**66**	**20**	104	104	25
Caterpillar Power Finance	**364**	**377**	**107**	518	538	164
Total	**$ 594**	**$ 606**	**$ 178**	$ 858	$ 878	$ 288

(Millions of dollars)	Years ended December 31, 2019 Average Recorded Investment	2019 Interest Income Recognized	2018 Average Recorded Investment	2018 Interest Income Recognized	2017 Average Recorded Investment	2017 Interest Income Recognized
Impaired Finance Receivables With No Allowance Recorded						
North America	$ 9	$ —	$ 16	$ 1	$ 13	$ 1
EAME	6	—	14	—	48	1
Asia Pacific	—	—	27	3	24	2
Mining	27	1	57	2	126	7
Latin America	21	1	38	2	64	3
Caterpillar Power Finance	54	3	130	7	221	9
Total	$ 117	$ 5	$ 282	$ 15	$ 496	$ 23
Impaired Finance Receivables With An Allowance Recorded						
North America	$ 34	$ 2	$ 49	$ 2	$ 49	$ 1
EAME	81	2	53	2	6	—
Asia Pacific	9	1	4	—	31	2
Mining	48	2	46	3	—	—
Latin America	72	5	67	3	99	4
Caterpillar Power Finance	396	11	378	12	180	6
Total	$ 640	$ 23	$ 597	$ 22	$ 365	$ 13
Total Impaired Finance Receivables						
North America	$ 43	$ 2	$ 65	$ 3	$ 62	$ 2
EAME	87	2	67	2	54	1
Asia Pacific	9	1	31	3	55	4
Mining	75	3	103	5	126	7
Latin America	93	6	105	5	163	7
Caterpillar Power Finance	450	14	508	19	401	15
Total	$ 757	$ 28	$ 879	$ 37	$ 861	$ 36

Recognition of income is suspended and the finance receivable is placed on non-accrual status when management determines that collection of future income is not probable (generally after 120 days past due). Recognition is resumed and previously suspended income is recognized when the finance receivable becomes current and collection of remaining amounts is considered probable. Payments received while the finance receivable is on non-accrual status are applied to interest and principal in accordance with the contractual terms.

As of December 31, 2019 and 2018, there were $78 million in finance receivables on non-accrual status for the Dealer portfolio segment, all of which was in Latin America.

The recorded investment in Customer finance receivables on non-accrual status was as follows:

(Millions of dollars)	December 31, 2019	December 31, 2018
North America	$ 44	$ 77
EAME	165	154
Asia Pacific	21	4
Mining	47	50
Latin America	89	106
Caterpillar Power Finance	361	416
Total	$ 727	$ 807

Troubled Debt Restructurings

A restructuring of a finance receivable constitutes a troubled debt restructuring (TDR) when the lender grants a concession it would not otherwise consider to a borrower experiencing financial difficulties. Concessions granted may include extended contract maturities, inclusion of interest only periods, below market interest rates, extended skip payment periods and reduction of principal and/or accrued interest.

There were no finance receivables modified as TDRs during the years ended December 31, 2019, 2018 or 2017 for the Dealer portfolio segment. Cat Financial's recorded investment in finance receivables in the Customer portfolio segment modified as TDRs during the years ended December 31, 2019, 2018 and 2017 were as follows:

(Millions of dollars)	Year ended December 31, 2019		
	Number of Contracts	Pre-TDR Recorded Investment	Post-TDR Recorded Investment
North America	15	$ 11	$ 11
EAME	19	17	17
Asia Pacific	—	—	—
Mining	2	8	8
Latin America	5	5	3
Caterpillar Power Finance	21	168	165
Total	62	$ 209	$ 204

	Year ended December 31, 2018		
	Number of Contracts	Pre-TDR Recorded Investment	Post-TDR Recorded Investment
North America	38	$ 21	$ 21
EAME	—	—	—
Asia Pacific	—	—	—
Mining	1	29	29
Latin America	1	3	3
Caterpillar Power Finance	12	133	99
Total	52	$ 186	$ 152

	Year ended December 31, 2017		
	Number of Contracts	Pre-TDR Recorded Investment	Post-TDR Recorded Investment
North America	43	$ 34	$ 35
EAME	4	1	1
Asia Pacific	10	39	31
Mining	2	57	56
Latin America	17	26	27
Caterpillar Power Finance [1]	68	422	407
Total	144	$ 579	$ 557

[1] In Caterpillar Power Finance, 48 contracts with a pre-TDR recorded investment of $265 million and a post-TDR recorded investment of $258 million were related to six customers.

TDRs in the Customer portfolio segment with a payment default (defined as 91+ days past due) during the years ended December 31, 2019, 2018 and 2017 which had been modified within twelve months prior to the default date, were as follows:

(Millions of dollars)	Year ended December 31, 2019		Year ended December 31, 2018		Year ended December 31, 2017	
	Number of Contracts	Post-TDR Recorded Investment	Number of Contracts	Post-TDR Recorded Investment	Number of Contracts	Post-TDR Recorded Investment
North America	11	$ 5	10	$ 10	4	$ 3
EAME	—	—	—	—	1	—
Asia Pacific	—	—	—	—	4	1
Latin America [1]	—	—	3	1	243	17
Caterpillar Power Finance	1	10	3	33	—	—
Total	12	$ 15	16	$ 44	252	$ 21

[1] In Latin America, 238 contracts with a post-TDR recorded investment of $16 million were related to two customers for the year ended December 31, 2017.

8. Inventories

Inventories (principally using the LIFO method) are comprised of the following:

(Millions of dollars)	December 31, 2019	2018
Raw materials	$ 4,263	$ 4,477
Work-in-process	1,147	1,259
Finished goods	5,598	5,562
Supplies	258	231
Total inventories	$ 11,266	$ 11,529

During the third quarter of 2019, changes were made to the classification of inventories primarily related to purchased parts between Raw materials, Work-in-process and Finished goods. The prior year amounts have been retrospectively adjusted to conform to the current-year classification.

During 2017, closure of our facility in Gosselies, Belgium resulted in a liquidation of LIFO inventory. The liquidated inventory was carried at lower costs prevailing in prior years as compared with current costs. The effect of this reduction in inventory decreased Cost of goods sold by approximately $66 million and increased Profit by approximately $49 million or $0.08 per share. The impact of LIFO liquidations during 2019 and 2018 was not significant to Statement 1.

We had long-term material purchase obligations of approximately $270 million at December 31, 2019.

9. Property, plant and equipment

(Millions of dollars)	Useful Lives (Years)	December 31, 2019	2018
Land	—	$ 664	$ 671
Buildings and land improvements	20-45	6,710	6,977
Machinery, equipment and other	2-10	13,287	13,733
Software	3-7	1,728	1,703
Equipment leased to others	1-7	6,208	6,015
Construction-in-process	—	620	682
Total property, plant and equipment, at cost		29,217	29,781
Less: Accumulated depreciation		(16,313)	(16,207)
Property, plant and equipment–net		$ 12,904	$ 13,574

10. Intangible assets and goodwill

A. Intangible assets

Intangible assets are comprised of the following:

		December 31, 2019		
(Millions of dollars)	Weighted Amortizable Life (Years)	Gross Carrying Amount	Accumulated Amortization	Net
Customer relationships	15	$ 2,450	$ (1,406)	$ 1,044
Intellectual property	12	1,510	(1,055)	455
Other	13	191	(125)	66
Total finite-lived intangible assets	14	$ 4,151	$ (2,586)	$ 1,565

	Weighted Amortizable Life (Years)	December 31, 2018 Gross Carrying Amount	Accumulated Amortization	Net
Customer relationships	15	$ 2,463	$ (1,249)	$ 1,214
Intellectual property	11	1,557	(965)	592
Other	13	199	(108)	91
Total finite-lived intangible assets	14	$ 4,219	$ (2,322)	$ 1,897

During 2018, we acquired finite-lived intangible assets of $112 million and $6 million due to the purchase of ECM S.p.A. and Downer Freight Rail, respectively. See Note 24 for details on these acquisitions.

Finite-lived intangible assets are amortized over their estimated useful lives and tested for impairment if events or changes in circumstances indicate that the asset may be impaired.

Amortization expense related to intangible assets was $324 million, $331 million and $323 million for 2019, 2018 and 2017, respectively.

As of December 31, 2019, amortization expense related to intangible assets is expected to be:

(Millions of dollars)					
2020	2021	2022	2023	2024	Thereafter
$ 310	$ 292	$ 273	$ 215	$ 158	$ 317

B. Goodwill

In 2018, we acquired net assets with related goodwill of $127 million in the Energy & Transportation segment. We recorded goodwill of $109 million related to the acquisition of ECM S.p.A. and $18 million related to the acquisition of Downer Freight Rail. See Note 24 for details on these acquisitions.

There were no goodwill impairments during 2019, 2018 or 2017.

The changes in carrying amount of goodwill by reportable segment for the years ended December 31, 2019 and 2018 were as follows:

(Millions of dollars)	December 31, 2018	Acquisitions	Other Adjustments [1]	December 31, 2019
Construction Industries				
Goodwill	$ 304	$ —	$ 2	$ 306
Impairments	(22)	—	—	(22)
Net goodwill	282	—	2	284
Resource Industries				
Goodwill	4,172	—	(16)	4,156
Impairments	(1,175)	—	—	(1,175)
Net goodwill	2,997	—	(16)	2,981
Energy & Transportation				
Goodwill	2,882	—	(7)	2,875
All Other [2]				
Goodwill	56	—	—	56
Consolidated total				
Goodwill	7,414	—	(21)	7,393
Impairments	(1,197)	—	—	(1,197)
Net goodwill	$ 6,217	$ —	$ (21)	$ 6,196

	December 31, 2017	Acquisitions	Other Adjustments [1]	December 31, 2018
Construction Industries				
Goodwill	$ 305	$ —	$ (1)	$ 304
Impairments	(22)	—	—	(22)
Net goodwill	283	—	(1)	282
Resource Industries				
Goodwill	4,232	—	(60)	4,172
Impairments	(1,175)	—	—	(1,175)
Net goodwill	3,057	—	(60)	2,997
Energy & Transportation				
Goodwill	2,806	127	(51)	2,882
All Other [2]				
Goodwill	54	—	2	56
Consolidated total				
Goodwill	7,397	127	(110)	7,414
Impairments	(1,197)	—	—	(1,197)
Net goodwill	$ 6,200	$ 127	$ (110)	$ 6,217

[1] Other adjustments are comprised primarily of foreign currency translation.
[2] Includes All Other operating segment (See Note 23).

11. Investments in debt and equity securities

We have investments in certain debt and equity securities, primarily at Insurance Services, which are recorded at fair value and are primarily included in Other assets in Statement 3.

Debt securities have been classified as available-for-sale, and the unrealized gains and losses arising from the revaluation of these debt securities are included, net of applicable deferred income taxes, in equity (Accumulated other comprehensive income (loss) in Statement 3). The unrealized gains and losses arising from the revaluation of the equity securities are included in Other income (expense) in Statement 1. Realized gains and losses on sales of investments are generally determined using the specific identification method for debt and equity securities and are included in Other income (expense) in Statement 1.

The cost basis and fair value of debt securities with unrealized gains and losses included in equity (Accumulated other comprehensive income (loss) in Statement 3) were as follows:

	December 31, 2019			December 31, 2018		
(Millions of dollars)	**Cost Basis**	**Unrealized Pretax Net Gains (Losses)**	**Fair Value**	Cost Basis	Unrealized Pretax Net Gains (Losses)	Fair Value
Government debt						
U.S. treasury bonds	**$ 9**	**$ —**	**$ 9**	$ 9	$ —	$ 9
Other U.S. and non-U.S. government bonds	**54**	**—**	**54**	42	—	42
Corporate bonds						
Corporate bonds	**836**	**20**	**856**	735	(15)	720
Asset-backed securities	**62**	**—**	**62**	63	—	63
Mortgage-backed debt securities						
U.S. governmental agency	**327**	**4**	**331**	301	(4)	297
Residential	**6**	**—**	**6**	7	—	7
Commercial	**46**	**1**	**47**	14	(1)	13
Total debt securities	**$ 1,340**	**$ 25**	**$ 1,365**	$ 1,171	$ (20)	$ 1,151

As of December 31 2019 and 2018, the total unrealized loss for available-for-sale investments in an unrealized loss position that are not other-than-temporarily impaired was $1 million and $21 million, respectively.

The cost basis and fair value of the available-for-sale debt securities at December 31, 2019, by contractual maturity, is shown below. Expected maturities will differ from contractual maturities because borrowers may have the right to prepay and creditors may have the right to call obligations.

	December 31, 2019	
(Millions of dollars)	Cost Basis	Fair Value
Due in one year or less	$ 80	$ 80
Due after one year through five years	701	715
Due after five years through ten years	148	153
Due after ten years	32	33
U.S. governmental agency mortgage-backed securities	327	331
Residential mortgage-backed securities	6	6
Commercial mortgage-backed securities	46	47
Total debt securities – available-for-sale	$ 1,340	$ 1,365

Sales of Securities:

	Years Ended December 31,		
(Millions of dollars)	2019 [1]	2018 [1]	2017
Proceeds from the sale of available-for-sale securities	$ 260	$ 247	$ 930
Gross gains from the sale of available-for-sale securities	$ 1	$ —	$ 109
Gross losses from the sale of available-for-sale securities	$ 1	$ —	$ 5

[1] Beginning January 1, 2018, equity securities are no longer classified as available-for-sale securities.

For the years ended December 31 2019 and 2018, the net unrealized gains (losses) for equity securities held at December 31, 2019 and 2018 were $29 million and $(25) million, respectively.

12. Postemployment benefit plans

We provide defined benefit pension plans, defined contribution plans and/or other postretirement benefit plans (retirement health care and life insurance) to employees in many of our locations throughout the world. Our defined benefit pension plans provide a benefit based on years of service and/or the employee's average earnings near retirement. Our defined contribution plans allow employees to contribute a portion of their salary to help save for retirement, and in most cases, we provide a matching contribution. The benefit obligation related to our non-U.S. defined benefit pension plans are for employees located primarily in Europe, Japan and Brazil. For other postretirement benefits (OPEB), substantially all of our benefit obligation is for employees located in the United States.

Our U.S. defined benefit pension plans for support and management employees were frozen for certain employees on December 31, 2010 and were frozen for the remaining employees on December 31, 2019. On the respective transition dates employees move to a retirement benefit that provides a frozen pension benefit and a 401(k) plan that will include a matching contribution and a new annual employer contribution.

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 net loss of $20 million in the first quarter of 2017 for curtailment and termination benefits.

All curtailments and termination benefits were recognized in Other income (expense) in Statement 1.

A. Obligations, assets and funded status

	U.S. Pension Benefits		Non-U.S. Pension Benefits		Other Postretirement Benefits	
	2019	2018	2019	2018	2019	2018
Weighted-average assumptions used to determine benefit obligation, end of year:						
Discount rate	3.2%	4.2%	1.9%	2.5%	3.2%	4.2%
Rate of compensation increase [1]	—%	4.0%	2.0%	3.0%	4.0%	4.0%

[1] Effective December 31, 2019, all U.S. pension benefits were frozen, and accordingly this assumption is no longer applicable.

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. A similar process is used to determine the assumed discount rate for our most significant non-U.S. plans. This rate is sensitive to changes in interest rates. A decrease in the discount rate would increase our obligation and future expense.

(Millions of dollars)	U.S. Pension Benefits 2019	U.S. Pension Benefits 2018	Non-U.S. Pension Benefits 2019	Non-U.S. Pension Benefits 2018	Other Postretirement Benefits 2019	Other Postretirement Benefits 2018
Accumulated benefit obligation, end of year	**$ 17,773**	$ 15,877	**$ 4,502**	$ 4,038		
Change in benefit obligation:						
Benefit obligation, beginning of year	**$ 15,953**	$ 17,326	**$ 4,215**	$ 4,606	**$ 3,649**	$ 4,002
Service cost	**115**	125	**80**	89	**80**	83
Interest cost	**600**	534	**94**	96	**136**	125
Plan amendments	**—**	—	**(5)**	26	**8**	(25)
Actuarial losses (gains)	**2,090**	(1,058)	**424**	(88)	**350**	(195)
Foreign currency exchange rates	**—**	—	**95**	(205)	**(1)**	(28)
Participant contributions	**—**	—	**7**	6	**46**	51
Benefits paid - gross	**(982)**	(971)	**(237)**	(277)	**(316)**	(369)
Less: federal subsidy on benefits paid	**—**	—	**—**	—	**9**	7
Curtailments, settlements and termination benefits	**(3)**	(3)	**(7)**	(38)	**(1)**	(2)
Benefit obligation, end of year	**$ 17,773**	$ 15,953	**$ 4,666**	$ 4,215	**$ 3,960**	$ 3,649
Change in plan assets:						
Fair value of plan assets, beginning of year	**$ 12,697**	$ 13,416	**$ 4,025**	$ 4,305	**$ 328**	$ 504
Actual return on plan assets	**2,740**	(784)	**482**	13	**71**	(5)
Foreign currency exchange rates	**—**	—	**105**	(187)	**—**	—
Company contributions	**1,542**	1,039	**143**	165	**127**	147
Participant contributions	**—**	—	**7**	6	**46**	51
Benefits paid	**(982)**	(971)	**(237)**	(277)	**(316)**	(369)
Settlements and termination benefits	**(3)**	(3)	**—**	—	**(1)**	—
Fair value of plan assets, end of year	**$ 15,994**	$ 12,697	**$ 4,525**	$ 4,025	**$ 255**	$ 328
Over (under) funded status	**$ (1,779)**	$ (3,256)	**$ (141)**	$ (190)	**$ (3,705)**	$ (3,321)
Components of net amount recognized in financial position:						
Other assets (non-current asset)	**$ 219**	$ 9	**$ 485**	$ 442	**$ —**	$ —
Accrued wages, salaries and employee benefits (current liability)	**(42)**	(40)	**(19)**	(20)	**(161)**	(173)
Liability for postemployment benefits (non-current liability) [1]	**(1,956)**	(3,225)	**(607)**	(612)	**(3,544)**	(3,148)
Net liability recognized	**$ (1,779)**	$ (3,256)	**$ (141)**	$ (190)	**$ (3,705)**	$ (3,321)
Amounts recognized in Accumulated other comprehensive income (pre-tax) consist of:						
Prior service cost (credit)	**$ —**	$ —	**$ 16**	$ 20	**$ (78)**	$ (126)

[1] The Liability for postemployment benefits reported in Statement 3 includes our liability for other postemployment benefits and our liability for non-qualified deferred compensation plans. For 2019, these liabilities were $60 million and $432 million, respectively. For 2018, these liabilities were $119 million and $351 million, respectively.

(Millions of dollars)	U.S. Pension Benefits 2019	U.S. Pension Benefits 2018	Non-U.S. Pension Benefits 2019	Non-U.S. Pension Benefits 2018
Pension plans with projected benefit obligation in excess of plan assets:				
Projected benefit obligation	**$ 14,037**	$ 15,614	**$ 2,010**	$ 1,821
Accumulated benefit obligation	**$ 14,037**	$ 15,541	**$ 1,896**	$ 1,723
Fair value of plan assets	**$ 12,039**	$ 12,349	**$ 1,384**	$ 1,189
Pension plans with accumulated benefit obligation in excess of plan assets:				
Projected benefit obligation	**$ 14,037**	$ 15,614	**$ 1,875**	$ 1,655
Accumulated benefit obligation	**$ 14,037**	$ 15,541	**$ 1,799**	$ 1,603
Fair value of plan assets	**$ 12,039**	$ 12,349	**$ 1,269**	$ 1,047

The accumulated postretirement benefit obligation exceeds plan assets for all of our other postretirement benefit plans for all years presented.

B. Net periodic benefit cost

(Millions of dollars)	U.S. Pension Benefits			Non-U.S. Pension Benefits			Other Postretirement Benefits		
	2019	2018	2017	**2019**	2018	2017	**2019**	2018	2017
Components of net periodic benefit cost:									
Service cost	**$ 115**	$ 125	$ 115	**$ 80**	$ 89	$ 95	**$ 80**	$ 83	$ 78
Interest cost	**600**	534	525	**94**	96	101	**136**	125	130
Expected return on plan assets	**(721)**	(808)	(734)	**(148)**	(221)	(231)	**(18)**	(32)	(37)
Curtailments, settlements and termination benefits	**(1)**	—	9	**(7)**	(33)	15	**—**	(2)	—
Amortization of prior service cost (credit) [1]	**—**	—	—	**—**	—	(2)	**(40)**	(36)	(23)
Actuarial loss (gain) [2]	**72**	534	481	**90**	111	(195)	**306**	(150)	15
Net Periodic benefit cost (benefit) [3]	**$ 65**	$ 385	$ 396	**$ 109**	$ 42	$ (217)	**$ 464**	$ (12)	$ 163
Other changes in plan assets and benefit obligations recognized in other comprehensive income (pre-tax):									
Current year prior service cost (credit)	**$ —**	$ —	$ —	**$ (4)**	$ 20	$ 3	**$ 8**	$ (20)	$ (77)
Amortization of prior service (cost) credit [1]	**—**	—	—	**—**	—	2	**40**	36	23
Total recognized in other comprehensive income	**—**	—	—	**(4)**	20	5	**48**	16	(54)
Total recognized in net periodic cost and other comprehensive income	**$ 65**	$ 385	$ 396	**$ 105**	$ 62	$ (212)	**$ 512**	$ 4	$ 109
Weighted-average assumptions used to determine net periodic benefit cost:									
Discount rate used to measure service cost	**4.3%**	3.7%	4.2%	**2.5%**	2.3%	2.4%	**4.1%**	3.5%	3.9%
Discount rate used to measure interest cost	**3.9%**	3.2%	3.3%	**2.3%**	2.2%	2.3%	**3.9%**	3.2%	3.3%
Expected rate of return on plan assets [4]	**5.9%**	6.3%	6.7%	**3.8%**	5.2%	5.9%	**7.2%**	7.5%	7.5%
Rate of compensation increase	**4.0%**	4.0%	4.0%	**3.0%**	4.0%	4.0%	**4.1%**	4.0%	4.0%

[1] The estimated amount of prior service cost (credit) that will be amortized from Accumulated other comprehensive income (loss) at December 31, 2019 into net periodic benefit cost (pre-tax) in 2020 is a credit of $38 million for Other Postretirement Benefits.

[2] Actuarial loss (gain) represents the effects of actual results differing from our assumptions and the effects of changing assumptions. We recognize actuarial loss (gain) immediately through earnings upon the annual remeasurement in the fourth quarter, or on an interim basis as triggering events warrant remeasurement.

[3] The service cost component is included in Operating costs and all other components are included in Other income (expense) in Statement 1.

[4] The weighted-average rates for 2020 are 5.1 percent and 3.2 percent for U.S. and non-U.S. pension plans, respectively.

The discount rates used in the determination of our service and interest cost components are determined by utilizing a full yield curve approach which applies specific spot rates along the yield curve used in the determination of the benefit obligation to the relevant projected cash flows.

Our U.S. 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 pension assets. Based on historical performance, we increase the passive returns due to our active management of the plan assets. To arrive at our expected long-term return, the amount added for active management was 0.40 percent for 2019, 0.75 percent for 2018 and 0.80 percent for 2017. A similar process is used to determine this rate for our non-U.S. plans.

The assumed health care trend rate represents the rate at which health care costs are assumed to increase. We assumed a weighted-average increase of 6.1 percent in our calculation of 2019 benefit expense. We expect a weighted-average increase of 6.1 percent during 2020. The 2020 rates are assumed to decrease gradually to the ultimate health care trend rate of 5 percent in 2025. This rate represents 3 percent general inflation plus 2 percent additional health care inflation.

Assumed health care cost trend rates have a significant effect on the amounts reported for the health care plans. A one-percentage-point change in assumed health care cost trend rates would have had the following effects:

(Millions of dollars)	One-percentage-point increase	One-percentage-point decrease
Effect on 2019 service and interest cost components of other postretirement benefit cost	$ 13	$ (11)
Effect on accumulated postretirement benefit obligation	$ 158	$ (133)

C. Expected contributions and benefit payments

Information about expected contributions and benefit payments for pension and other postretirement benefit plans is as follows:

(Millions of dollars)	2020
Expected employer contributions:	
U.S. Pension Benefits	$ 40
Non-U.S. Pension Benefits	$ 105
Other Postretirement Benefits	$ 135

Expected benefit payments:	2020	2021	2022	2023	2024	2025-2029	Total
U.S. Pension Benefits	$ 1,020	$ 1,010	$ 1,010	$ 1,010	$ 1,010	$ 5,005	$ 10,065
Non-U.S. Pension Benefits	$ 280	$ 175	$ 180	$ 185	$ 190	$ 1,055	$ 2,065
Other Postretirement Benefits	$ 290	$ 285	$ 280	$ 275	$ 270	$ 1,340	$ 2,740
Expected Medicare Part D subsidy:	$ 9	$ 9	$ 9	$ 8	$ 8	$ 35	$ 78

The above table reflects the total expected employer contributions and expected benefits to be paid from the plan or from company assets and does not include the participants' share of the cost. The expected benefit payments for our other postretirement benefits include payments for prescription drug benefits. The above table also includes Medicare Part D subsidy amounts expected to be received by the company which will offset other postretirement benefit payments.

D. Plan assets

In general, our strategy for both the U.S. and non-U.S. pensions includes ongoing alignment of our investments to our liabilities, while reducing risk in our portfolio. The current U.S. pension target asset allocation is 70 percent fixed income and 30 percent equities. This target allocation will be revisited periodically to ensure it reflects our overall objectives. The non-U.S. pension weighted-average target allocations are 79 percent fixed income, 12 percent equities, 5 percent real estate and 4 percent other. The target allocations for each plan vary based upon local statutory requirements, demographics of plan participants and funded status. The non-U.S. plan assets are primarily invested in non-U.S. securities.

Our target allocation for the other postretirement benefit plans is 70 percent equities and 30 percent fixed income.

The U.S. plans are rebalanced to within the appropriate target asset allocation ranges on a monthly basis. The frequency of rebalancing for the non-U.S. plans varies depending on the plan. As a result of our diversification strategies, there are no significant concentrations of risk within the portfolio of investments.

The use of certain derivative instruments is permitted where appropriate and necessary for achieving overall investment policy objectives. The plans do not use derivative contracts for speculative purposes.

The accounting guidance on fair value measurements specifies a fair value hierarchy based upon the observability of inputs used in valuation techniques (Level 1, 2 and 3). See Note 18 for a discussion of the fair value hierarchy.

Fair values are determined as follows:

- Equity securities are primarily based on valuations for identical instruments in active markets.
- Fixed income securities are primarily based upon models that take into consideration such market-based factors as recent sales, risk-free yield curves and prices of similarly rated bonds.
- Real estate is stated at the fund's net asset value or at appraised value.
- Cash, short-term instruments and other are based on the carrying amount, which approximates fair value, or the fund's net asset value.

The fair value of the pension and other postretirement benefit plan assets by category is summarized below:

(Millions of dollars)	December 31, 2019 Level 1	Level 2	Level 3	Measured at NAV	Total Assets at Fair Value
U.S. Pension					
Equity securities:					
U.S. equities	$ 2,578	$ —	$ 23	$ 133	$ 2,734
Non-U.S. equities	2,068	—	—	—	2,068
Fixed income securities:					
U.S. corporate bonds	—	6,577	57	—	6,634
Non-U.S. corporate bonds	—	1,414	—	—	1,414
U.S. government bonds	—	2,220	—	—	2,220
U.S. governmental agency mortgage-backed securities	—	63	—	—	63
Non-U.S. government bonds	—	96	—	—	96
Real estate	—	—	10	—	10
Cash, short-term instruments and other	230	10	—	515	755
Total U.S. pension assets	$ 4,876	$ 10,380	$ 90	$ 648	$ 15,994

(Millions of dollars)	December 31, 2018 Level 1	Level 2	Level 3	Measured at NAV	Total Assets at Fair Value
U.S. Pension					
Equity securities:					
U.S. equities	$ 1,971	$ —	$ 35	$ 155	$ 2,161
Non-U.S. equities	1,279	—	1	—	1,280
Fixed income securities:					
U.S. corporate bonds	—	6,371	61	52	6,484
Non-U.S. corporate bonds	—	1,332	—	—	1,332
U.S. government bonds	—	590	—	—	590
U.S. governmental agency mortgage-backed securities	—	384	—	—	384
Non-U.S. government bonds	—	79	—	—	79
Real estate	—	—	10	—	10
Cash, short-term instruments and other	202	9	—	166	377
Total U.S. pension assets	$ 3,452	$ 8,765	$ 107	$ 373	$ 12,697

(Millions of dollars)	December 31, 2019 Level 1	Level 2	Level 3	Measured at NAV	Total Assets at Fair Value
Non-U.S. Pension					
Equity securities:					
U.S. equities	$ 58	$ —	$ —	$ —	$ 58
Non-U.S. equities	346	29	—	65	440
Global equities[1]	26	16	—	111	153
Fixed income securities:					
U.S. corporate bonds	—	253	—	—	253
Non-U.S. corporate bonds	—	808	—	7	815
U.S. government bonds	—	65	—	—	65
Non-U.S. government bonds	—	1,952	—	—	1,952
Global fixed income[1]	—	182	—	208	390
Real estate	—	211	—	—	211
Cash, short-term instruments and other[2]	68	120	—	—	188
Total non-U.S. pension assets	$ 498	$ 3,636	$ —	$ 391	$ 4,525

(Millions of dollars)	December 31, 2018 Level 1	Level 2	Level 3	Measured at NAV	Total Assets at Fair Value
Non-U.S. Pension					
Equity securities:					
U.S. equities	$ 43	$ —	$ —	$ —	$ 43
Non-U.S. equities	259	28	—	53	340
Global equities [1]	23	23	—	90	136
Fixed income securities:					
U.S. corporate bonds	—	206	—	—	206
Non-U.S. corporate bonds	—	690	—	6	696
U.S. government bonds	—	74	—	—	74
Non-U.S. government bonds	—	1,721	—	—	1,721
Global fixed income [1]	—	261	—	215	476
Real estate	—	185	—	—	185
Cash, short-term instruments and other [2]	66	82	—	—	148
Total non-U.S. pension assets	$ 391	$ 3,270	$ —	$ 364	$ 4,025

1 Includes funds that invest in both U.S. and non-U.S. securities.

2 Includes funds that invest in multiple asset classes, hedge funds and other.

We have reclassified $143 million from Level 1 to measured at net assets value for 2018. The reclassification did not impact total assets.

(Millions of dollars)	**December 31, 2019** **Level 1**	**Level 2**	**Level 3**	**Measured at NAV**	**Total Assets at Fair Value**
Other Postretirement Benefits					
Equity securities:					
U.S. equities	**$ 119**	**$ —**	**$ —**	**$ —**	**$ 119**
Non-U.S. equities	**56**	**—**	**—**	**—**	**56**
Fixed income securities:					
U.S. corporate bonds	**—**	**33**	**—**	**—**	**33**
Non-U.S. corporate bonds	**—**	**6**	**—**	**—**	**6**
U.S. government bonds	**—**	**9**	**—**	**—**	**9**
U.S. governmental agency mortgage-backed securities	**—**	**16**	**—**	**—**	**16**
Non-U.S. government bonds	—	**3**	—	—	**3**
Cash, short-term instruments and other	**2**	**1**	**—**	**10**	**13**
Total other postretirement benefit assets	**$ 177**	**$ 68**	**$ —**	**$ 10**	**$ 255**

(Millions of dollars)	December 31, 2018 Level 1	Level 2	Level 3	Measured at NAV	Total Assets at Fair Value
Other Postretirement Benefits					
Equity securities:					
U.S. equities	$ 151	$ 1	$ —	$ —	$ 152
Non-U.S. equities	64	—	—	—	64
Fixed income securities:					
U.S. corporate bonds	—	45	—	—	45
Non-U.S. corporate bonds	—	11	—	—	11
U.S. government bonds	—	8	—	—	8
U.S. governmental agency mortgage-backed securities	—	25	—	—	25
Non-U.S. government bonds	—	3	—	—	3
Cash, short-term instruments and other	3	1	—	16	20
Total other postretirement benefit assets	$ 218	$ 94	$ —	$ 16	$ 328

Below are roll-forwards of assets measured at fair value using Level 3 inputs for the years ended December 31, 2019 and 2018. These instruments were valued using pricing models that, in management's judgment, reflect the assumptions a market participant would use.

(Millions of dollars)	Equities	Fixed Income	Real Estate
U.S. Pension			
Balance at December 31, 2017	$ 20	$ 60	$ 10
Unrealized gains (losses)	(6)	(12)	—
Realized gains (losses)	—	—	—
Purchases, issuances and settlements, net	21	11	—
Transfers in and/or out of Level 3	1	2	—
Balance at December 31, 2018	**$ 36**	**$ 61**	**$ 10**
Unrealized gains (losses)	**(9)**	**—**	**—**
Realized gains (losses)	**7**	**—**	**—**
Purchases, issuances and settlements, net	**(10)**	**(4)**	**—**
Transfers in and/or out of Level 3	**(1)**	**—**	**—**
Balance at December 31, 2019	**$ 23**	**$ 57**	**$ 10**

E. Defined contribution plans

We have both U.S. and non-U.S. employee defined contribution plans to help employees save for retirement. Our primary U.S. 401(k) plan allows eligible employees to contribute a portion of their cash compensation to the plan on a tax-deferred basis. Employees with frozen defined benefit pension accruals are eligible for matching contributions equal to 100 percent of employee contributions to the plan up to 6 percent of cash compensation and an annual employer contribution that ranges from 3 to 5 percent of cash compensation (depending on years of service and age). Employees that were still accruing benefits under a defined benefit pension plan up to December 31, 2019 were eligible for matching contributions equal to 50 percent of employee contributions up to 6 percent of cash compensation. All our U.S. defined benefit pension plans were frozen on December 31, 2019 for remaining employees still accruing a benefit. Starting in 2020, these employees will receive matching contributions equal to 100 percent of employee contributions to the plan up to 6 percent of cash compensation and an annual employer contribution that ranges from 3 to 5 percent of cash compensation (depending on years of service and age).

These 401(k) plans include various investment funds, including a non-leveraged employee stock ownership plan (ESOP). As of December 31, 2019 and 2018, the ESOP held 14.9 million and 17.2 million shares, respectively. All of the shares held by the ESOP were allocated to participant accounts. Dividends paid to participants are automatically reinvested into company shares unless the participant elects to have all or a portion of the dividend paid to the participant. Various other U.S. and non-U.S. defined contribution plans generally allow eligible employees to contribute a portion of their cash compensation to the plans, and in most cases, we provide a matching contribution to the funds.

Total company costs related to U.S. and non-U.S. defined contribution plans were as follows:

(Millions of dollars)	**2019**	2018	2017
U.S. plans	**$ 414**	$ 271	$ 375
Non-U.S. plans	**83**	89	73
	$ 497	$ 360	$ 448

13. Short-term borrowings

	December 31,	
(Millions of dollars)	**2019**	2018
Machinery, Energy & Transportation:		
Notes payable to banks	**$ 5**	$ —
	5	—
Financial Products:		
Notes payable to banks	**605**	526
Commercial paper	**4,168**	4,759
Demand notes	**388**	438
	5,161	5,723
Total short-term borrowings	**$ 5,166**	$ 5,723

The weighted-average interest rates on short-term borrowings outstanding were:

	December 31,	
	2019	2018
Notes payable to banks	**5.0%**	5.3%
Commercial paper	**1.3%**	2.0%
Demand notes	**1.7%**	2.2%

Please refer to Note 18 and Table III for fair value information on short-term borrowings.

14. Long-term debt

		December 31,	
(Millions of dollars)	**Effective Yield to Maturity [1]**	**2019**	2018
Machinery, Energy & Transportation:			
Notes—$1,250 million of 3.900% due 2021 [2]	4.01%	**$ 1,248**	$ 1,247
Notes—$759 million of 5.200% due 2041 [2]	5.27%	**752**	751
Debentures—$120 million of 9.375% due 2021	9.41%	**120**	120
Debentures—$500 million of 2.600% due 2022 [2]	2.70%	**499**	498
Debentures—$82 million of 8.000% due 2023	8.06%	**82**	82
Debentures—$1,000 million of 3.400% due 2024	3.46%	**998**	997
Debentures—$193 million of 6.625% due 2028 [2]	6.68%	**192**	192
Debentures—$500 million of 2.600% due 2029 [2]	2.64%	**497**	—
Debentures—$242 million of 7.300% due 2031 [2]	7.38%	**240**	240
Debentures—$307 million of 5.300% due 2035 [2]	8.64%	**220**	218
Debentures—$460 million of 6.050% due 2036 [2]	6.12%	**456**	456
Debentures—$65 million of 8.250% due 2038 [2]	8.38%	**64**	64
Debentures—$160 million of 6.950% due 2042 [2]	7.02%	**158**	158
Debentures—$1,722 million of 3.803% due 2042 [2]	6.39%	**1,277**	1,257
Debentures—$500 million of 4.300% due 2044	4.39%	**493**	493
Debentures—$1,000 million of 3.250% due 2049 [2]	3.37%	**982**	—
Debentures—$500 million of 4.750% due 2064	4.81%	**494**	494
Debentures—$246 million of 7.375% due 2097 [2]	7.51%	**241**	241
Finance lease obligations & other [3]		**128**	497
Total Machinery, Energy & Transportation		**9,141**	8,005
Financial Products:			
Medium-term notes		**16,719**	16,592
Other		**421**	403
Total Financial Products		**17,140**	16,995
Total long-term debt due after one year		**$ 26,281**	$ 25,000

1 Effective yield to maturity includes the impact of discounts, premiums and debt issuance costs.

2 Redeemable at our option in whole or in part at any time at a redemption price equal to the greater of (i) 100% of the principal amount or (ii) the discounted present value of the notes or debentures, calculated in accordance with the terms of such notes or debentures.

3 2018 includes $360 million related to a financing transaction in Japan entered into in 2017 that was removed in 2019 due to the new lease accounting guidance adopted January 1, 2019. See Note 1J for additional information.

All outstanding notes and debentures are unsecured and rank equally with one another.

On September 19, 2019, we issued $1.0 billion of 3.250% Senior Notes due 2049 and $500 million of 2.600% Senior Notes due 2029.

Cat Financial's medium-term notes are offered by prospectus and are issued through agents at fixed and floating rates. Medium-term notes due after one year have a weighted average interest rate of 2.7% with remaining maturities up to 8 years at December 31, 2019.

The above table includes $28.5 million of medium-term notes that can be called at par.

The aggregate amounts of maturities of long-term debt during each of the years 2020 through 2024, including amounts due within one year and classified as current, are:

	December 31,				
(Millions of dollars)	2020	2021	2022	2023	2024
Machinery, Energy & Transportation	$ 16	$ 1,403	$ 513	$ 93	$ 1,007
Financial Products	6,194	7,732	4,744	2,167	2,157
	$ 6,210	$ 9,135	$ 5,257	$ 2,260	$ 3,164

Interest paid on short-term and long-term borrowings for 2019, 2018 and 2017 was $1,057 million, $1,088 million and $1,131 million, respectively. Interest paid in 2017 includes a prepayment fee of $58 million related to the early retirement of our 7.90% senior notes due December 2018.

Medium-term notes of $1.50 billion matured January 10, 2020 and were excluded from Current maturities of long-term debt as of December 31, 2019 due to an issuance on January 9, 2020 of two $750 million medium-term notes, maturing in 2021 and 2022. The table above reflects the maturity dates of the new medium-term notes.

Please refer to Note 18 and Table III for fair value information on long-term debt.

15. Credit commitments

	December 31, 2019		
(Millions of dollars)	Consolidated	Machinery, Energy & Transportation	Financial Products
Credit lines available:			
Global credit facilities	**$ 10,500**	**$ 2,751**	**$ 7,749**
Other external	**4,999**	**194**	**4,805**
Total credit lines available	**15,499**	**2,945**	**12,554**
Less: Commercial paper outstanding	**(4,168)**	**—**	**(4,168)**
Less: Utilized credit	**(1,247)**	**—**	**(1,247)**
Available credit	**$ 10,084**	**$ 2,945**	**$ 7,139**

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, 2019 was $2.75 billion. Information on our Credit Facility is as follows:

- The 364-day facility of $3.15 billion (of which $0.82 billion is available to ME&T) expires in September 2020.
- The three-year facility, as amended and restated in September 2019, of $2.73 billion (of which $0.72 billion is available to ME&T) expires in September 2022.
- The five-year facility, as amended and restated in September 2019, of $4.62 billion (of which $1.21 billion is available to ME&T) expires in September 2024.

Other consolidated credit lines with banks as of December 31, 2019 totaled $5.00 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.

At December 31, 2019, Caterpillar's consolidated net worth was $14.63 billion, which was above the $9.00 billion required under the Credit Facility. The consolidated net worth is defined as the consolidated shareholders' equity including preferred stock but excluding the pension and other postretirement benefits balance within Accumulated other comprehensive income (loss).

At December 31, 2019, Cat Financial's covenant interest coverage ratio was 1.77 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.

In addition, at December 31, 2019, Cat Financial's six-month covenant leverage ratio was 7.65 to 1 and year-end covenant leverage ratio was 7.46 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, 2019, there were no borrowings under the Credit Facility.

16. Profit per share

Computations of profit per share:

(Dollars in millions except per share data)		2019		2018		2017
Profit for the period (A) [1]	$	**6,093**	$	6,147	$	754
Determination of shares (in millions):						
Weighted average number of common shares outstanding (B)		**561.6**		591.4		591.8
Shares issuable on exercise of stock awards, net of shares assumed to be purchased out of proceeds at average market price		**5.9**		8.0		7.5
Average common shares outstanding for fully diluted computation (C) [2]		**567.5**		599.4		599.3
Profit per share of common stock:						
Assuming no dilution (A/B)	$	**10.85**	$	10.39	$	1.27
Assuming full dilution (A/C)[2]	$	**10.74**	$	10.26	$	1.26
Shares outstanding as of December 31 (in millions)		**550.1**		575.5		597.6

[1] Profit attributable to common shareholders.

[2] Diluted by assumed exercise of stock-based compensation awards using the treasury stock method.

For the year ended December 31, 2019 and 2018, 3.0 million and 1.5 million outstanding stock options, respectively, were excluded from the computation of diluted earnings per share because the effect would have been antidilutive. For 2017, no outstanding SARs and stock options were excluded from the computation of diluted earnings per share because all outstanding SARs and stock options had a dilutive effect.

In July 2018, the Board approved a new share repurchase authorization of up to $10.0 billion of Caterpillar common stock effective January 1, 2019, with no expiration.

During 2019 and 2018, we repurchased 30.6 million and 27.7 million shares of Caterpillar common stock, respectively, at an aggregate cost of $4.0 billion and $3.8 billion, respectively. These purchases were made through a combination of accelerated stock repurchase agreements with third-party financial institutions and open market transactions.

We did not repurchase any Caterpillar common stock during 2017.

17. Accumulated other comprehensive income (loss)

Comprehensive income and its components are presented in Statement 2. Changes in Accumulated other comprehensive income (loss), net of tax, included in Statement 4, consisted of the following:

(Millions of dollars)		Foreign currency translation		Pension and other postretirement benefits		Derivative financial instruments		Available-for-sale securities		Total
Balance at December 31, 2016	$	(1,970)	$	14	$	(115)	$	32	$	(2,039)
Other comprehensive income (loss) before reclassifications		752		48		(3)		41		838
Amounts reclassified from accumulated other comprehensive (income) loss		13		(16)		77		(65)		9
Other comprehensive income (loss)		765		32		74		(24)		847
Balance at December 31, 2017	$	(1,205)	$	46	$	(41)	$	8	$	(1,192)
Adjustment to adopt recognition and measurement of financial assets and liabilities guidance		—		—		—		(11)		(11)
Balance at January 1, 2018		(1,205)		46		(41)		(3)		(1,203)
Other comprehensive income (loss) before reclassifications		(397)		(6)		61		(12)		(354)
Amounts reclassified from accumulated other comprehensive (income) loss		1		(28)		(100)		—		(127)
Other comprehensive income (loss)		(396)		(34)		(39)		(12)		(481)
Balance at December 31, 2018	$	**(1,601)**	$	**12**	$	**(80)**	$	**(15)**	$	**(1,684)**
Adjustment to adopt new accounting guidance related to reclassification of certain tax effects from accumulated other comprehensive income		**98**		**19**		**(9)**		**—**		**108**
Balance at January 1, 2019		**(1,503)**		**31**		**(89)**		**(15)**		**(1,576)**
Other comprehensive income (loss) before reclassifications		**16**		**(4)**		**43**		**35**		**90**
Amounts reclassified from accumulated other comprehensive (income) loss		**—**		**(30)**		**(51)**		**—**		**(81)**
Other comprehensive income (loss)		**16**		**(34)**		**(8)**		**35**		**9**
Balance at December 31, 2019	$	**(1,487)**	$	**(3)**	$	**(97)**	$	**20**	$	**(1,567)**

The effect of the reclassifications out of Accumulated other comprehensive income (loss) on Statement 1 is as follows:

(Millions of dollars)	Classification of income (expense)	Year ended December 31, 2019	2018	2017
Foreign currency translation:				
Gain (loss) on foreign currency translation	Other income (expense)	**$ —**	$ (1)	$ (13)
Tax (provision) benefit		**—**	—	—
Reclassifications net of tax		**$ —**	$ (1)	$ (13)
Pension and other postretirement benefits:				
Amortization of prior service credit (cost)	Other income (expense)	**$ 40**	$ 36	$ 25
Tax (provision) benefit		**(10)**	(8)	(9)
Reclassifications net of tax		**$ 30**	$ 28	$ 16
Derivative financial instruments:				
Foreign exchange contracts	Sales of Machinery, Energy & Transportation	**$ 11**	$ —	$ —
Foreign exchange contracts	Cost of goods sold	**$ (3)**	$ —	$ —
Foreign exchange contracts	Other income (expense)	**$ 37**	$ 115	$ (121)
Foreign exchange contracts	Interest expense of Financial Products	**33**	19	6
Interest rate contracts	Interest expense excluding Financial Products	**(4)**	(3)	(9)
Interest rate contracts	Interest expense of Financial Products	**(8)**	—	3
Reclassifications before tax		**66**	131	(121)
Tax (provision) benefit		**(15)**	(31)	44
Reclassifications net of tax		**$ 51**	$ 100	$ (77)
Available-for-sale securities:				
Realized gain (loss) on sale of securities	Other income (expense)	**$ —**	$ —	$ 100
Tax (provision) benefit		**—**	—	(35)
Reclassifications net of tax		**$ —**	$ —	$ 65
Total reclassifications from Accumulated other comprehensive income (loss)		**$ 81**	$ 127	$ (9)

18. Fair value disclosures

A. Fair value measurements

The guidance on fair value measurements defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. This guidance also specifies a fair value hierarchy based upon the observability of inputs used in valuation techniques. Observable inputs (highest level) reflect market data obtained from independent sources, while unobservable inputs (lowest level) reflect internally developed market assumptions. In accordance with this guidance, fair value measurements are classified under the following hierarchy:

- **Level 1** – Quoted prices for identical instruments in active markets.
- **Level 2** – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs or significant value-drivers are observable in active markets.
- **Level 3** – Model-derived valuations in which one or more significant inputs or significant value-drivers are unobservable.

When available, we use quoted market prices to determine fair value, and we classify such measurements within Level 1. In some cases where market prices are not available, we make use of observable market based inputs to calculate fair value, in which case the measurements are classified within Level 2. If quoted or observable market prices are not available, fair value is based upon valuations in which one or more significant inputs are unobservable, including internally developed models that use, where possible, current market-based parameters such as interest rates, yield curves and currency rates. These measurements are classified within Level 3.

Fair value measurements are classified according to the lowest level input or value-driver that is significant to the valuation. A measurement may therefore be classified within Level 3 even though there may be significant inputs that are readily observable.

Fair value measurement includes the consideration of nonperformance risk. Nonperformance risk refers to the risk that an obligation (either by a counterparty or Caterpillar) will not be fulfilled. For financial assets traded in an active market (Level 1 and certain Level 2), the nonperformance risk is included in the market price. For certain other financial assets and liabilities (certain Level 2 and Level 3), our fair value calculations have been adjusted accordingly.

Investments in debt and equity securities

We have investments in certain debt and equity securities, primarily at Insurance Services, that are recorded at fair value. Fair values for our U.S. treasury bonds and large capitalization value and smaller company growth equity securities are based upon valuations for identical instruments in active markets. Fair values for other government bonds, corporate bonds and mortgage-backed debt securities are based upon models that take into consideration such market-based factors as recent sales, risk-free yield curves and prices of similarly rated bonds.

In addition, Insurance Services has an equity investment in a real estate investment trust (REIT) which is recorded at fair value based on the net asset value (NAV) of the investment and is not classified within the fair value hierarchy.

See Note 11 for additional information on our investments in debt and equity securities.

Derivative financial instruments

The fair value of interest rate contracts is primarily based on models that utilize the appropriate market-based forward swap curves and zero-coupon interest rates to determine discounted cash flows.

The fair value of foreign currency and commodity forward, option and cross currency contracts is based on a valuation model that discounts cash flows resulting from the differential between the contract price and the market-based forward rate.

Assets and liabilities measured on a recurring basis at fair value, primarily related to Financial Products, included in Statement 3 as of December 31, 2019 and 2018 are summarized below:

	December 31, 2019				
(Millions of dollars)	Level 1	Level 2	Level 3	Measured at NAV	Total Assets/ Liabilities, at Fair Value
Assets					
Debt securities					
Government debt					
U.S. treasury bonds	$ 9	$ —	$ —	$ —	$ 9
Other U.S. and non-U.S. government bonds	—	54	—	—	54
Corporate bonds					
Corporate bonds	—	856	—	—	856
Asset-backed securities	—	62	—	—	62
Mortgage-backed debt securities					
U.S. governmental agency	—	331	—	—	331
Residential	—	6	—	—	6
Commercial	—	47	—	—	47
Total debt securities	9	1,356	—	—	1,365
Equity securities					
Large capitalization value	187	—	—	—	187
Smaller company growth	29	—	4	—	33
REIT	—	—	—	126	126
Total equity securities	216	—	4	126	346
Derivative financial instruments, net	—	45	—	—	45
Total Assets	$ 225	$ 1,401	$ 4	$ 126	$ 1,756

	December 31, 2018				
(Millions of dollars)	Level 1	Level 2	Level 3	Measured at NAV	Total Assets/ Liabilities, at Fair Value
Assets					
Debt securities					
Government debt					
U.S. treasury bonds	$ 9	$ —	$ —	$ —	$ 9
Other U.S. and non-U.S. government bonds	—	42	—	—	42
Corporate bonds					
Corporate bonds	—	720	—	—	720
Asset-backed securities	—	63	—	—	63
Mortgage-backed debt securities					
U.S. governmental agency	—	297	—	—	297
Residential	—	7	—	—	7
Commercial	—	13	—	—	13
Total debt securities	9	1,142	—	—	1,151
Equity securities					
Large capitalization value	260	—	—	—	260
Smaller company growth	46	—	—	—	46
REIT	—	—	—	119	119
Total equity securities	306	—	—	119	425
Total Assets	$ 315	$ 1,142	$ —	$ 119	$ 1,576
Liabilities					
Derivative financial instruments, net	$ —	$ 19	$ —	$ —	$ 19
Total Liabilities	$ —	$ 19	$ —	$ —	$ 19

In addition to the amounts above, Cat Financial impaired loans are subject to measurement at fair value on a nonrecurring basis and are classified as Level 3 measurements. A loan is considered impaired when management determines that collection of contractual amounts due is not probable. In these cases, an allowance for credit losses may be established based either 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, Cat Financial estimates the current fair market value of the collateral less selling costs. Cat Financial had impaired loans with a fair value of $343 million and $469 million for the years ended December 31, 2019 and 2018, respectively.

B. Fair values of financial instruments

In addition to the methods and assumptions we use to record the fair value of financial instruments as discussed in the Fair value measurements section above, we used the following methods and assumptions to estimate the fair value of our financial instruments:

Cash and short-term investments

Carrying amount approximated fair value.

Restricted cash and short-term investments

Carrying amount approximated fair value. Restricted cash and short-term investments are included in Prepaid expenses and other current assets in Statement 3.

Finance receivables

Fair value was estimated by discounting the future cash flows using current rates, representative of receivables with similar remaining maturities.

Wholesale inventory receivables

Fair value was estimated by discounting the future cash flows using current rates, representative of receivables with similar remaining maturities.

Short-term borrowings

Carrying amount approximated fair value.

Long-term debt

Fair value for fixed and floating rate debt was estimated based on quoted market prices.

Guarantees

The fair value of guarantees is based upon our estimate of the premium a market participant would require to issue the same guarantee in a stand-alone arms-length transaction with an unrelated party. If quoted or observable market prices are not available, fair value is based upon internally developed models that utilize current market-based assumptions.

Fair values of our financial instruments were as follows:

TABLE III—Fair Values of Financial Instruments

	2019		2018			
(Millions of dollars)	Carrying Amount	Fair Value	Carrying Amount	Fair Value	Fair Value Levels	Reference
Assets at December 31,						
Cash and short-term investments	$ 8,284	$ 8,284	$ 7,857	$ 7,857	1	Statement 3
Restricted cash and short-term investments	8	8	33	33	1	Statement 3
Investments in debt and equity securities	1,711	1,711	1,576	1,576	1, 2 & 3	Notes 11 & 19
Finance receivables–net (excluding finance leases [1])	14,473	14,613	14,714	14,798	3	Notes 7 & 19
Wholesale inventory receivables–net (excluding finance leases [1])	1,105	1,076	1,050	1,025	3	Notes 7 & 19
Foreign currency contracts–net	62	62	47	47	2	Notes 4 & 19
Commodity contracts–net	3	3	—	—	2	Notes 4 & 19
Liabilities at December 31,						
Short-term borrowings	5,166	5,166	5,723	5,723	1	Note 13
Long-term debt (including amounts due within one year):						
Machinery, Energy & Transportation	9,157	11,216	8,015	9,046	2	Note 14
Financial Products	23,334	23,655	22,815	22,684	2	Note 14
Interest rate swaps–net	20	20	36	36	2	Notes 4 & 19
Commodity contracts–net	—	—	30	30	2	Notes 4 & 19
Guarantees	5	5	8	8	3	Note 21

[1] Represents finance leases and failed sale leasebacks of $7,800 million at December 31, 2019 and finance leases of $7,463 million at December 31, 2018, respectively.

19. Concentration of credit risk

Financial instruments with potential credit risk consist primarily of trade and finance receivables and short-term and long-term investments. Additionally, to a lesser extent, we have a potential credit risk associated with counterparties to derivative contracts.

Trade receivables are primarily short-term receivables from independently owned and operated dealers and customers which arise in the normal course of business. We perform regular credit evaluations of our dealers and customers. Collateral generally is not required, and the majority of our trade receivables are unsecured. We do, however, when deemed necessary, make use of various

devices such as security agreements and letters of credit to protect our interests. No single dealer or customer represents a significant concentration of credit risk.

Finance receivables and wholesale inventory receivables primarily represent receivables under installment sales contracts, receivables arising from leasing transactions and notes receivable. We generally maintain a secured interest in the equipment financed. No single customer or dealer represents a significant concentration of credit risk.

Short-term and long-term investments are held with high quality institutions and, by policy, the amount of credit exposure to any one institution is limited. Long-term investments, primarily included in Other assets in Statement 3, are comprised primarily of available-for-sale debt securities and equity securities at Insurance Services.

For derivative contracts, collateral is generally not required of the counterparties or of our company. The company generally enters into International Swaps and Derivatives Association (ISDA) master netting agreements within ME&T and Financial Products that permit the net settlement of amounts owed under their respective derivative contracts. Our exposure to credit loss in the event of nonperformance by the counterparties is limited to only those gains that we have recorded, but for which we have not yet received cash payment. The master netting agreements reduce the amount of loss the company would incur should the counterparties fail to meet their obligations. At December 31, 2019 and 2018, the maximum exposure to credit loss was $116 million and $131 million, respectively, before the application of any master netting agreements.

Please refer to Note 18 and Table III above for fair value information.

20. Leases

A. Lessee arrangements

We lease certain property, information technology equipment, warehouse equipment, vehicles and other equipment through operating leases. We recognize a lease liability and corresponding right-of-use asset based on the present value of lease payments. To determine the present value of lease payments for most of our leases, we use our incremental borrowing rate based on information available on the lease commencement date. For certain property and information technology equipment leases, we have elected to separate payments for lease components from non-lease components. For all other leases, we have elected not to separate payments for lease and non-lease components. Our lease agreements may include options to extend or terminate the lease. When it is reasonably certain that we will exercise that option, we have included the option in the recognition of right-of-use assets and lease liabilities. We have elected not to recognize right-of-use assets or lease liabilities for leases with a term of twelve months or less.

Our finance leases are not significant and therefore are not included in the following disclosures.

The components of lease costs were as follows:

(Millions of dollars)	Year ended December 31 2019
Operating lease cost	$ 232
Short-term lease cost	$ 57

Operating lease right-of-use assets are recognized in Other assets in Statement 3. The operating lease liabilities are recognized in Other current liabilities and Other liabilities.

Supplemental information related to leases was as follows:

(Millions of dollars)	December 31, 2019	January 1, 2019
Operating Leases		
Other assets	$ 624	$ 713
Other current liabilities	$ 173	$ 209
Other liabilities	$ 461	$ 511
Weighted average remaining lease term		
Operating leases	7 years	7 years
Weighted average discount rates		
Operating leases	2%	2%

Maturities of operating lease liabilities at December 31, 2019 and minimum payments for operating leases having initial or remaining non-cancelable terms in excess of one year at December 31, 2018 were as follows:

(Millions of dollars)	December 31, 2019	
Amounts Due In		
2020	$	185
2021		139
2022		86
2023		64
2024		46
Thereafter		175
Total lease payments		695
Less: Imputed interest		(61)
Total	$	634

	December 31, 2018	
Amounts Due In		
2019	$	205
2020		154
2021		111
2022		67
2023		50
Thereafter		185
Total	$	772

Supplemental cash flow information related to leases was as follows:

	Year ended December 31	
(Millions of dollars)	2019	
Cash paid for amounts included in the measurement of lease liabilities		
Operating cash flows from operating leases	$	224
Right-of-use assets obtained in exchange for lease obligations:		
Operating leases	$	122

B. Lessor arrangements

We lease Caterpillar machinery, engines and other equipment to customers and dealers around the world, primarily through Cat Financial. Cat Financial leases to customers primarily through sales-type (non-tax) leases, where the lessee for tax purposes is considered to be the owner of the equipment during the term of the lease. Cat Financial also offers tax leases that are classified as either operating or direct 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. Our lease agreements may include options for the lessee to purchase the underlying asset at the end of the lease term for either a stated fixed price or fair market value.

The residual value of Cat Financial's leased equipment is determined based on its estimated end-of-term market value. We estimate the residual value of leased equipment at the inception of the lease based on a number of factors, including historical wholesale market sales prices, past remarketing experience and any known significant market/product trends. The following critical factors are also considered in our residual value estimates: lease term, market size and demand, total expected hours of usage, machine configuration, application, location, model changes, quantities, third-party residual guarantees and contractual customer purchase options.

During the term of our leases, we monitor residual values. For operating leases, adjustments to depreciation expense reflecting changes in residual value estimates are recorded prospectively on a straight-line basis. For finance leases, residual value adjustments are recognized through a reduction of finance revenue over the remaining lease term.

See Note 7 for contractual maturities of finance lease receivables (sales-type and direct finance leases).

The carrying amount of equipment leased to others, included in Property, plant and equipment - net in Statement 3, under operating leases was as follows:

(Millions of dollars)	December 31, 2019	December 31, 2018
Equipment leased to others - at original cost	$ 6,208	$ 6,015
Less: Accumulated depreciation	(1,960)	(1,744)
Equipment leased to others - net	$ 4,248	$ 4,271

Payments due for operating leases at December 31, 2019 and scheduled minimum rental payments for operating leases at December 31, 2018 were as follows:

December 31, 2019 (Millions of dollars)						
2020	2021	2022	2023	2024	Thereafter	Total
$ 861	$ 558	$ 299	$ 149	$ 74	$ 70	$ 2,011

December 31, 2018						
2019	2020	2021	2022	2023	Thereafter	Total
$ 896	$ 574	$ 314	$ 158	$ 71	$ 69	$ 2,082

Revenues from finance and operating leases, primarily included in Revenues of Financial Products on Statement 1, were as follows:

(Millions of dollars)	Year ended December 31 2019
Finance lease revenue	$ 521
Operating lease revenue	1,248
Total	$ 1,769

Revenues are presented net of sales and other related taxes.

21. Guarantees and product warranty

Caterpillar dealer performance guarantees

We have provided an indemnity to a third-party insurance company for potential losses related to performance bonds issued on behalf of Caterpillar dealers. The bonds have varying terms and are issued to insure governmental agencies against nonperformance by certain dealers. We also provided guarantees to third-parties related to the performance of contractual obligations by certain Caterpillar dealers. These guarantees have varying terms and cover potential financial losses incurred by the third parties resulting from the dealers' nonperformance.

In 2016, we provided a guarantee to an end user related to the performance of contractual obligations by a Caterpillar dealer. Under the guarantee, which expires in 2025, non-performance by the Caterpillar dealer could require Caterpillar to satisfy the contractual obligations by providing goods, services or financial compensation to the end user up to an annual designated cap.

Supplier consortium performance guarantees

We have provided guarantees to a customer in Brazil and a customer in Europe related to the performance of contractual obligations by supplier consortiums to which our Caterpillar subsidiaries are members. The guarantees cover potential damages incurred by the customers resulting from the supplier consortiums' non-performance. The damages are capped except for failure of the consortiums to meet certain obligations outlined in the contract in the normal course of business. The guarantee for the customer in Europe will expire when the supplier consortium performs all of its contractual obligations, which are expected to be completed in 2022. The agreement with the customer in Brazil was terminated during second quarter of 2019. No payments were made under the guarantee.

We have dealer performance guarantees and third-party performance guarantees that do not limit potential payment to end users related to indemnities and other commercial contractual obligations. In addition, we have entered into contracts involving industry standard indemnifications that do not limit potential payment. For these unlimited guarantees, we are unable to estimate a maximum potential amount of future payments that could result from claims made.

No significant loss has been experienced or is anticipated under any of these guarantees. At December 31, 2019 and 2018, the related recorded liability was $5 million and $8 million, respectively. The maximum potential amount of future payments (undiscounted and without reduction for any amounts that may possibly be recovered under recourse or collateralized provisions) we could be required to make under the guarantees at December 31 are as follows:

(Millions of dollars)		2019		2018
Caterpillar dealer performance guarantees	$	**1,150**	$	1,244
Supplier consortium performance guarantees		**238**		527
Other guarantees		**221**		207
Total guarantees	$	**1,609**	$	1,978

Cat Financial provides guarantees to repurchase certain loans of Caterpillar dealers from a special-purpose corporation (SPC) that qualifies as a variable interest entity. The purpose of the SPC is to provide short-term working capital loans to Caterpillar dealers. This SPC issues commercial paper and uses the proceeds to fund its loan program. Cat Financial has a loan purchase agreement with the SPC that obligates Cat Financial to purchase certain loans that are not paid at maturity. Cat Financial receives a fee for providing this guarantee, which provides a source of liquidity for the SPC. Cat Financial is the primary beneficiary of the SPC as its guarantees result in Cat Financial having both the power to direct the activities that most significantly impact the SPC's economic performance and the obligation to absorb losses, and therefore Cat Financial has consolidated the financial statements of the SPC. As of December 31, 2019 and 2018, the SPC's assets of $1,453 million and $1,149 million, respectively, were primarily comprised of loans to dealers, and the SPC's liabilities of $1,452 million and $1,148 million, respectively, were primarily comprised of commercial paper. The assets of the SPC are not available to pay Cat Financial's creditors. Cat Financial may be obligated to perform under the guarantee if the SPC experiences losses. No loss has been experienced or is anticipated under this loan purchase agreement.

Cat Financial has commitments to extend credit to customers and Caterpillar dealers through lines of credit and other pre-approved credit arrangements. Cat Financial applies the same credit policies and approval process for these commitments to extend credit as we do for other financing. Collateral is not required for these commitments, but if credit is extended, collateral may be required upon funding. The amount of unused commitments to extend credit to Caterpillar dealers was $11,154 million at December 31, 2019. The amount of unused commitments to extend credit to customers was $693 million at December 31, 2019. A significant portion of these commitments is not expected to be fully drawn upon; therefore, the total commitment amounts do not represent a future cash requirement. Cat Financial generally has the right to unconditionally cancel, alter, or amend the terms of these commitments at any time.

Our product 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.

(Millions of dollars)		2019		2018
Warranty liability, January 1	$	**1,391**	$	1,419
Reduction in liability (payments)		**(903)**		(783)
Increase in liability (new warranties)		**1,053**		755
Warranty liability, December 31	$	**1,541**	$	1,391

22. 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 27, 2020, the Brazilian Federal Environmental Agency ("IBAMA") issued Caterpillar Brasil Ltda a notice of violation regarding allegations around the requirements for use of imported oils at the Piracicaba, Brazil facility. We have instituted processes to address the allegations. While we are still discussing resolution of these allegations with IBAMA, the initial notice from IBAMA included a proposed fine of approximately $370,000. We do not expect this fine or our response to address the allegations to have a material adverse effect on the Company's consolidated results of operations, financial position or liquidity.

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 (CSARL) 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 CSARL, 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 (CBL). 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 one current employee of MGE and two former employees of MGE involving the same conduct alleged by CADE. On July 8, 2019, CADE found MGE, one of its current employees and two of its former employees liable for anticompetitive conduct. CBL was dismissed from the proceeding without any finding of liability. MGE intends to appeal CADE's findings. 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.

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, taxes (other than income taxes) and securities laws. The aggregate range of reasonably possible losses in excess of accrued liabilities, if any, associated with these 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.

23. Segment information

A. Basis for segment information

Our Executive Office is comprised of a Chief Executive Officer (CEO), four Group Presidents, a Chief Financial Officer (CFO), a Chief Legal Officer, General Counsel and Corporate Secretary and a Chief Human Resources Officer. The Group Presidents and CFO are accountable for a related set of end-to-end businesses that they manage. The Chief Legal Officer, General Counsel and Corporate Secretary leads the Law, Security and Public Policy Division. The Chief Human Resources Officer leads the Human Resources Organization. The CEO allocates resources and manages performance at the Group President/CFO level. As such, the CEO serves as our Chief Operating Decision Maker, and operating segments are primarily based on the Group President/CFO reporting structure.

Three of our operating segments, Construction Industries, Resource Industries and Energy & Transportation are led by Group Presidents. One operating segment, Financial Products, is led by the CFO who also has responsibility for Corporate Services. Corporate Services is a cost center primarily responsible for the performance of certain support functions globally and to provide centralized services; it does not meet the definition of an operating segment. One Group President leads one smaller operating segment that is included in the All Other operating segment. The Law, Security and Public Policy Division and the Human Resources Organization are cost centers and do not meet the definition of an operating segment.

B. Description of segments

We have five operating segments, of which four are reportable segments. Following is a brief description of our reportable segments and the business activities included in the All Other operating segment:

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 asphalt pavers; backhoe loaders; compactors; cold planers; compact track and multi-terrain loaders; mini, small, medium and large track excavators; forestry excavators; feller bunchers; harvesters; knuckleboom loaders; motor graders; pipelayers; road reclaimers; site prep tractors; skidders; skid steer loaders; telehandlers; small and medium track-type tractors; track-type loaders; utility vehicles; wheel excavators; compact, small and medium wheel loaders; and related parts and work tools. Inter-segment sales are a source of revenue for this segment.

Resource Industries: A segment primarily responsible for supporting customers using machinery in mining, heavy construction, 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; autonomous ready vehicles and solutions; 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 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. Inter-segment sales are a source of revenue for this segment.

Energy & Transportation: A segment primarily responsible for supporting customers using reciprocating engines, turbines, diesel-electric locomotives and related parts across industries serving Oil and Gas, Power Generation, Industrial 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 turbine machinery and integrated systems and solutions 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 Caterpillar 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. Inter-segment sales are a source of revenue for this segment.

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. The segment also earns revenues from ME&T, but the related costs are not allocated to operating segments.

All Other operating segment: Primarily includes activities such as: business strategy, product management and development, manufacturing and sourcing of filters and fluids, undercarriage, ground-engaging tools, fluid transfer products, precision seals, rubber sealing and connecting components primarily for Cat products; parts distribution; integrated logistics solutions, 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; and digital investments for new customer and dealer solutions that integrate data analytics with state-of-the-art digital technologies while transforming the buying experience. Results for the All Other operating segment are included as a reconciling item between reportable segments and consolidated external reporting.

C. Segment measurement and reconciliations

There are several methodology differences between our segment reporting and our external reporting. The following is a list of the more significant methodology differences:

- ME&T segment net assets generally include inventories, receivables, property, plant and equipment, goodwill, intangibles, accounts payable and customer advances. Beginning in 2019, operating lease right-of-use assets are included in segment assets. In 2018, the present value of future lease payments for certain ME&T operating leases was included in segment assets while the estimated financing component of the lease payments was excluded. Liabilities other than accounts payable and customer advances are generally managed at the corporate level and are not included in segment operations. Financial Products Segment assets generally include all categories of assets.
- Segment inventories and cost of sales are valued using a current cost methodology.
- Goodwill allocated to segments is amortized using a fixed amount based on a 20 year useful life. This methodology difference only impacts segment assets; no goodwill amortization expense is included in segment profit. In addition, only a portion of goodwill for certain acquisitions made in 2011 or later has been allocated to segments.
- Currency exposures for ME&T are generally managed at the corporate level and the effects of changes in exchange rates on results of operations within the year are not included in segment profit. The net difference created in the translation of revenues and costs between exchange rates used for U.S. GAAP reporting and exchange rates used for segment reporting is reported as a methodology difference.
- Stock-based compensation expense is not included in segment profit.
- Postretirement benefit expenses are split; segments are generally responsible for service costs, with the remaining elements of net periodic benefit cost included as a methodology difference.
- ME&T segment profit is determined on a pretax basis and excludes interest expense and most other income/expense items. Financial Products Segment profit is determined on a pretax basis and includes other income/expense items.

Reconciling items are created based on accounting differences between segment reporting and our consolidated external reporting. Please refer to pages 100 to 104 for financial information regarding significant reconciling items. Most of our reconciling items are self-explanatory given the above explanations. For the reconciliation of profit, we have grouped the reconciling items as follows:

- **Corporate costs:** These costs are related to corporate requirements primarily for compliance and legal functions for the benefit of the entire organization.
- **Restructuring costs:** May include costs for employee separation, long-lived asset impairments and contract terminations. These costs are included in Other operating (income) expenses except for defined-benefit plan curtailment losses and special termination benefits, which are included in Other income (expense). Restructuring costs also include other exit-related costs which may consist of accelerated depreciation, inventory write-downs, building demolition, equipment relocation and project management costs and LIFO inventory decrement benefits from inventory liquidations at closed facilities, all of which are primarily included in Cost of goods sold. Beginning in 2019, only certain restructuring costs are excluded from segment profit. A table, Reconciliation of Restructuring costs on page 102, has been included to illustrate how segment profit would have been impacted by the restructuring costs. See Note 25 for more information.
- **Methodology differences:** See previous discussion of significant accounting differences between segment reporting and consolidated external reporting.
- **Timing:** Timing differences in the recognition of costs between segment reporting and consolidated external reporting. For example, certain costs are reported on the cash basis for segment reporting and the accrual basis for consolidated external reporting.

Segment Information

Reportable Segments:

(Millions of dollars)	External sales and revenues	Inter-segment sales and revenues	Total sales and revenues	Depreciation and amortization	Segment profit	Segment assets at December 31	Capital expenditures
2019							
Construction Industries	**$ 22,556**	**$ 93**	**$ 22,649**	**$ 331**	**$ 3,931**	**$ 5,219**	**$ 201**
Resource Industries	**9,813**	**463**	**10,276**	**425**	**1,629**	**6,214**	**168**
Energy & Transportation	**18,485**	**3,612**	**22,097**	**628**	**3,910**	**8,612**	**613**
Machinery, Energy & Transportation	**$ 50,854**	**$ 4,168**	**$ 55,022**	**$ 1,384**	**$ 9,470**	**$ 20,045**	**$ 982**
Financial Products Segment	**3,434** [1]	**—**	**3,434**	**829**	**832**	**35,813**	**1,534**
Total	**$ 54,288**	**$ 4,168**	**$ 58,456**	**$ 2,213**	**$ 10,302**	**$ 55,858**	**$ 2,516**
2018							
Construction Industries	$ 23,116	$ 121	$ 23,237	$ 367	$ 4,174	$ 4,902	$ 266
Resource Industries	9,888	382	10,270	462	1,603	6,442	188
Energy & Transportation	18,832	3,953	22,785	640	3,938	8,386	742
Machinery, Energy & Transportation	$ 51,836	$ 4,456	$ 56,292	$ 1,469	$ 9,715	$ 19,730	$ 1,196
Financial Products Segment	3,279 [1]	—	3,279	834	505	36,002	1,559
Total	$ 55,115	$ 4,456	$ 59,571	$ 2,303	$ 10,220	$ 55,732	$ 2,755
2017							
Construction Industries	$ 19,133	$ 107	$ 19,240	$ 400	$ 3,255	$ 4,838	$ 228
Resource Industries	7,504	357	7,861	514	698	6,403	183
Energy & Transportation	15,964	3,418	19,382	653	2,856	7,564	527
Machinery, Energy & Transportation	$ 42,601	$ 3,882	$ 46,483	$ 1,567	$ 6,809	$ 18,805	$ 938
Financial Products Segment	3,093 [1]	—	3,093	820	792	34,893	1,373
Total	$ 45,694	$ 3,882	$ 49,576	$ 2,387	$ 7,601	$ 53,698	$ 2,311

[1] Includes revenues from ME&T of $524 million, $470 million and $384 million for the years 2019, 2018 and 2017, respectively.

For the years ended December 31, 2019 and 2018, sales and revenues by geographic region reconciled to consolidated sales and revenues were as follows:

Sales and Revenues by Geographic Region

(Millions of dollars)	North America	Latin America	EAME	Asia/ Pacific	External Sales and Revenues
2019					
Construction Industries	**$ 11,455**	**$ 1,533**	**$ 4,012**	**$ 5,556**	**$ 22,556**
Resource Industries	**3,632**	**1,533**	**1,836**	**2,812**	**$ 9,813**
Energy & Transportation	**8,864**	**1,389**	**4,994**	**3,238**	**$ 18,485**
All Other operating segment	**25**	**7**	**28**	**67**	**$ 127**
Corporate Items and Eliminations	**(192)**	**—**	**(20)**	**(14)**	**(226)**
Machinery, Energy & Transportation Sales	**23,784**	**4,462**	**10,850**	**11,659**	**$ 50,755**
Financial Products Segment	**2,235**	**299**	**408**	**492**	**3,434** [1]
Corporate Items and Eliminations	**(234)**	**(51)**	**(35)**	**(69)**	**(389)**
Financial Products Revenues	**2,001**	**248**	**373**	**423**	**3,045**
Consolidated Sales and Revenues	**$ 25,785**	**$ 4,710**	**$ 11,223**	**$ 12,082**	**$ 53,800**

	North America	Latin America	EAME	Asia/ Pacific	External Sales and Revenues
2018					
Construction Industries	$ 10,754	$ 1,479	$ 4,410	$ 6,473	$ 23,116
Resource Industries	3,357	1,647	2,217	2,667	$ 9,888
Energy & Transportation	9,685	1,331	4,934	2,882	$ 18,832
All Other operating segment	63	3	18	70	$ 154
Corporate Items and Eliminations	(155)	—	(11)	(2)	(168)
Machinery, Energy & Transportation Sales	23,704	4,460	11,568	12,090	$ 51,822
Financial Products Segment	2,153	281	387	458	3,279 [1]
Corporate Items and Eliminations	(234)	(46)	(26)	(73)	(379)
Financial Products Revenues	1,919	235	361	385	2,900
Consolidated Sales and Revenues	$ 25,623	$ 4,695	$ 11,929	$ 12,475	$ 54,722

[1] Includes revenues from ME&T of $524 million and $470 million in the years ended December 31, 2019 and 2018, respectively.

Reconciliation of Sales and Revenues:

(Millions of dollars)	Machinery, Energy & Transportation	Financial Products	Consolidating Adjustments	Consolidated Total
2017				
Total external sales and revenues from reportable segments	$ 42,601	$ 3,093	$ —	$ 45,694
All Other operating segment	178	—	—	178
Other	(103)	74	(381) [1]	(410)
Total sales and revenues	$ 42,676	$ 3,167	$ (381)	$ 45,462

[1] Elimination of Financial Products revenues from ME&T.

For the years ended December 31, 2019 and 2018, Energy & Transportation segment sales by end user application were as follows:

Energy & Transportation External Sales

(Millions of dollars)	2019	2018
Oil and gas	**$ 5,205**	$ 5,763
Power generation	**4,474**	4,334
Industrial	**3,749**	3,640
Transportation	**5,057**	5,095
Energy & Transportation External Sales	**$ 18,485**	$ 18,832

Reconciliation of consolidated profit before taxes:

(Millions of dollars)	Machinery, Energy & Transportation	Financial Products	Consolidated Total
2019			
Total profit from reportable segments	**$ 9,470**	**$ 832**	**$ 10,302**
All Other operating segment	**4**	**—**	**4**
Cost centers	**(6)**	**—**	**(6)**
Corporate costs	**(602)**	**(5)**	**(607)**
Timing	**(93)**	**—**	**(93)**
Restructuring costs	**(163)**	**(44)**	**(207)**
Methodology differences:			
Inventory/cost of sales	**(19)**	**—**	**(19)**
Postretirement benefit expense	**(401)**	**—**	**(401)**
Stock-based compensation expense	**(198)**	**(7)**	**(205)**
Financing costs	**(248)**	**—**	**(248)**
Currency	**(175)**	**—**	**(175)**
Other income/expense methodology differences	**(481)**	**—**	**(481)**
Other methodology differences	**(107)**	**55**	**(52)**
Total consolidated profit before taxes	**$ 6,981**	**$ 831**	**$ 7,812**
2018			
Total profit from reportable segments	$ 9,715	$ 505	$ 10,220
All Other operating segment	23	—	23
Cost centers	2	—	2
Corporate costs	(610)	—	(610)
Timing	(257)	—	(257)
Restructuring costs	(370)	(16)	(386)
Methodology differences:			
Inventory/cost of sales	51	—	51
Postretirement benefit expense	(124)	—	(124)
Stock-based compensation expense	(190)	(8)	(198)
Financing costs	(257)	—	(257)
Currency	(219)	—	(219)
Other income/expense methodology differences	(362)	—	(362)
Other methodology differences	(86)	25	(61)
Total consolidated profit before taxes	$ 7,316	$ 506	$ 7,822
2017			
Total profit from reportable segments	$ 6,809	$ 792	$ 7,601
All Other operating segment	(44)	—	(44)
Cost centers	22	—	22
Corporate costs	(633)	—	(633)
Timing	(151)	—	(151)
Restructuring costs	(1,253)	(3)	(1,256)
Methodology differences:			
Inventory/cost of sales	(77)	—	(77)
Postretirement benefit expense	(141)	—	(141)
Stock-based compensation expense	(198)	(8)	(206)
Financing costs	(524)	—	(524)
Currency	(218)	—	(218)
Other income/expense methodology differences	(181)	—	(181)
Other methodology differences	(97)	(13)	(110)
Total consolidated profit before taxes	$ 3,314	$ 768	$ 4,082

Reconciliation of Restructuring costs:

As noted above, certain restructuring costs are a reconciling item between Segment profit and Consolidated profit before taxes. Had we included the amounts in the segments' results, the profit would have been as shown below:

Reconciliation of Restructuring costs:

(Millions of dollars)	Segment profit (loss)	Restructuring costs	Segment profit (loss) with restructuring costs
2019			
Construction Industries	**$ 3,931**	**$ (55)**	**$ 3,876**
Resource Industries	**1,629**	**(56)**	**1,573**
Energy & Transportation	**3,910**	**(82)**	**3,828**
Financial Products Segment	**832**	**—**	**832**
All Other operating segment	**4**	**(11)**	**(7)**
Total	**$ 10,306**	**$ (204)**	**$ 10,102**
2018			
Construction Industries	$ 4,174	$ (58)	$ 4,116
Resource Industries	1,603	(191)	1,412
Energy & Transportation	3,938	(84)	3,854
Financial Products Segment	505	(2)	503
All Other operating segment	23	(40)	(17)
Total	$ 10,243	$ (375)	$ 9,868
2017			
Construction Industries	$ 3,255	$ (719)	$ 2,536
Resource Industries	698	(276)	422
Energy & Transportation	2,856	(115)	2,741
Financial Products Segment	792	(3)	789
All Other operating segment	(44)	(39)	(83)
Total	$ 7,557	$ (1,152)	$ 6,405

Reconciliation of Assets:

(Millions of dollars)	Machinery, Energy & Transportation	Financial Products	Consolidating Adjustments	Consolidated Total
2019				
Total assets from reportable segments	**$ 20,045**	**$ 35,813**	**$ —**	**$ 55,858**
All Other operating segment	**1,337**	**—**	**—**	**1,337**
Items not included in segment assets:				
Cash and short-term investments	**7,299**	**—**	**—**	**7,299**
Intercompany receivables	**758**	**—**	**(758)**	**—**
Investment in Financial Products	**4,260**	**—**	**(4,260)**	**—**
Deferred income taxes	**2,002**	**—**	**(708)**	**1,294**
Goodwill and intangible assets	**4,435**	**—**	**—**	**4,435**
Property, plant and equipment – net and other assets	**2,529**	**—**	**—**	**2,529**
Inventory methodology differences	**(2,426)**	**—**	**—**	**(2,426)**
Liabilities included in segment assets	**8,541**	**—**	**—**	**8,541**
Other	**(343)**	**134**	**(205)**	**(414)**
Total assets	**$ 48,437**	**$ 35,947**	**$ (5,931)**	**$ 78,453**

Reconciliation of Assets:

(Millions of dollars)	Machinery, Energy & Transportation	Financial Products	Consolidating Adjustments	Consolidated Total
2018				
Total assets from reportable segments	$ 19,730	$ 36,002	$ —	$ 55,732
All Other operating segment	1,279	—	—	1,279
Items not included in segment assets:				
Cash and short-term investments	6,968	—	—	6,968
Intercompany receivables	1,633	—	(1,633)	—
Investment in Financial Products	3,672	—	(3,672)	—
Deferred income taxes	2,015	—	(692)	1,323
Goodwill and intangible assets	4,279	—	—	4,279
Property, plant and equipment – net and other assets	1,802	—	—	1,802
Inventory methodology differences	(2,503)	—	—	(2,503)
Liabilities included in segment assets	9,766	—	—	9,766
Other	(166)	66	(37)	(137)
Total assets	$ 48,475	$ 36,068	$ (6,034)	$ 78,509

Reconciliation of Depreciation and amortization:

(Millions of dollars)	Machinery, Energy & Transportation	Financial Products	Consolidated Total
2019			
Total depreciation and amortization from reportable segments	**$ 1,384**	**$ 829**	**$ 2,213**
Items not included in segment depreciation and amortization:			
All Other operating segment	**210**	**—**	**210**
Cost centers	**136**	**—**	**136**
Other	**(17)**	**35**	**18**
Total depreciation and amortization	**$ 1,713**	**$ 864**	**$ 2,577**
2018			
Total depreciation and amortization from reportable segments	$ 1,469	$ 834	$ 2,303
Items not included in segment depreciation and amortization:			
All Other operating segment	225	—	225
Cost centers	130	—	130
Other	71	37	108
Total depreciation and amortization	$ 1,895	$ 871	$ 2,766
2017			
Total depreciation and amortization from reportable segments	$ 1,567	$ 820	$ 2,387
Items not included in segment depreciation and amortization:			
All Other operating segment	220	—	220
Cost centers	143	—	143
Other	86	41	127
Total depreciation and amortization	$ 2,016	$ 861	$ 2,877

Reconciliation of Capital expenditures:

(Millions of dollars)		Machinery, Energy & Transportation		Financial Products		Consolidating Adjustments		Consolidated Total
2019								
Total capital expenditures from reportable segments	$	**982**	$	**1,534**	$	**—**	$	**2,516**
Items not included in segment capital expenditures:								
All Other operating segment		**131**		**—**		**—**		**131**
Cost centers		**101**		**—**		**—**		**101**
Timing		**(11)**		**—**		**—**		**(11)**
Other		**(129)**		**102**		**(41)**		**(68)**
Total capital expenditures	$	**1,074**	$	**1,636**	$	**(41)**	$	**2,669**
2018								
Total capital expenditures from reportable segments	$	1,196	$	1,559	$	—	$	2,755
Items not included in segment capital expenditures:								
All Other operating segment		170		—		—		170
Cost centers		100		—		—		100
Timing		42		—		—		42
Other		(287)		216		(80)		(151)
Total capital expenditures	$	1,221	$	1,775	$	(80)	$	2,916
2017								
Total capital expenditures from reportable segments	$	938	$	1,373	$	—	$	2,311
Items not included in segment capital expenditures:								
All Other operating segment		134		—		—		134
Cost centers		84		—		—		84
Timing		(96)		—		—		(96)
Other		(144)		80		(33)		(97)
Total capital expenditures	$	916	$	1,453	$	(33)	$	2,336

Enterprise-wide Disclosures:

Information about Geographic Areas:

	External sales and revenues [1]						Property, plant and equipment – net December 31,		
(Millions of dollars)		2019		2018		2017		2019		2018
Inside United States	$	**22,806**	$	22,690	$	18,552	$	**7,568**	$	8,152
Outside United States		**30,994**		32,032		26,910		**5,336**		5,422
Total	$	**53,800**	$	54,722	$	45,462	$	**12,904**	$	13,574

[1] Sales of ME&T are based on dealer or customer location. Revenues from services provided are based on where service is rendered.

24. Acquisitions

ECM S.p.A.

On January 2, 2018, we acquired 100 percent of the equity in privately held ECM S.p.A. (ECM). Headquartered in Pistoia, Italy, ECM designs, manufactures, sells and services advanced signal systems for the rail industry. The ECM acquisition was executed to expand our presence in the international freight and transit industries through a combination of broad product offerings and strong reputation in the signaling market. The purchase price for the acquisition was $225 million, consisting of $249 million paid at closing, net of $25 million of cash acquired and $1 million of debt assumed.

The transaction was financed with available cash. Tangible assets as of the acquisition date were $109 million, recorded at their fair values, and primarily included cash of $25 million, receivables of $28 million, inventories of $29 million, and property, plant and equipment of $17 million. Finite-lived intangible assets acquired of $112 million included customer relationships, developed technology and trade names. The finite lived intangible assets are being amortized on a straight-line basis over a weighted-average amortization period of approximately 13 years. Liabilities assumed as of the acquisition date were $79 million, recorded at their fair values, and primarily included accounts payable of $38 million and net deferred tax liabilities of $29 million. Goodwill of $109 million, non-deductible for income tax purposes, represented the excess of the consideration transferred over the net assets recognized and

represented the estimated future economic benefits arising from other assets acquired that could not be individually identified and separately recognized. Factors that contributed to a purchase price resulting in the recognition of goodwill include ECM's strategic fit into our rail product portfolio, the opportunity to provide a complete line-up of signaling and train control systems and the acquired assembled workforce. The results of the acquired business for the period from the acquisition date are included in the accompanying consolidated financial statements and reported in the Energy & Transportation segment in Note 23. Assuming this transaction had been made at the beginning of any period presented, the consolidated pro forma results would not be materially different from reported results.

Downer Freight Rail

On January 2, 2018, we completed the acquisition of certain assets and liabilities of the Downer Freight Rail business (Downer Freight Rail). Headquartered in North Ryde, Australia, Downer Freight Rail provides a full suite of rolling stock, aftermarket parts and services throughout Australia. The acquisition was executed to strengthen our existing Rail footprint in Australia, which currently includes rolling stock maintenance facilities, as well as infrastructure and signaling facilities. The purchase price for the acquisition was $97 million.

The transaction was financed with available cash. Tangible assets as of the acquisition date were $86 million, recorded at their fair values, and primarily included receivables of $23 million, inventories of $40 million, and property, plant and equipment of $15 million. Finite-lived customer relationship intangible assets acquired were $6 million. The finite lived intangible assets are being amortized on a straight-line basis over an amortization period of 15 years. Liabilities assumed as of the acquisition date were $14 million, which represented their fair values. Goodwill of $18 million, not expected to be deducted for income tax purposes, represented the excess of the consideration transferred over the net assets recognized and represented the estimated future economic benefits arising from other assets acquired that could not be individually identified and separately recognized. Factors that contributed to a purchase price resulting in the recognition of goodwill include Downer Freight Rail's strategic fit into our rail product portfolio, the opportunity to expand our aftermarket parts and maintenance service portfolio in Australia and the acquired assembled workforce. The results of the acquired business for the period from the acquisition date are included in the accompanying consolidated financial statements and reported in the Energy & Transportation segment in Note 23. Assuming this transaction had been made at the beginning of any period presented, the consolidated pro forma results would not be materially different from reported results.

25. Restructuring costs

Our accounting for employee separations is dependent upon how the particular program is designed. For voluntary programs, eligible separation costs are recognized at the time of employee acceptance unless the acceptance requires explicit approval by the company. For involuntary programs, eligible costs are recognized when management has approved the program, the affected employees have been properly notified and the costs are estimable.

Restructuring costs for 2019, 2018 and 2017 were as follows:

(Millions of dollars)	2019	2018	2017
Employee separations [1]	**$ 48**	$ 112	$ 525
Contract terminations [1]	**1**	7	183
Long-lived asset impairments [1]	**65**	93	346
Defined benefit plan curtailments and termination benefits [2]	**—**	(8)	29
Other [3]	**122**	182	173
Total restructuring costs	**$ 236**	$ 386	$ 1,256

[1] Recognized in Other operating (income) expenses.

[2] Recognized in Other income (expense).

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

The restructuring costs in 2019 were primarily related to restructuring actions across the company. The restructuring costs in 2018 were primarily related to ongoing facility closures across the company. 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.

Certain restructuring costs are a reconciling item between Segment profit and Consolidated profit before taxes. See Note 23 for more information.

The following table summarizes the 2018 and 2019 employee separation activity:

(Millions of dollars)	
Liability balance at December 31, 2017	$ 249
Increase in liability (separation charges)	112
Reduction in liability (payments)	(276)
Liability balance at December 31, 2018	$ 85
Increase in liability (separation charges)	**48**
Reduction in liability (payments)	**(85)**
Liability balance at December 31, 2019	**$ 48**

Most of the remaining liability balance as of December 31, 2019 is expected to be paid in 2020.

In March 2017, Caterpillar informed Belgian authorities of the decision to proceed to a collective dismissal, which led 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 were phased out by the end of the second quarter of 2018. The program concluded in 2018, and we incurred a total of $647 million of restructuring costs (primarily in 2017) under the program. Those costs were primarily related to employee separation costs, long-lived asset impairments, and other costs which were partially offset by a LIFO inventory decrement benefit.

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 United States, additional involuntary programs throughout the company and manufacturing facility consolidations and closures. 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 $43 million, $121 million and $817 million of restructuring costs associated with these actions in 2019, 2018 and 2017, respectively. The Plan concluded in 2019, and total restructuring costs incurred since inception of the Plan were $1,831 million.

26. Selected quarterly financial results (unaudited)

	2019 Quarter			
(Dollars in millions except per share data)	**1st**	**2nd**	**3rd**	**4th**
Sales and revenues	**$ 13,466**	**$ 14,432**	**$ 12,758**	**$ 13,144**
Less: Revenues	**(742)**	**(761)**	**(784)**	**(758)**
Sales	**12,724**	**13,671**	**11,974**	**12,386**
Cost of goods sold	**9,003**	**9,941**	**8,569**	**9,117**
Gross margin	**3,721**	**3,730**	**3,405**	**3,269**
Profit [1]	**$ 1,881** [3]	**$ 1,620**	**$ 1,494**	**$ 1,098** [5]
Profit per common share	**$ 3.29**	**$ 2.85**	**$ 2.69**	**$ 2.00**
Profit per common share–diluted [2]	**$ 3.25**	**$ 2.83**	**$ 2.66**	**$ 1.97**

	2018 Quarter			
(Dollars in millions except per share data)	1st	2nd	3rd	4th
Sales and revenues	$ 12,859	$ 14,011	$ 13,510	$ 14,342
Less: Revenues	(709)	(732)	(747)	(712)
Sales	12,150	13,279	12,763	13,630
Cost of goods sold	8,566	9,422	9,022	9,987
Gross margin	3,584	3,857	3,741	3,643
Profit [1]	$ 1,665	$ 1,707	$ 1,727 [4]	$ 1,048 [3,5,6]
Profit per common share	$ 2.78	$ 2.86	$ 2.92	$ 1.80
Profit per common share–diluted [2]	$ 2.74	$ 2.82	$ 2.88	$ 1.78

1 Profit attributable to common shareholders.

2 Diluted by assumed exercise of stock-based compensation awards using the treasury stock method.

3 The first quarter of 2019 includes a benefit of $178 million to adjust unrecognized tax benefits due to the receipt of final regulations providing additional guidance related to the calculation of the mandatory deemed repatriation of non-U.S. earnings due to U.S. tax reform. The fourth quarter of 2018 includes a charge of $50 million due to an estimated increase in the mandatory deemed repatriation of non-U.S. earnings.

4 The third quarter of 2018 includes a benefit of $154 million due to the revised estimated impact of the write-down of U.S. net deferred tax assets to reflect the reduction in the U.S. corporate tax rate from 35 percent to 21 percent. The third quarter of 2018 also includes a charge of $59 million to increase the valuation allowance against deferred tax assets for prior years. See Note 6 for additional details.

5 The fourth quarter of 2019 and fourth quarter of 2018 include pre-tax pension and other postretirement benefit plan actuarial losses of $468 million and $495 million, respectively. See Note 12 for additional information on these costs.

6 The fourth quarter of 2018 includes a benefit of $63 million from reductions in the valuation allowance against U.S. state deferred tax assets. See Note 6 for additional information.

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.

Not Applicable.

ITEM 9A. Controls and Procedures.

Disclosure Controls and Procedures

An evaluation was performed under the supervision and with the participation of the company's management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), of the effectiveness of the design and operation of the company's disclosure controls and procedures, as that term is defined in Rule 13a-15(e) under the Exchange Act, as of the end of the period covered by this annual report. Based on that evaluation, the CEO and CFO concluded that the company's disclosure controls and procedures were effective as of the end of the period covered by this annual report.

Management's Report on Internal Control Over Financial Reporting

Management's report on the company's internal control over financial reporting as of December 31, 2019 is included on page 49 of Part II, Item 8 "Financial Statements and Supplementary Data." The effectiveness of the company's internal control over financial reporting as of December 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm. Their report appears on pages 50-51 of Part II, Item 8 "Financial Statements and Supplementary Data."

Changes in Internal Control over Financial Reporting

During the last fiscal quarter, there has been no significant change in the company's internal control over financial reporting that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting.

ITEM 9B. Other Information.

Not Applicable.

PART III

ITEM 10. Directors, Executive Officers and Corporate Governance.

Identification of Directors and Business Experience

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

Identification of Executive Officers and Business Experience

Information required by this Item appears in Item 1C of this Form 10-K.

Family Relationships

There are no family relationships between the officers and directors of the company.

Legal Proceedings Involving Officers and Directors

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

Audit Committee Financial Expert

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

Identification of Audit Committee

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

Shareholder Recommendation of Board Nominees

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

Compliance with Section 16(a) of the Exchange Act

If applicable, information required by this Item relating to compliance with Section 16(a) of the Exchange Act is incorporated by reference from the 2020 Proxy Statement.

Code of Ethics

Our Worldwide Code of Conduct (Code), first published in 1974 and most recently updated in 2015, sets a high standard for honesty and ethical behavior by every director and employee, including the principal executive officer, principal financial officer and principal accounting officer. The Code is posted on our website at www.Caterpillar.com/code. To obtain a copy of the Code at no charge, submit a written request to the Corporate Secretary at 510 Lake Cook Road, Suite 100, Deerfield, IL 60015-4971. We post on our website at www.Caterpillar.com/code any required amendments to or waivers granted under our Code pursuant to SEC or New York Stock Exchange disclosure rules.

ITEM 11. Executive Compensation.

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

Information required by this Item relating to security ownership of certain beneficial owners and management is incorporated by reference from the 2020 Proxy Statement.

Information required by this Item relating to securities authorized for issuance under equity compensation plans is included in the following table:

Equity Compensation Plan Information (as of December 31, 2019)

Plan category	(a) Number of securities to be issued upon exercise of outstanding options, warrants and rights	(b) Weighted-average exercise price of outstanding options, warrants and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	17,467,057	$ 99.29	40,754,720
Equity compensation plans not approved by security holders	N/A	N/A	N/A
Total	17,467,057	$ 99.29	40,754,720

ITEM 13. Certain Relationships and Related Transactions, and Director Independence.

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

ITEM 14. Principal Accountant Fees and Services.

Information required by this Item is incorporated by reference from the 2020 Proxy Statement.

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In 2019, Caterpillar introduced advanced technology and new products to help our customers get their jobs done. Learn more about some of our most ground-breaking stories.

Partnering With Dealers to Deliver Innovative Services
We're introducing new ways to support dealers in helping their customers increase productivity and lower owning and operating costs.

Creating Value, Anywhere and Everywhere
Over time and throughout the ownership experience, customers are discovering the superior value of choosing Caterpillar.

Caterpillar's Digital Strategy
Learn how we're applying decades of machine expertise to offer innovative digital solutions for our customers.

Autonomous Solutions in Action
Caterpillar has more than double the autonomous driving experience of any automotive manufacturer. See how we're putting that knowledge to work.

Digging Deep to Meet Mining Customers' Needs
The latest 6060 hydraulic mining shovel was built to meet customer needs for durability, reliability and performance.

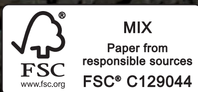
The Right Solution for Every Customer Need
An expanding product line is helping grow our business and reach new customers around the world.

Powering the World When It Matters Most
Hospitals and data centers have no margin for error when it comes to backup power – here's how we keep them running.

Technology That Keeps Operators Alert – and Alive
Cat® Detect technologies ensure operators remain focused on their surroundings, keeping everyone on the job site safer.

Manufacturing Smarter, Not Harder
By applying Lean, a facility consolidated two assembly lines into one and assembled more components in less time.

Remanufacturing: It's Bigger Than You Think
Reducing, reusing and recycling materials once destined for a landfill benefits customers, our company and the environment.



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