CANON ANNUAL REPORT 2019

Fiscal Year Ended December 31, 2019

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Cover Photo:

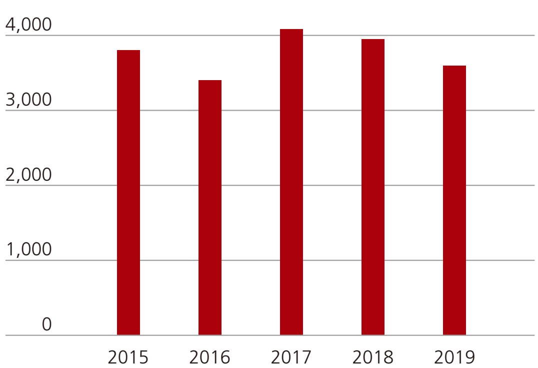
Canon Medical's Health Care IT Platform Abierto is installed at Hokkaido University Hospital. The platform allows to integrate various information of a patient such as patient's history and checkup result and supports the decision of an appropriate course of treatment.

FINANCIAL HIGHLIGHTS

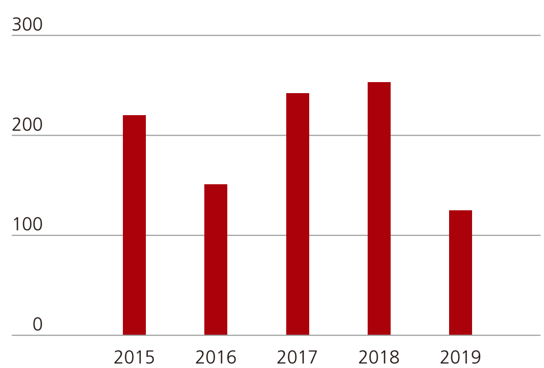
	Millions of yen (except per share amounts)			Thousands of U.S. dollars (except per share amounts)
	2019	2018	**Change (%)**	**2019**
Net sales	**¥ 3,593,299**	¥ 3,951,937	**-9.1**	**$ 32,666,355**
Operating profit	**174,667**	342,952	**-49.1**	**1,587,882**
Income before income taxes	**195,740**	362,892	**-46.1**	**1,779,455**
Net income attributable to Canon Inc.	**125,105**	252,755	**-50.5**	**1,137,318**
Net income attributable to Canon Inc. shareholders per share:				
—Basic	**¥ 116.93**	¥ 234.09	**-50.0**	**$ 1.06**
—Diluted	**116.91**	234.08	**-50.1**	**1.06**
Total assets	**¥ 4,768,351**	¥ 4,899,465	**-2.7**	**$ 43,348,645**
Canon Inc. shareholders' equity	**¥ 2,692,595**	¥ 2,827,602	**-4.8**	**$ 24,478,136**

Notes:
1. Canon's consolidated financial statements are prepared in accordance with U.S. generally accepted accounting principles.
2. U.S. dollar amounts are translated from yen at the rate of JPY110=U.S.$1, the approximate exchange rate on the Tokyo Foreign Exchange Market as of December 30, 2019, solely for the convenience of the reader.

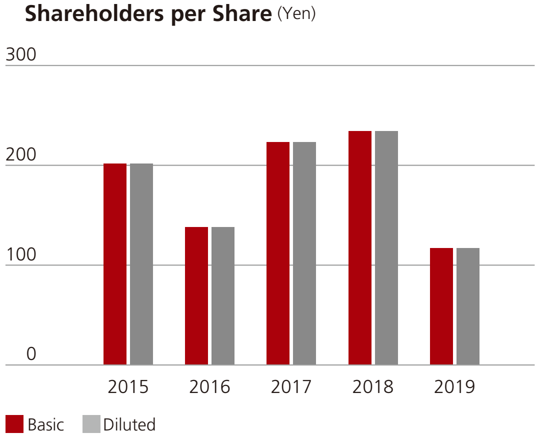
Net Sales (Billions of yen)



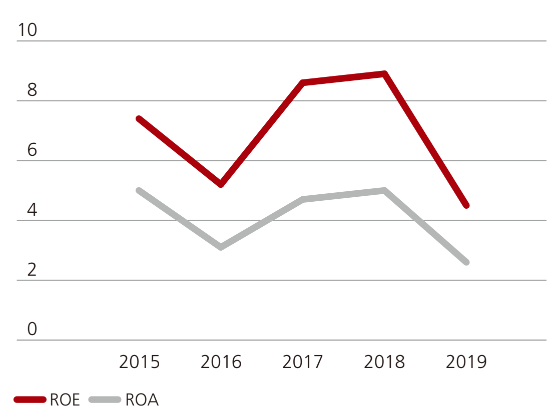
Net Income Attributable to Canon Inc. (Billions of yen)



Net Income Attributable to Canon Inc. Shareholders per Share (Yen)



ROE/ROA (%)



TO OUR SHAREHOLDERS

Canon will further promote a grand strategic transformation by accelerating reforms.

FUJIO MITARAI
Chairman & CEO
Canon Inc.

Performance in 2019

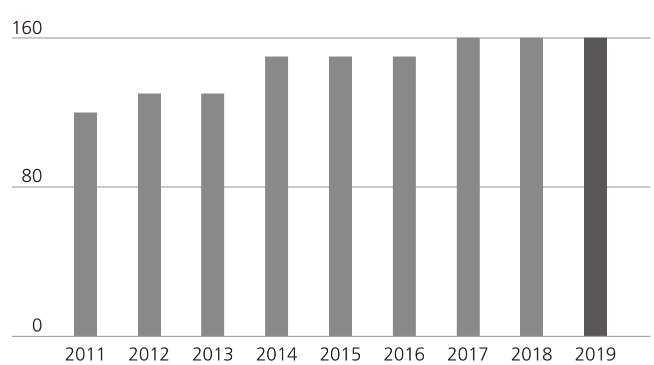
Even though a gradual recovery was maintained in the US, the global economy in 2019 slowed overall as economic activity receded in China owing to the prolonged US-China trade friction, while economic recoveries in Europe and Japan struggled to gain any real momentum.

Against this backdrop, Canon strived to improve earnings by pursuing efficiency in all areas of business, from R&D through to production and the launch and sales of new products and services under a new business portfolio that complements our traditional core businesses of office equipment and cameras with four new businesses: commercial printing, network cameras, medical and industrial equipment.

In the Office Business Unit, unit sales of office multifunction devices (MFDs) were flat year on year. Sales were brisk for color models thanks mainly to the favorable reception of new products that offer considerably stronger security features, but declined for monochrome models. Despite strong sales of new laser printer products that achieve low power consumption, compact body designs and high productivity, sales overall decreased mainly because of weaker sales of low-speed machines in China where economic growth continues to stagnate. In the Imaging System Business Unit, the digital camera market for mainly entry-class models continued to shrink and we saw a decline in sales of interchangeable-lens digital cameras. And despite efforts to expand our lineup of large-format inkjet printers and consumer products, sales of inkjet printers decreased as the consumer market continued to contract. In the Medical System Business Unit, despite signs of investments in emerging countries being pushed back due to the impact of an economic downturn, sales were boosted by the success of the various new products we've recently launched. In the Industry and Others Business Unit, investments in semiconductor lithography equipment for memory applications were subdued owing to the impact of deteriorating memory market prices. Moreover, sales fell year on year for flat-panel display (FPD) lithography equipment and organic LED (OLED) panel manufacturing equipment as a result of companies readjusting their investments in small and medium-sized panels. In contrast, sales of network cameras grew steadily, buoyed by market growth.

As a result, consolidated net sales for 2019 totaled ¥3,593.3 billion (–9.1% year on year) and the gross profit ratio was 44.8%. Operating profit came to ¥174.7 billion (–49.1% year on year), while net income attributable to Canon Inc. was ¥125.1 billion (–50.5% year on year). The full-year dividend is ¥160 per share, comprising an interim dividend of ¥80 per share and a year-end dividend of ¥80 per share.

Cash Dividend (Yen)



Excellent Global Corporation Plan

Phase I to Phase IV 1996–2015

Canon launched the Excellent Global Corporation Plan in 1996, and has strengthened its management base through each of the plan's five-year initiatives, from Phase I through Phase IV.

During Phase I, we stressed thorough cash-flow management and significantly boosted productivity through the introduction of our cell production system, along with other measures. In Phase II, we stepped up efforts to digitalize our copying machines and camera offerings, while building the foundation for a robust financial structure. During Phase III, we welcomed Canon Production Printing (formerly Océ) to the Group in 2010, formalizing our entry into the commercial printing market, which has shown to have growth potential.

As the markets for our core businesses—such as cameras and office equipment—were maturing, during Phase IV, which began in 2011, we promoted diversification via the lateral expansion of our existing businesses, such as the launch of the Cinema EOS System, while also accelerating our M&A strategy. In this manner, we set out a clear direction for shifting our focus for growth from B2C to B2B. We subsequently reinforced and expanded our rapidly growing network camera business by making Milestone Systems ("Milestone") a subsidiary in 2014, followed by Axis Communications ("Axis") in 2015. Additionally, Canon Nanotechnologies, formerly Molecular Imprints, became a subsidiary in 2014, and we are accelerating the development of next-generation semiconductor manufacturing equipment that uses nanoimprint lithography, which will make it possible to achieve both miniaturization and cost reductions for semiconductor devices.

As a manufacturer, Canon strives unceasingly to achieve production reforms and thorough cost reductions. At the same time, we stay on top of opportunities to add excellent companies to the Group, in order to shift our focus towards changing growth markets with the aim of unlocking new growth potential.

Phase I
1996–2000

To strengthen its financial structure, Canon transformed its mindset to a focus on total optimization and profitability. The Company introduced various business innovations, including the selection and consolidation of business areas, and reform activities in such areas as production and development.

Phase II
2001–2005

Aiming to become No. 1 in all major business areas, Canon focused on strengthening product competitiveness along with the changing times stepping up efforts to digitalize its products. The Company also conducted structural reforms across all Canon Group companies around the world.

Phase III
2006–2010

Canon moved ahead with such growth strategies as enhancing existing businesses and expanding into new areas while also thoroughly implementing supply chain management and IT reforms.

Phase IV
2011–2015

Responding to weakness in the global economy, Canon revised its management policy from a strategy targeting expansion of scale to a strategy aimed at further strengthening its financial structure. While actively pursuing M&A activities, the Company restructured its business at a foundational level to introduce new growth engines for future expansion.

Phase V
2016–2020

Phase V 2016–2020

In Phase V of the Excellent Global Corporation Plan, the five-year stage that kicked off in 2016, we are endeavoring to reconsolidate our hitherto core businesses (namely, cameras and office equipment) guided by the basic policy of embracing the challenge of new growth through a grand strategic transformation. At the same time, we have accelerated the pace of this grand strategic transformation by working to expand and strengthen the following four new businesses that we believe will underpin Canon's future: commercial printing, network cameras, medical and industrial equipment. Our medical business in particular was significantly strengthened by the addition of Canon Medical Systems to the Group in December 2016.

Explanations regarding the progress of the key strategies of Phase V, as well as our future course of action, are presented as follows.

Key strategies

1 **Establish a new production system to achieve a cost-of-sales ratio of 45%**

2 **Reinforce and expand new businesses while creating future businesses**

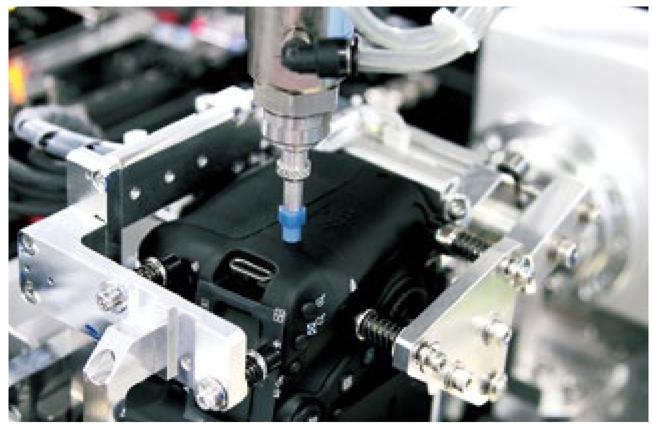
3 **Restructure our global sales network in accordance with market changes**

4 **Enhance R&D capabilities through open innovation**

5 **Complete the Three Regional Headquarters management system capturing world dynamism**

Strategy

1 Establish a new production system to achieve a cost-of-sales ratio of 45%



Automated camera production. (Oita Canon, Japan)

Although the camera and printer markets continue to shrink, these existing businesses are the source of Canon's profits and the foundation that allows our new businesses to grow. With that in mind, we aim to expand market share by launching new competitive products boasting standout features and establish a new production system to achieve a cost-of-sales ratio of 45% or below by making every effort to further reduce upstream manufacturing costs.

We are reducing costs by pursuing automated production and expanding in-house production of machinery, equipment and key components to all Group companies. For automated production, our development, manufacturing, and production engineering divisions are working as one to come up with product designs best suited to automation. Meanwhile, we are also working towards in-house production of machinery, equipment, and key components that include only the features and functions we need in order to develop easy-to-operate, low-cost equipment.

Strategy

2 Reinforce and expand new businesses while creating future businesses

The network cameras are utilized at Akasaka Station. (Fukuoka, Japan)

Through strategic M&As, Canon has successively acquired good-standing companies possessing a degree of scale and expertise in growth fields, which has enabled us to set up four new pillars of business in the medical, commercial printing, industrial equipment and network camera fields. We are currently determining the direction of development and expansion for these businesses and strengthening their respective operations.

In the medical business we are realigning our global sales structure with a view to further improving our sales capabilities in the US as well as in other countries and regions. In the commercial printing business, we are consolidating all products under the Canon brand, promoting further collaboration throughout the Group, and establishing a system for products and services to meet the ever-changing needs of digital printing. In the industrial equipment business, we are concentrating our resources on competitive products. And in the network camera business we have our sights set on expanding and enhancing our offerings in the solutions domain.

The seeds of other fledgling businesses are also beginning to sprout, including the Free Viewpoint Video System, space-related ventures and our materials business.

Strategy

3 Restructure our global sales network in accordance with market changes

Canon USA held an event for office equipment dealers.

As part of reforms to our global sales network, we are focused on strengthening and expanding the solutions business with an emphasis on customers' perspectives.

Under the slogan "Beyond Canon, Beyond Japan," Canon Marketing Japan is developing business systems for IT services and the finance and manufacturing sectors, as well as expanding its data center services. Canon U.S.A. is bolstering its support system for office equipment dealers and working hard to strengthen customer relationships by establishing a specialized organization for broadcasting equipment and other types of professional products. In Europe, too, we are reviewing the roles and responsibilities of the regional headquarters and sales companies and making every effort to improve sales capabilities.

Meanwhile, in China we have established a sales organization that extends across all businesses and put in place a system under which we can swiftly respond to inquiries from large corporations regarding multiple products. Elsewhere, we are endeavoring to intensify business operations and enhance management efficiency; for example, in Australia we are consolidating BPO service and IT service providers, while in the Philippines, outsourcing bases are being integrated.

Strategy

4 Enhance R&D capabilities through open innovation

Center for iPS Cell Research and Application, Kyoto University.

As development grows increasingly competitive worldwide, Canon has capped its R&D spending at 7% of net sales. In order to carry out development activities more efficiently and quickly, we are pushing ahead with a selection and concentration approach toward our in-house R&D projects and stepping up our engagement in open innovation to leverage the technology and knowledge of organizations outside the Canon Group.

In 2019, Canon and Canon Medical Systems commenced joint research with Kyoto University's Center for iPS Cell Research and Application (CiRA) with the aim of developing autologous induced pluripotent stem (iPS) cells. Moreover, in 2018, Canon Medical Systems made ACTmed a subsidiary. ACTmed aims to contribute to personalized medicine in the field of bioscience with a focus on providing cancer genomic testing services.

Strategy

5 Complete the Three Regional Headquarters management system capturing world dynamism

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Large-Format Printer which uses own unique UVgel technology.

With global headquarters in Japan, the US, and Europe, aims to establish a system that promote global development through diversification by leveraging the unique features of each region.

In the US, a country at the forefront of medical research, Canon U.S.A.'s Healthcare Optics Research Laboratory is collaborating on research with Massachusetts General Hospital and Brigham and Women's Hospital. Joint research is focused on the commercialization of an ultra-miniature fiber endoscope that enables real-time examination of such areas as the interiors of joints and paranasal cavities, as well as a guided needle insertion system that assists with the insertion of needles in patients by guiding a needle to a precise position and depth.

In Europe, Canon Production Printing (formerly Océ) continues to meet the ever-changing needs of digital printing by harnessing such technologies as UVgel technology, a proprietary product suitable for various types of media that boasts a wide color gamut and exceptional environmental performance, and elevated printing, which can reproduce unevenness on printed surfaces.

Key Challenges for 2020

2020 is the final year of the Excellent Global Corporation Plan's Phase V, which the entire Canon Group has been working on since 2016. Nevertheless, with IoT, AI and other innovations rapidly gaining increased momentum, renewed growth in the IT industry has brought major changes on industrial structures and durable goods-based industries will need to revolutionize in order to survive. With that in mind, our fundamental policy for 2020 is to accelerate and complete the grand strategic transformation. To that end, our priority will be to tackle the following four key challenges.

First, we must strengthen existing businesses. While these businesses continue to contract, they remain a major source of Canon's profits and the foundation that allows our new businesses to grow. We will endeavor to further boost market share in each by developing more advanced products.

Second, we will expand new businesses, continuing to seek out strategic M&As, deepen collaboration within the Group on such matters as production methods, joint procurement, and the exchange of technology. In doing so, we can significantly reduce manufacturing costs and help establish our four new businesses of medical, commercial printing, industrial equipment and network cameras as new pillars of earnings growth.

Third, we will push structural reorganization. This involves reevaluating the scale of existing businesses and streamlining organizations and personnel in line with the transformation of our business portfolio. We will also pay close attention to changes in world affairs and how our production bases might be affected and work on building a global production system capable of flexibly adapting to changes.

And fourth, we shall boost productivity, further reducing costs through automation and in-house production. We will also aim to boost white-collar productivity by streamlining operations with the use of robotic process automation (RPA) and AI.

In Conclusion

Ever since it was founded, Canon has passed on the spirit of innovation through its corporate DNA. Throughout its history, Canon has met the challenges of the age by continuing to transform itself, create new value and evolve.

As society makes the leap from the IT age that began with digitalization to the IoT era, Canon now stands on the cusp of its second great transformation.

With the outlook for the global economy becoming increasingly uncertain, the environment surrounding the manufacturing industry is growing harsher by the day. It is amidst such an environment that Canon will accelerate and enhance its grand strategic transformation and overcome any challenges before us as we aim to achieve a new era of prosperity. We look forward to your continued support and understanding.

Fujio Mitarai
Chairman & CEO
Canon Inc.

BUSINESS STRATEGY

EXISTING BUSINESS

We seek to further expand market share and continually reinforce profitability

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Multifunction Devices

Sales have been brisk for the color models of office multifunction devices ("MFDs") with the launch of imageRUNNER ADVANCE models offering significantly enhanced security features and cloud service integration. Given the growing risk of data breach due to the sophistication of cyber-attacks targeting IT equipment, Canon aims to expand its share of the market for MFDs that handle various types of data by enhancing the functions that maximize work efficiency while leveraging its industry-leading security features.

Laser Printers

By tapping demand for laser MFDs and laser printers in not only offices but other workplaces like healthcare institutions, retail outlet, and customer service counters, sales have been strong for new models that offer low-power consumption, compact body design, and high productivity. We aim to meet the needs in different vertical markets and make every effort to boost market share with the launch of products that help improve productivity and streamline operations.

Cameras

The total number of EOS-series interchangeable lens cameras surpassed 100 million mark. Meanwhile, Canon-brand cameras comprised approximately 70%* of the press cameras used by the media at the Rugby World Cup 2019™ held in Japan. As for mirrorless cameras, Canon successively launched the full-frame EOS RP and the compact and lightweight EOS M6 Mark II. Going forward, Canon will look to strengthen its EOS R System lineup with the goal of boosting its presence in the full-frame market and endeavor to further raise its market share with attractive products.

*Average of data obtained from the 8 matches of the knock out stage. Based on a Canon survey.

A. Our office multifunction devices, imageRUNNER ADVANCE models, are equipped with robust security features and make working with documents a breeze. By connecting to the cloud and other networks, they contribute to the improvement of productivity and the implementation of flexible working styles.

B. The EOS R system employs the newly developed RF mount and realizes even higher image quality and enhanced usability.

Inkjet Printers

Canon increased its market share of the consumer-oriented inkjet printer market by growing sales of large-refillable ink tank models, particularly in emerging markets. And sales of the large-format imagePROGRAF PRO printer series for the graphic arts market were brisk particularly in major countries. Canon will continue efforts to enhance its large-refillable ink tank lineup and expand its share of the CAD market with the launch of competitive products.

Lithography Equipment

Demand is rising in the semiconductor market thanks to data centers and IoT related semiconductor devices, such as those used in 5G communication and autonomous driving vehicles. Subsequently, Canon expects its semiconductor lithography equipment business to grow as well. Canon also expects its flat panel display (FPD) business to expand over the medium to long-term due to growing demand in the display market for large-screen televisions and high-definition smart phones. With lithography equipment, Canon aims to establish a stable earnings structures through accurate demand forecasting backed up with flexible manufacturing, comprehensive cost-reduction, and also by strengthen predictive maintenance services.

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Reinforcing Business Operations and Expanding Business Domains to Achieve Global Growth

A

Global Business Realignment Centering on Canon Medical Systems

Canon seeks to further develop and strengthen its medical business by turning it into one of the next-generation business pillars centering on Canon Medical Systems ("CMSC"). CMSC is actively taking steps to bolster its business operations and expand business domains.

In 2019 it signed an agreement with leading Russian healthcare firm R-Pharm Holding regarding sales of medical diagnostic imaging equipment in Russia and the establishment of a framework with a view to localizing the production of medical equipment there in the future. In 2020, in order to push ahead with our global realignment and consolidate the medical system businesses within Japan, Canon Lifecare Solutions was moved from Canon Marketing Japan and incorporated under the umbrella of CMSC. In overseas markets, the ophthalmic equipment business of Canon U.S.A., Inc. and its wholly-owned subsidiary Virtual Imaging, Inc., which sells and provides after-sales services for CXDI digital radiography and other X-ray systems, were moved to Canon Medical Systems USA, Inc. (CMSU).

Accelerate Enhancement and Expansion of Medical Business Through Strategic M&As

As part of the process of beefing up its new businesses, CMSC welcomed into the Group Switzerland-based magnetic resonance imaging (MRI) equipment technology developer Skope Magnetic Resonance Technologies AG. Skope boasts extensive experience and considerable knowledge on how to improve image quality in the areas integral to MRI, from magnetic field monitoring through to image acquisition and reconstruction processing. Additionally, ACTmed, a CMSC subsidiary, has opened a laboratory to launch a genomic testing service in Japan. And in the US, CMSC invested in a point-of-care testing (POCT) technology company FemtoDx.

Furthermore, Canon and CMSC, in collaboration with Kyoto University's Center for iPS Cell Research and Application (CiRA), are aiming to achieve low-cost and faster production of autologous induced pluripotent stem (iPS) cells.

Also, Canon has acquired a 70% stake in US-based Quality Electrodynamics, LLC ("QED"), a leader in the development of RF coils, a key component used in MRI equipment. Bringing QED into the Canon Group will accelerate the development of MRI systems at CMSC and boost their market competitiveness. The acquisition is also expected to reinforce Canon's medical equipment component business.

A. Canon Medical's next-generation 3-Tesla MRI scanner, the MRI scanner, the Vantage Galan™ 3T, maximizes high-resolution imaging performance while minimizing space requirements and energy consumption. The device also employs noise-reduction technology to provide greater comfort to patients.

B. QED, a leading diagnostic imaging company in the development of RF coils which is an essential device in MRI, joined the Canon Group.

NEW BUSINESS—NETWORK CAMERAS

Solutions Business that Addresses Demands in the Smart City Era

Network Camera Systems that Combine all of the Canon Group's extensive strengths

As innovation accelerates, driven by IoT and AI, network camera systems that can perform advanced video analytics, including face recognition and abnormality detection, have become essential in the infrastructure for a safe and secure society that constitutes the basis of a Smart City. Canon entered the network camera market in 2013 and thereafter welcomed Axis Communications ("Axis"), Milestone Systems ("Milestone"), and BriefCam Ltd. ("BriefCam") into the Group. These companies are leaders in the fields of network cameras, video management systems, and video content analytic software respectively.

In 2019 Canon launched a new series of network cameras that feature its proprietary Hydrophilic Coating II technology, which ensures much clearer video monitoring during and after rainfall. While improving the performance of network camera hardware, utilizing the technology cultivated thorough camera development, Canon has also focused on developing video analytics technology that make use of AI and fostering technological collaboration between Group companies. Canon continues to strive to deliver network camera systems that meet the needs of the times by combining the Group's capabilities in the areas of network cameras, video management systems, and video content analytic software.

Expanding and Strengthening the Solutions Business

Canon is stepping up efforts to develop new solutions businesses, combining the high-quality, high-resolution images captured by its network cameras with video content analytic software to analyze the movement of people.

Canon has been developing its technology for counting people in videos and in 2019 launched the Crowd People Counter for Milestone XProtect. This product can count thousands of people in real time through its use of enhanced crowd counting AI that leverages deep learning.

Canon's network camera systems that utilize the cutting-edge video analytic technology have significant potential for use in various applications. For example, when monitoring cities, public facilities or stadiums, the output can be used in security planning and the efficient placement of security staff. They could also offer new possibilities such as understanding customer traffic at event venues or stores, and verifying the effect of advertising. Canon aims to be a global leader in network visual solutions, addressing new demands in the coming Smart City era.

A. Canon's high resolution network cameras are installed at Showa Denko Dome Oita where sports games are held frequently. The cameras allow to check the site in detail if there is an incident. Canon contributes to creating environments where visitors can be enthusiastic at sporting events while still feeling safe.

B. Milestone's XProtect, an open platform with great extensibility, achieves the effective management of videos from multiple cameras.

Consolidating the Canon Brand and Accelerating Business Expansion in Response to Trends in Digitalization

The ProStream 1000 high-productivity continuous-feed color printer for the graphic arts industry can print on offset coated paper thanks to Canon's newly developed ink and ColorGrip technology.

Achieving Unprecedented High-quality Images in Digital Printing

In the so called commercial printing market which includes the production of books, magazines, brochures, direct mailings, and catalogs, demand is rapidly shifting from plate-based high-volume offset printing to high-mix, small-lot, quick-turnaround digital printing. In 2010, Canon Production Printing (formerly Océ) was added to the Canon Group. Based in the Netherlands, this company boasts a strong track record in the field of commercial printing. In 2019 Canon's continuous feed press for the fast-growing graphic arts market received good reviews for its high-quality image that rivals offset. Going forward, Canon plans to ramp up development in the industrial printing field, an area expected to see even stronger growth in package printing.

In January 2020, Océ's corporate name officially changed to become Canon Production Printing. Going forward, with the aim of further expanding market share, all products will be uniformly branded under the Canon name, collaboration throughout the Canon Group will be further deepened, and a system for products and services that meet the diversifying needs of digital printing will be established.

NEW BUSINESS—INDUSTRIAL EQUIPMENT

Concentrating resources on high value-added businesses and sustaining advanced technological capabilities

Canon Tokki produces OLED panel manufacturing equipment with unrivalled and high-level technologies, including vacuum evaporation technology for depositing organic materials onto panel substrates in a vacuum and automated supply lines for glass substrates. Canon Tokki continues to be the industry leader with an overwhelming market share.

Focusing on development of next-generation manufacturing equipment with innovative technology

Canon Tokki is the first company to have produced OLED panel manufacturing equipment in the world, and our manufacturing capabilities in mainly vacuum evaporation technology establish us in a dominant position as the industry standard. OLEDs are rapidly being adopted for the next-generation display panels in smartphones and televisions. Canon Tokki continuously improve our equipment especially focused on further productivity and panel-upsizing.

The company is also endeavoring to drastically reduce costs but at the same time accelerate development of equipment that can achieve even higher definition and increased productivity by collaborating closely with Group companies Canon ANELVA and Canon Machinery. The former manufactures sputtering equipment essential to the production of hard disk drives (HDD) and LEDs, while the latter commands a large share of the market for die bonders, the equipment used to attach a semiconductor chip to a substrate.

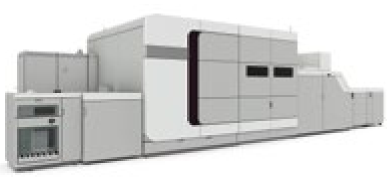
And, semiconductor lithography equipment is becoming increasingly complex in order to achieve greater miniaturization of circuit patterns, thus requiring large scale capital investment. Canon is therefore developing next-generation semiconductor manufacturing equipment to achieve greater circuit pattern miniaturization and significantly lower manufacturing costs by harnessing its nanoimprint lithography technology, whereby patterns are formed by pressing a mask (mold) engraved with circuit patterns onto the surface of a wafer coated with resist (photosensitizing agent).

AT A GLANCE

OFFICE BUSINESS UNIT

Office multifunction devices (MFDs)

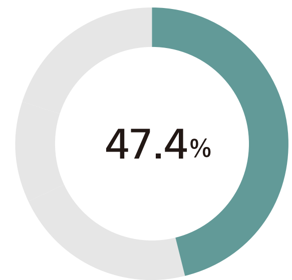
Laser printer based MFDs



Digital sheet-fed presses (Inkjet)

Digital sheet-fed presses (Electrophotographic)

Composition of Sales (%)



Main Products

- Office multifunction devices (MFDs)
- Laser printer based MFDs
- Laser printers
- Digital continuous feed presses
- Digital sheet-fed presses
- Wide-format printers
- Document solutions

IMAGING SYSTEM BUSINESS UNIT

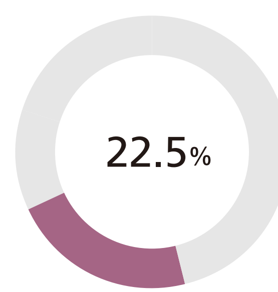
Interchangeable-lens digital cameras
—Mirrorless cameras

Interchangeable-lens digital cameras
—Digital SLR cameras

Inkjet printers

Large format inkjet printers

Composition of Sales (%)



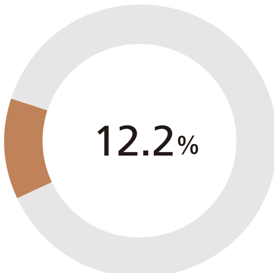
Main Products

- Interchangeable-lens digital cameras
- Digital compact cameras
- Interchangeable lenses
- Compact photo printers
- Inkjet printers
- Large format inkjet printers
- Commercial photo printers
- Image scanners
- Calculators

Note: The percentage figures for the four business units presented in the pie charts above do not add up to 100% because "Eliminations," recorded in consolidation accounting, were not included in calculation considerations.

MEDICAL SYSTEM BUSINESS UNIT

Composition of Sales (%)



Main Products

- Digital radiography systems
- Diagnostic X-ray systems
- Computed tomography (CT) systems
- Magnetic resonance imaging (MRI) systems
- Diagnostic ultrasound systems
- Clinical chemistry analyzers
- Ophthalmic equipment


Computed tomography (CT) systems

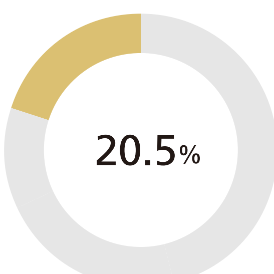

Diagnostic X-ray systems


Diagnostic ultrasound systems


Digital radiography systems

INDUSTRY AND OTHERS BUSINESS UNIT

Composition of Sales (%)



Main Products

- Semiconductor lithography equipment
- FPD (Flat panel display) lithography equipment
- Vacuum thin-film deposition equipment
- Organic LED (OLED) panel manufacturing equipment
- Die bonders
- Network cameras
- Digital camcorders
- Digital cinema cameras
- Multimedia projectors
- Broadcast equipment
- Micromotors
- Handy terminals
- Document scanners


Semiconductor lithography equipment


FPD (Flat panel display) lithography equipment


Organic LED (OLED) panel manufacturing equipment


Network cameras

RESEARCH & DEVELOPMENT

Canon is perpetually strengthening R&D as a company possessing a corporate DNA that places high importance on technology to differentiate itself from competitors.

Canon's crowd people counting technology utilize AI to detect and count the number of heads, making it possible to count the number of people in a crowd in real time.

R&D Expenses and Patents

Canon focuses on R&D, strengthening fundamental technologies and creating core competent technologies, in order to provide innovative products and services to society. In 2019, R&D expenses amounted to ¥298.5 billion, and the ratio of R&D expenses to net sales was 8.3%. This focus on R&D has also cemented Canon's leading position in the intellectual property field. In 2019, Canon was granted 3,555 patents in the United States, the third highest among all companies. This also represents a first place ranking among Japanese companies for 15 consecutive years.

Initiatives to Establish New Businesses

Guided by a long-term perspective, Canon focuses on discovering new technologies for the future.

New Imaging Solution

Canon is working to commercialize Free Viewpoint Video as an imaging solution that combines the imaging technologies developed over many years with cutting-edge technologies in such fields as networking transmission. Visual data is captured by high-resolution cameras installed around the stadium, then converted into 3D spatial data. With this data viewers can see video from any viewpoint and any angle in the stadium. During the Rugby World Cup 2019™ held in Japan, Canon created and provided highlight footage from the Free Viewpoint Video for use in television sports news and online streaming. Those video highlights featured such viewpoints and angles as right on or above the pitch not possible with conventional cameras, effectively conveying the thrill and superb skill of each play.

Joint Research Aimed at Realizing Autologous iPS Cells

Canon and Canon Medical Systems Corporation commenced joint research with Kyoto University's Center for iPS Cell Research and Application ("CiRA") with the aim of realizing high-quality, autologous induced pluripotent stem (iPS) cells. iPS cells, which have the ability to differentiate into cells for various tissues and organs in the body, hold much promise in the field of regenerative medicine to restore organ and tissue function lost through illness or injury through such techniques as transplanting cells and tissues artificially cultured outside the body. This joint research aims to realize "my iPS cells" using the patient's own cells to mitigate the risk of immune rejection by utilizing the core technologies of the Canon Group—optical technology, measurement technology, and diagnostic imaging technology—to, for example, develop a low-cost examination method.

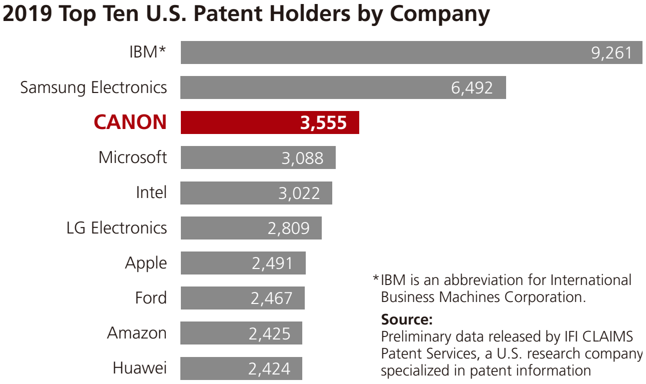
Developing Next-generation HDR Technology

Canon is currently developing next-generation high dynamic range (HDR) technology to create images that faithfully reproduce what the photographer sees with the naked eye when taking a picture. In contrast to the conventional method of displaying images by merging consecutive exposures, Canon has successfully displayed and printed the various brightness information and color values that a camera records. Canon will harness this technology and utilize the light that cameras capture to record, display, and print immeasurably realistic images. In this way, Canon aims to realize a whole new means of photographic expression.

Detecting Cracks with AI Technology

Canon has developed and commercialized a service to inspect infrastructure by harnessing image-related AI technology. Given the expected increase in aging bridges, tunnels, and other forms of infrastructure around the world, there is enormous potential for making the inspection process much more efficient with the use of images captured by cameras. Canon's AI technology leverages deep learning to study and accurately identify surface cracks in aging infrastructures. Canon aims to help solve this societal problem by detecting cracks quickly, efficiently, and nearly as precisely as visual inspections.

2019 Top Ten U.S. Patent Holders by Company



*IBM is an abbreviation for International Business Machines Corporation.

Source:
Preliminary data released by IFI CLAIMS Patent Services, a U.S. research company specialized in patent information

PRODUCTION

Canon is a corporation that has constantly pursued the ultimate in manufacturing. While promoting the advancement of production-engineering, including the automation of product assembly, it is also working to develop human resources armed with outstanding technical skills.

Oita Canon is pursuing in-house production of manufacturing automated assembly machines to maintain highly reliable automated production lines.

Globally Optimized Production

Canon employs a globally optimized production system in which it determines ideal production locations based on such factors as costs, taxes, logistics, ease of parts procurement, and labor. In Japan, Canon is endeavoring to reduce costs by establishing mother factories that integrate development, procurement, production, and manufacturing processes. Meanwhile, in emerging countries Canon is working to boost productivity in its operations by further honing the skill of its workforce as it manufactures products employing an agile and flexible system that leverages regional characteristics.

Automation and In-house Production

Seeking to create innovative and original products, Canon is pursuing in-house production of key devices and components such as CMOS sensors, manufacturing equipment such as automated assembly machines and high-precision processing machines, as well as molding dies. To produce high-quality products at efficient costs, we strive to maintain highly reliable automated production lines. We have been introducing fully automated production lines for toner cartridges, and are currently pursuing full automation for the manufacturing of cameras.

In 2019, Miyazaki Canon's Takanabe factory, a new state-of-the-art production site became operational. Equipped with cutting-edge facilities, the factory is pursuing efficiency in its operations by harnessing the power of automation equipment and robots, further strengthening collaboration with Oita Canon and Nagasaki Canon. The factory currently operates as a production site for cutting-edge products, including cameras and lenses.

Development of Human Resources

While the automation of product assembly frees up human resources, Canon is also working to empower those workers with new technologies and skills. Moreover, in 2018 Canon established the Canon Institute of Software Technology (CIST) to nurture digital engineers that can play an active role in software development and production engineering, particularly in the area of in-house production. By further raising the skill levels of software engineers, Canon is strengthening its product development capabilities.

To further enhance manufacturing capabilities, Canon is also focused on nurturing its most skilled technicians, known as Master Craftsmen, and those who contribute to the advancement of manufacturing with their wide-ranging skills and knowledge in areas such as product assembly and component processing, known as Meisters. These technicians contribute to the improvement of Canon's production technology and play an active front line role in production by passing on the skills they have honed over the years to the next generation.

Initiatives for Environmentally Friendly Manufacturing and Enhanced Product Quality

From product design and development to production, logistics, product use, and recycling, throughout the product's lifecycle in all areas of our business, Canon is engaged in manufacturing initiatives that are friendly to the global environment and minimize environmental impacts.

In addition, in order to ensure that our products are safe, can be enjoyed with peace of mind, and provide satisfaction to our customers, we at Canon have established a quality management system that incorporates mechanisms unique to Canon on top of ISO9001 requirements. We have realized an adequate quality assurance system which sufficiently responds to laws and regulations of countries and regions around the world, and thoroughly implement operations. We drive quality improvement on an ongoing basis, while constantly carrying out strict evaluations using cutting-edge testing facilities that are at the forefront of the industry.

Production of inkjet printers. We seek to raise the bar in the manufacturing of high-quality products while striving to improve production efficiency. (Canon Hi-Tech (Thailand), Thailand)

Accelerating growth in commercial printing, network cameras, medical and industrial equipment as key drivers of Canon’s next-generation business

The first Canon Image Square flagship store in India. Customers can try out a broad range of products, from entry-level to professional use.

Japan

Sales in Japan amounted to ¥872.5 billion, or 24.3% of consolidated net sales. Sales of the IT solutions business increased, as IT investment in work-style reform and to improve work efficiency by Japanese companies remained firm. This business also benefited from brisk activity surrounding business PCs. Sales of laser printers also increased, largely thanks to the securing of some major contracts and growth in sales to certain industries. Sales of network cameras and high value-added businesses such as video management systems and cloud services also expanded. Meanwhile, despite a higher market share for interchangeable-lens cameras, sales struggled due to the impact of market contraction.

The Americas

Sales in the Americas amounted to ¥1,029.1 billion, or 28.6% of consolidated net sales. Canon U.S.A. handles marketing operations for North, Central, and South America. It is expanding sales of the new IVY series by targeting the ever-changing young customer segment. And Canon Canada is responding to changes in the market and tapping into new customer segments and markets by, for example, signing an official camera supplier agreement with a professional esports team based in Toronto. In the office equipment business, Canon U.S.A. is further strengthening relationships with dealers by holding annual meetings with the top dealers in four regions of the United States. As for new businesses, the company is actively stepping up the development of this area with the establishment of an innovation center.

Europe (Europe, Middle East, Africa)

Sales in Europe amounted to ¥882.5 billion, or 24.6% of consolidated net sales. Canon Europe oversees business in the EMEA region—Europe, the Middle East and Africa. Operating in approximately 120 markets, Canon is proposing new products and solutions tailored to customer needs while strengthening its sales network.

In 2019, the group opened a new Customer Experience Centre in Istanbul to give its customers an opportunity to try first hand Canon's products and solutions.

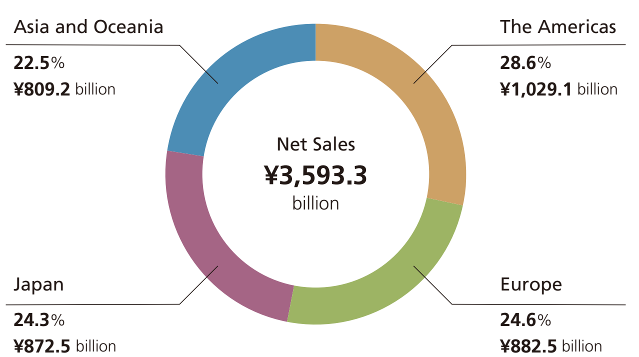
Looking to strengthen its customer service capabilities, the group was pleased to receive a gold award within the customer service industry for its excellent partnership with its European Contact Centre. The contact centre can now handle many different languages across the EMEA region.

Canon Europe has continued to expand its business activities in the Middle East and Africa, and this year opened its first office and business solutions showroom in Riyadh, Saudi Arabia.

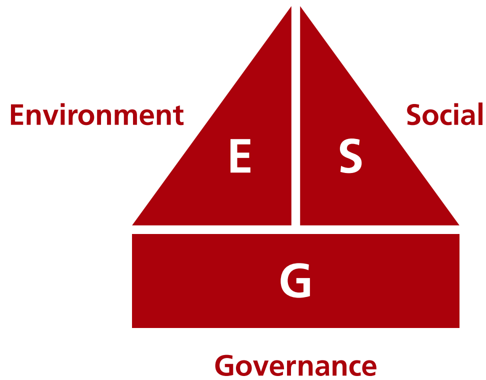
Asia and Oceania

Sales in the Asia and Oceania region amounted to ¥809.2 billion, or 22.5% of consolidated net sales. Canon has continuously endeavored to expand sales of office multifunction devices by promoting the high-quality services they offer. Subsequently, we recorded 51 straight months of record sales growth for color models. In China we established a sales structure spanning all business divisions and vigorously ramped up solution proposals combining multiple products. Then we put a system in place to support the shift towards B2B. In Oceania, we have chalked up strong growth in our sales to large corporations. Moreover, BPO and IT services have been brisk. In the B2C field, we are beefing up digital marketing operations centering on e-commerce and strengthening sales and branding. Furthermore, by increasing the number of Canon brand stores, we are expanding our customer contact both online and offline.

Composition of Sales by Region



ESG



Canon adopted *kyosei* as its corporate philosophy in 1988 in an effort to clarify our stance on how we fulfill our responsibilities to society and build solid relationships not only with our customers and business partners, but also with countries, communities, nature, and the global environment. As a member of society, high expectations are placed on corporations. Canon therefore aims to be a company that not only gives due consideration to people and society, but also contributes to society by leveraging its technological capabilities to create new value, resolve societal issues, and engage in activities to preserve and protect the global environment. These activities contribute to the achievement of the Sustainable Development Goals ("SDGs") adopted by the United Nations in 2015.

In pursuing total optimization of management, Canon launched its own consolidated performance evaluation system in 1997. During the period of more than 20 years since it was introduced, it has become as an indicator of improvement for business divisions and Group companies. The evaluation items, which are reviewed annually in accordance with management policy and in line with current trends, include not only financial results for each department, such as sales and profit, but also environmental and CSR activity results.

By having each specialist department evaluate business divisions and Group companies, which in turn generates improvement, the system aims to contribute to the sustainable development of the entire Group as well as society.

Environment:

Canon's Approach

In order to leave future generations with a natural environment that is still abundant and rich, Canon works together with its stakeholders to implement initiatives that help reduce environmental burdens with a focus on the entire product lifecycle.

Key Activities

- Contributing to a Low-Carbon Society
- Contributing to a Circular Economy
- Eliminating Hazardous Substances and Preventing Pollution
- Contributing to a Society in Harmony with Nature

Social:

Canon's Approach

As a good corporate citizen, Canon works to resolve societal issues with technology and through our business activities by mainly supporting human rights, responsible procurement activities, and cultural events.

Key Activities

- Promoting Diversity
- Addressing the Issue of Conflict Minerals
- Supporting Art and Culture

Governance:

Canon's Approach

Canon maintains sound corporate governance as part of efforts to maximize its shareholders' value and become a truly excellent global corporation.

Key Activities

- Board of Directors, Audit & Supervisory Board, Non-statutory Committees

For details, please refer to the Canon Sustainability Report. https://global.canon/en/csr/report/index.html

Environment

Canon Automated Recycling System for Toner Cartridges (CARS-T)

Canon is working towards the goal of achieving an average improvement of 3% per year in the lifecycle CO_2 emissions improvement index per product—over the period 2008 through 2019, Canon achieved an average annual improvement of 4.7%. As of 2019, the overall improvement was 40% compared to 2008.

Contributing to a Low-Carbon Society

Canon tracks CO_2 emissions throughout the product lifecycle (materials and parts manufactured by supplier, activities at operational sites, distribution, and customer use) and works to reduce emissions at each stage.

Contributing to a Circular Economy

To ensure more efficient use of limited resources and reduce waste, Canon is designing products smaller and lighter to conserve resources, and promoting the reuse and recycling of use products. In particular, Canon is pursuing product-to-product recycling—in other words, recycling used products into new ones, including the remanufacturing of office multifunction devices and the closed-loop recycling of toner cartridges. Canon currently has five recycling centers in four global regions. One of them, Canon Eco Technology Park in Japan, which opened in 2018, is a state-of-the-art recycling plant that stands at the front line in the creation of a circular economy.

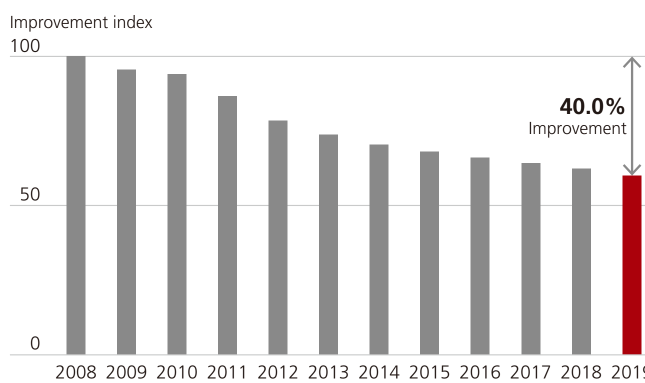
Eliminating Hazardous Substances and Preventing Pollution

Canon thoroughly manages chemical substances in products and those used in manufacturing processes to prevent environmental pollution and adverse effects on people's health. With regard to chemical substances in products, in particular, we have built a Group-wide environmental assurance system and established in-house standards that are in line with the most stringent regulations in the world.

Contributing to a Society in Harmony with Nature

Canon engages in various activities worldwide based on its Biodiversity Policy. As part of these activities and in an effort to engage in the protection of biodiversity across the Canon Group, Canon globally runs the Canon Bird Branch Project at business sites with a focus on birds—an animal situated at the top of the ecological pyramid and a symbol of the cycle of life.

Lifecycle CO_2 Emissions Improvement Index per Product



*Indexed to 2008=100

Social

Canon produced high-resolution facsimiles of 13 original paintings including "Six Tamagawa Rivers" above, by Katsushika Hokusai in the collection of the Freer Gallery. Many people visited the exhibition held at the Sumida Hokusai Museum in the summer of 2019.

Diversity Promotion

Under our corporate philosophy of *kyosei*, Canon respects globally and actively encourages the fair hiring and promotion of employees, regardless of gender, age, or disability. In 2012, Canon established Vital workforce and Value Innovation through Diversity ("VIVID"), a company-wide horizontally integrated organization mainly tasked with supporting the advancement of female employees, the participation of male employees in child rearing, and helping employees skillfully balance work and nursing care. As an example, since 2012 VIVID has run a female leadership training course that aims to nurture female candidates for managerial positions. Accordingly, the number of female managers at Canon increased from 58 in 2011 to 127 in 2019. Canon is also taking steps to stamp out workplace discrimination towards persons with disabilities as well as sexual minorities, including members of the lesbian, gay, bisexual, and transgender ("LGBT") community.

Socially Responsible Procurement and Conflict Minerals

Against the backdrop of increasingly global supply chains, a number of societal issues relating to human rights and environmental protection have been identified. Canon encourages responsible procurement activities in partnership with its suppliers based on the Canon Supplier CSR Guidelines. Working to further enhance CSR in the supply chains, Canon joined the Responsible Business Alliance (RBA) in 2019. Additionally, Canon conducts a yearly country of origin survey into the minerals it uses, receives an assurance report from a third-party auditor, and disclose the findings to the US Securities and Exchange Commission. Canon is committed to the non-use of conflict minerals that are a source of funds for armed insurgents.

Art and Culture

As a company that contributes to the development of visual culture, Canon engages in activities to foster the richness of human feelings and emotions. In 2007, Canon and Kyoto Culture Association ("NPO") launched the Tsuzuri Project, which is officially named the Cultural Heritage Inheritance Project, with the aim of preserving original cultural assets and utilizing high-resolution facsimiles. By combining Canon's advanced digital technologies, ranging from input to image processing and output, with skills from Kyoto's traditional craft techniques, Canon has produced and presented high-resolution facsimiles of important Japanese cultural assets, including folding screens, Japanese sliding doors and handscrolls. As of March 2020, Canon has presented 51 facsimiles of artworks.

Furthermore, at the time of the Rugby World Cup 2019™, Canon helped instill excitement about the event by providing local governments around Japan with wall galleries exhibiting the intensity of rugby in photographs. Canon is working to support Para-sports through photos as an Olympic and Paralympic Games Tokyo 2020 Gold Partner (Still Camera & Desktop Printer) by taking photos of Para-sports athletes for a school educational material.

Governance

For all company executive officers, the CEO provides updates on earnings progress, reports on key initiatives, and shares other important information.

Fundamental Policy

In order to establish a sound corporate governance structure and continuously raise corporate value, the Company believes that it is essential to improve management transparency and strengthen management supervising functions.

Governance Structure

Board of Directors

While the focus of the organizational structure of the Board of Directors is on Representative Directors that oversee company-wide business strategies or execution such as the CEO, COO, CFO, CTO, and Representative Directors or Executive Directors that oversee multiple business fields or headquarters functions, in order to secure sound management, an adequate number of at least two or more Independent Outside Directors are appointed. The Board of Directors, in accordance with laws and regulations, makes important decisions and supervises the execution of duties by officers.

Except for the above, the CEO and other Representative Directors are active in decision making and execution, and under the command and supervision of the Representative Directors, Executive Officers that are elected through resolution of the Board of Directors make decisions and execute operations of each business field or function. Currently, the Board of Directors consists of six members, four Representative Directors from inside the Company and two Independent Outside Directors.

Additionally, there are 38 Executive Officers, including two females and one non-Japanese as of April 1, 2020.

Audit & Supervisory Board

As a body which is in charge of the audit of operations, under the principles of autonomy, which is independent from the Board of Directors, the Company has full-time Audit & Supervisory Board Members that are familiar with the Company's businesses or its management structure, and Independent Outside Audit & Supervisory Board Members that have extensive knowledge in specialized areas such as law, finance and accounting, and internal control. The Audit & Supervisory Board, which is composed of these individuals, cooperates with the Company's accounting auditors and internal audit division, oversees the status of duty execution of operations and corporate assets to secure the soundness of management.

The Audit & Supervisory Board consists of five individuals, three of which are Outside Audit & Supervisory Board Members, including two designated as Independent Directors and Audit & Supervisory Board Members.

Governance

Procedures in the Nomination of Directors etc.

The Company established the "Nomination and Remuneration Advisory Committee," a non-statutory committee, which consists of the CEO, two Independent Outside Directors, and one Independent Outside Audit & Supervisory Board Member. At the time, Director and Audit & Supervisory Board Member candidates are nominated and Executive Officers are appointed (includes the selection of a successor for the chief executive officer position), the CEO recommends candidates thereof from among individuals that have been recognized as having met the prescribed requirements, and the Committee checks the fairness and validity of such recommendation prior to submission to and deliberation by the Board of Directors.

Additionally, as for Audit & Supervisory Board Member candidates, prior to deliberation of the Board of Directors, consent of the Audit & Supervisory Board shall be acquired.

Corporate Strategy Committee, Risk Management Committee, and Disclosure Committee

The Company established the Corporate Strategy Committee, consisting of Representative Directors and some Executive Officers. Among items to be decided by the CEO, the Committee undertakes prior deliberations on important matters pertaining to Canon Group strategies. Outside Directors and Audit & Supervisory Board members attend Corporate Strategy Committee meetings and are able to express their own opinions.

Based on a resolution passed by the Board of Directors, Canon set up the Risk Management Committee, which formulates policy and action proposals regarding improvement of the Canon Group risk management system. The Risk Management Committee consists of three entities: the Financial Risk Management Subcommittee, which is tasked with improving systems to ensure reliability of financial reporting; the Compliance Subcommittee, which is tasked with promoting corporate ethics and improving legal compliance systems; and the Business Risk Management Subcommittee, which is charged with improving systems to manage overall business risks, including risks related to product quality and information leak. The Risk Management Committee verifies the risk management system's improvement and implementation and reports the status to the CEO and the Board of Directors.

In addition, the Disclosure Committee was established to undertake deliberations pertaining to information disclosure, including content and timing, to ensure important corporate information will be disclosed in a timely and accurate manner.

Internal Audit Division

The Corporate Audit Center, the Company's internal auditing arm, as an independent and specialized organization and in accordance with internal audit rules, conducts audits and evaluations and provides guidance on such matters as compliance with laws and the internal control system. Furthermore, audits of particular themes such as quality, the environment, and information security are conducted mainly by the Corporate Audit Center in cooperation with each division in charge. Additionally, based on top management policy, for all work processes, audits must be conducted from a specialized viewpoint and there are plans to increase the number of its members from the current 80 to strengthen auditing functions by enabling audits from a specialized viewpoint in each theme.

Details of Canon Inc.'s corporate governance structure are available on the Company's website under "an overview of Corporate Governance at Canon Inc."
https://global.canon/en/ir/strategies/governance.html

FINANCIAL SECTION

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FINANCIAL OVERVIEW

GENERAL

The following discussion and analysis provides information that management believes to be relevant to understanding Canon's consolidated financial condition and results of operations. References in this discussion to the "Company" are to Canon Inc. and, unless otherwise indicated, references to the financial condition or operating results of "Canon" refer to Canon Inc. and its consolidated subsidiaries.

OVERVIEW

Canon is one of the world's leading manufacturers of office multifunction devices ("MFDs"), plain paper copying machines, laser printers, cameras, inkjet printers, medical equipment, semiconductor lithography equipment and flat-panel-display ("FPD") lithography equipment. Canon earns revenues primarily from the manufacture and sale of these products domestically and internationally. Canon's basic management policy is to contribute to the prosperity and well-being of the world while endeavoring to become a truly excellent global corporate group targeting continued growth and development.

Canon divides its businesses into four segments: the Office Business Unit, the Imaging System Business Unit, the Medical System Business and the Industry and Others Business Unit.

Economic environment

Looking back at the global economy in 2019, the U.S. economy continued to grow thanks to solid consumer spending based on the strong employment environment and changes in monetary policy, despite signs of a slowdown in manufacturing industries. The European economy was soft amid sluggish exports and concerns over the U.K. leaving the EU. As for the Chinese economy, despite holding discussions with the United States on trades and reaching an agreement in the first stage, the rate of economic growth dropped due to decreases in exports and capital investment caused by prolonged trade friction with the United States. As for other emerging markets, economic growth slowed due to sluggish external demand and weak pricing of natural resources. In Japan, while the employment situation remained strong, the economic recovery was modest due to a drop in manufacturing activity caused by sluggish external demand. On a global basis, the economic slowdown continued.

Market environment

Amid these conditions, in the markets in which Canon operates, demand for office MFDs was in line with the previous year, despite solid demand for color models, and due to lower demand for monochrome models. As for laser printers, demand decreased due to the impact of economic slowdowns in China and other countries. The market for cameras continued to shrink. Demand for inkjet printers continued to shrink in developed markets and remained sluggish in emerging markets due to economic slowdowns. On the other hand, although demand for medical equipment continued to recover in Japan, overall demand was in line with the previous year, mainly owing to currency depreciation and economic slowdowns in some emerging markets. While customers continued efforts to restrain capital investment in the industrial equipment market, demand for network cameras continued to expand.

The average value of the yen for the year was ¥109.03 against the U.S. dollar, a year-on-year appreciation of approximately ¥1, and ¥122.03 against the euro, a year-on-year appreciation of approximately ¥8.

Summary of operations

In 2019, overall unit sales of office MFDs increased slightly compared with the previous year, despite a decline in monochrome models, and thanks to market exceeding growth in color models. As for laser printers, although sales for new models were strong, overall unit sales decreased compared with the previous year, due to slowdowns in sales of low-speed models. While Canon firmly maintained the top market share position, overall unit sales of interchangeable-lens digital cameras decreased compared with the previous year, owing to the shrinking market. Looking at inkjet printers, despite expanding sales of refillable ink tank models, overall unit sales decreased compared with the previous year. With regard to medical equipment, although domestic sales remained solid thanks to a strengthened product lineup, worldwide sales grew only slightly due to a first-quarter slowdown in overseas sales. As for industrial equipment, sales of lithography equipment and Organic LED (OLED) panels manufacturing equipment decreased compared with the previous year due to efforts to restrain capital investment in semiconductor memory and small- and medium-size display panels. On the other hand, sales of network cameras increased steadily thanks to their broadening use in various areas. Under these conditions, net sales for the year decreased by 9.1% year on year to ¥3,593,299 million. In addition, the gross profit ratio dropped by 1.6 points to 44.8%. Operating expenses decreased by 3.8% year on year to ¥1,435,366 million, thanks to the pursuit of cost efficiencies in Canon as well as positive effects of currency exchange fluctuation. As a result, operating profit decreased by 49.1% to ¥174,667 million. Other income (deductions) increased by ¥1,133 million, mainly due to currency exchange gains and losses compared with the previous year, while income before income taxes decreased by 46.1% year on year to ¥195,740 million and net income attributable to Canon Inc. decreased by 50.5% to ¥125,105 million.

Total assets decreased by ¥131,114 million to ¥4,768,351 million at December 31, 2019, compared with the end of previous year, mainly due to a decrease of cash and cash equivalents, and accounts receivables. Total liabilities decreased by ¥5,119 million to ¥1,876,433 million at December 31, 2019, compared with the end of previous year, mainly due to a decrease of accounts payables and accrued income tax. Total equity decreased by ¥125,995 million to ¥2,891,918 million at December 31, 2019, compared with the end of previous year, mainly due to the dividend payout, the repurchasing of treasury stock and an increase of accumulated other comprehensive loss resulting from the appreciation of the yen.

Key performance indicators

The following are the key performance indicators ("KPIs") that Canon uses in managing its business. The changes from year to year in these KPIs are set forth in the table shown below.

Net sales and profit ratio

As Canon pursues the goal to become a truly excellent global company, one indicator upon which Canon's management places strong emphasis is revenue. The following are some of the KPIs related to revenue that management considers to be important.

Net sales is one such KPI. Canon derives net sales primarily from the sale of products and, to a lesser extent, provision of services associated with its products. Sales vary depending on such factors as product demand, the number and size of transactions within the reporting period, market acceptance for new products, and changes in sales prices. Other factors involved are market share and market environment. In addition, management considers the evaluation of net sales by segment to be important for the purpose of assessing Canon's sales performance in various segments, taking into account recent market trends.

Gross profit ratio (ratio of gross profit to net sales) is another KPI for Canon. Through its reforms of product development, Canon has been striving to shorten product development lead times in order to launch new, competitively priced products at a faster pace. Furthermore, Canon has further pursued cost reductions through enhancement of efficiency in its production. Canon believes that these approaches will cause improving Canon's gross profit ratio, and it will continue pursuing the curtailment of product development lead times and reductions of production costs.

Operating profit ratio (ratio of operating profit to net sales), income before income taxes ratio (ratio of income before income taxes to net sales), and R&D expense to net sales ratio are considered to be KPIs by Canon. Canon is focusing on two areas for improvement. Canon is striving to control and reduce its selling, general and administrative expenses as its first key point. Secondly, Canon's R&D policy is designed to maintain adequate spending in core technology to sustain Canon's leading position in its current business areas and to exploit opportunities in other markets. Canon believes such investments will create the basis for future success in its business and operations.

Cash flow management

Canon also places significant emphasis on cash flow management. The following are the KPIs relating to cash flow management that Canon's management believes to be important.

Inventory turnover measured in days is a KPI because it measures the efficiency of supply chain management. Inventories have inherent risks of becoming obsolete, physically damaged or otherwise decreasing significantly in value, which may adversely affect Canon's operating results. To mitigate these risks, management believes that it is crucial to continue reducing work-in-process inventories by decreasing production lead times in order to promptly recover related product expenses, while balancing risks of supply chain disruptions by optimizing finished goods inventories in order to avoid losing potential sales opportunities.

The debt to total assets ratio is also one of the KPIs. For a manufacturing company like Canon, it generally takes considerable time to realize profit from a business due to lead times required for R&D, manufacturing and sales has to be followed for success. Therefore, management believes that it is important to have sufficient financial strength. Canon will continue to reduce its dependency on external funds for capital investments in favor of generating the necessary funds from its own operations.

Canon Inc. shareholders' equity to total assets ratio is another KPI for Canon. Canon believes that its shareholders' equity to total assets ratio measures its long-term sustainability. Canon also believes that achieving a high or rising shareholders' equity ratio indicates that Canon has maintained a strong financial position or further improved its ability to fund debt obligations and other unexpected expenses. In the long-term, Canon's management believes a high shareholders' equity ratio will enable Canon to maintain a high level of stable investments for its future operations and development. As Canon puts strong emphasis on its R&D activities, management believes that it is important to maintain a stable financial base and, accordingly, a high level of its shareholders' equity to total assets ratio.

KEY PERFORMANCE INDICATORS

	2019	2018	2017	2016	2015
Net sales (Millions of yen)	**3,593,299**	3,951,937	4,080,015	3,401,487	3,800,271
Gross profit to net sales ratio	**44.8%**	46.4%	48.8%	49.2%	50.8%
R&D expense to net sales ratio	**8.3%**	8.0%	8.2%	9.0%	8.8%
Operating profit to net sales ratio	**4.9%**	8.7%	7.9%	6.4%	9.0%
Income before income taxes to net sales ratio	**5.4%**	9.2%	8.7%	7.2%	9.1%
Inventory turnover measured in days	**59 days**	56 days	49 days	59 days	47 days
Debt to total assets ratio	**10.8%**	8.2%	10.2%	11.9%	0.0%
Canon Inc. shareholders' equity to total assets ratio	**56.5%**	57.7%	55.2%	54.2%	67.0%

Notes:
1. Inventory turnover measured in days is determined by: Inventory divided by net sales for the previous six months, multiplied by 182.5. The increase of inventory turnover in 2016 was primarily due to the acquisition of CMSC on December 19, 2016. If this factor were excluded, the inventory turnover would show 50 days.
2. The increase of the debt to total assets ratio in 2019 was primarily due to adopting new accounting standard ASU No. 2016-02, Leases (Topic 842) Section A. The company includes current operating lease liability and noncurrent operating lease liability as the debt since 2019. If this factor were excluded, the debt to total assets ratio in 2019 is 8.6%. Please refer to Note 1 (x) for more detailed information.
3. The decrease of the Canon Inc. shareholders' equity to total assets ratio in 2019 was primarily due to adopting new accounting standard ASU No. 2016-02, Leases (Topic 842) Section A. The company includes operating lease right-of-use assets in total assets since 2019. If this factor were excluded, Canon Inc. shareholders' equity to total assets ratio is 57.9%. Please refer to Note 1 (x) for more detailed information.
4. Canon adopted ASU No. 2017-07 from the quarter beginning January 1, 2018. The adoption of the new presentation requirement of the service cost component and the other components of net benefit cost resulted in reclassification from cost of sales, and selling, general and administrative expenses, and research and development expenses into other income (deductions) for the years ended December 31, 2017, 2016 and 2015 respectively.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

The consolidated financial statements are prepared in accordance with U.S. generally accepted accounting principles ("U.S. GAAP") and based on the selection and application of significant accounting policies which require management to make significant estimates and assumptions. These estimates and assumptions include future market conditions, net sales growth rate, gross margin and discount rate. Though Canon believes that the estimates and assumptions are reasonable, actual future results may differ from these estimates and assumptions. Canon believes that the following are the more critical judgment areas in the application of its accounting policies that currently affect its financial condition and results of operations.

Revenue recognition

Canon generates revenue principally through the sale of office, imaging system and medical system products, industrial equipment, supplies and related services under separate contractual arrangements. Revenue is recognized when, or as, control of promised goods or services transfers to customers in an amount that reflects the consideration to which Canon expects to be entitled in exchange for transferring these goods or services.

Revenue from sales of office products, such as office MFDs and laser printers, and imaging system products, such as digital cameras and inkjet printers, is recognized upon shipment or delivery, depending upon when the customer obtains controls of these products.

Revenue from sales of equipment that are sold with customer acceptance provisions related to their functionality including optical equipment such as semiconductor lithography equipment and FPD lithography equipment, and certain medical equipment such as CT systems and MRI systems, is recognized when the equipment is installed at the customer site and the agreed-upon specifications are objectively satisfied.

Most of Canon's service revenue is generated from office and medical system products which is recognized over time. For the service contracts of office products, the customer typically pays a variable amount based on usage, a stated fixed fee or a stated base fee plus a variable amount which frequently include the provision of consumables as well as break fix activities. The majority portion of service revenue from the office products is recognized as billed since the invoiced amount directly correlates with the value to the customer of the underlying performance obligation to date. For the service contracts of medical system products, the customer typically pays a stated fixed fee for the stand ready maintenance service and revenue is recognized ratably over the contract period.

The majority of service arrangements for office products are executed in combination with related products. Transaction prices for products and services need to be allocated to each performance obligation on a relative standalone selling price basis where judgements are required. Canon estimates the standalone selling price using a range of prices that would meet the allocation objective based on all the information that is reasonably available including market conditions and other observable inputs. If transaction prices of the product or service contracts are not within the acceptable range then the revenue is subject to allocation based on the estimated standalone selling prices. Canon recognizes the incremental costs of obtaining a contract as an expense when related office products are sold.

The transaction prices that Canon is entitled to receive in exchange for transferring goods or services to the customer include certain forms of variable consideration, including product discounts, customer promotions and volume-based rebates mainly for imaging system products, which are sold predominantly through distributors and retailers. Canon includes estimated amounts in the transaction price only to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Variable considerations are estimated based upon historical trends and other known factors at the time of sale, and are subsequently adjusted in each period based on current information. In addition, Canon may provide a right of return on our products for a short time period after a sale. These rights are accounted for as variable consideration when determining the transaction price, and accordingly Canon recognizes revenue based on the estimated amount to which Canon expects to be entitled after considering expected returns.

Taxes collected from customers and remitted to governmental authorities are excluded from revenues in the consolidated statements of income.

Allowance for doubtful receivables

Allowance for doubtful receivables is determined using a combination of factors to ensure that Canon's trade and financing receivables are not overstated due to uncollectibility. These factors include the length of time receivables are past due, the credit quality of customers, macroeconomic conditions and historical experience. Also, Canon records specific reserves for individual accounts when Canon becomes aware of a customer's inability to meet its financial obligations to Canon, due for example to bankruptcy filings or deterioration in the customer's operating results or financial position. If circumstances related to customers change, estimates of the recoverability of receivables are further adjusted.

Valuation of inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined by the average method for domestic inventories and principally the first-in, first-out method for overseas inventories. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make a sale. Canon routinely reviews its inventories for their salability and for indications of obsolescence to determine if inventories should be written-down to market value. Judgments and estimates must be made and used in connection with establishing such allowances in any accounting period. In estimating the net realizable value of its inventories, Canon considers the age of the inventories and the likelihood of spoilage or changes in market demand for its inventories.

Impairment of long-lived assets

Long-lived assets, such as property, plant and equipment, and acquired intangibles subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If the carrying amount of the asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. Determining the fair value of the asset involves the use of estimates and assumptions.

Property, plant and equipment

Property, plant and equipment are stated at cost. Depreciation is calculated principally by the declining-balance method, except for certain assets which are depreciated by the straight-line method over the estimated useful lives of the assets.

Lease

Canon provides leasing arrangement to its customers primarily for the sales of office products. Revenue from the sale of these products under sales-type leases is recognized at the inception of the lease. Interest income on sales-type leases and direct-financing leases is recognized over the life of each respective lease using the interest method. Leases not qualifying as sales-type leases or direct-financing leases are accounted for as operating leases and related revenue is recognized ratably over the lease term. When product leases are bundled with maintenance contracts, revenue is allocated based upon the estimated standalone selling prices of the lease and non-lease components. Lease components generally include product and financing while non-lease components generally consist of maintenance contracts and supplies. Some of the contracts include options to extend or to terminate the lease. Canon takes such options into account to determine the lease term when it is reasonably certain that it will exercise these options. The majority of Canon’s lease contracts do not contain bargain purchase options for their customers.

Business combinations

Acquisitions are accounted for using the acquisition method of accounting. The acquisition method of accounting requires the identification and measurement of all acquired tangible and intangible assets and assumed liabilities at their respective fair values, as of the acquisition date. The determination of the fair value of net assets acquired involves significant judgment and estimates, such as future cash flow projections, appropriate discount and capitalization rates and other estimates based on available market information. Estimates of future cash flows are based on a number of factors including operating results, known and anticipated trends, as well as market and economic conditions.

Goodwill and other intangible assets

Goodwill and other intangible assets with indefinite useful lives are not amortized, but are instead tested for impairment annually in the fourth quarter of each year, or more frequently if indicators of potential impairment exist. All goodwill is assigned to the reporting unit or units that benefit from the synergies arising from each business combination. If the carrying amount assigned to the reporting unit exceeds the fair value of the reporting unit, Canon recognizes an impairment charge in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit. Fair value of a reporting unit is determined primarily based on the discounted cash flow analysis which involves estimates of projected future cash flows and discount rates. Estimates of projected future cash flows are primarily based on Canon’s forecast of future growth rates. Estimates of discount rates are determined based on the weighted average cost of capital, which considers primarily market and industry data as well as specific risk factors. Canon has completed its impairment test in the fourth quarter of 2019 and determined that there were no reporting units that were at risk of failing the impairment test as the fair value of each reporting unit exceeded its respective carrying amount. However, with regard to goodwill attributed to commercial printing business included in the Office Business Unit for which the impairment charge of ¥33,912 million was recognized for the year ended December 31, 2017 and goodwill attributed to the Medical System Business Unit, fair values in excess of reported carrying values as a percentage are lower than other reporting units. As a result, a future reduction in cash flows of the related business, could trigger an impairment. The goodwill related to these reporting units as of December 31, 2019 are ¥27,205 million and ¥508,907 million, respectively. Intangible assets with finite useful lives consist primarily of software, trademarks, patents and developed technology, license fees and customer relationships, which are amortized using the straight-line method. The estimated useful lives of software are from 3 years to 8 years, trademarks are 15 years, patents and developed technology are from 7 years to 17 years, license fees are 7 years, and customer relationships are from 8 years to 15 years, respectively.

Income tax uncertainties

Canon considers many factors when evaluating and estimating income tax uncertainties. These factors include an evaluation of the technical merits of the tax positions as well as the amounts and probabilities of the outcomes that could be realized upon settlement. The actual resolutions of those uncertainties will inevitably differ from those estimates, and such differences may be material to the financial statements.

Valuation of deferred tax assets

Canon currently has significant deferred tax assets, which are subject to periodic recoverability assessments. Realization of Canon’s deferred tax assets is principally dependent upon its achievement of projected future taxable income. Canon’s judgments regarding future profitability may change due to future market conditions, its ability to continue to successfully execute its operating restructuring activities and other factors. Any changes in these factors may require possible recognition of significant valuation allowances to reduce the net carrying value of these deferred tax asset balances. When Canon determines that certain deferred tax assets may not be recoverable, the amounts, which may not be realized, are charged to income tax expense and will adversely affect net income.

Employee retirement and severance benefit plans

Canon has significant employee retirement and severance benefit obligations that are recognized based on actuarial valuations. Inherent in these valuations are key assumptions, including discount rates and expected return on plan assets. Management must consider current market conditions, including changes in interest rates, in selecting these assumptions. Other assumptions include assumed rate of increase in compensation levels, mortality rate, and withdrawal rate. Changes in assumptions inherent in the valuation are reasonably likely to occur from period to period. Actual results that differ from the assumptions are accumulated and amortized over future periods and, therefore, generally affect future pension expenses. While management believes that the assumptions used are appropriate, the differences may affect employee retirement and severance benefit costs in the future.

In preparing its financial statements for 2019, Canon estimated a weighted-average discount rate used to determine benefit obligations of 0.5% for Japanese plans and 1.6% for foreign plans and a weighted-average expected long-term rate of return on plan assets of 3.0% for Japanese plans and 5.2% for foreign plans. In estimating the discount rate, Canon uses available information about rates of return on high-quality fixed-income government and corporate bonds currently available and expected to be available during the period to the maturity of the pension benefits. Canon establishes the expected long-term rate of return on plan assets based on management's expectations of the long-term return of the various plan asset categories in which it invests. Management develops expectations with respect to each plan asset category based on actual historical returns and its current expectations for future returns.

Decreases in discount rates lead to increases in actuarial pension benefit obligations which, in turn, could lead to an increase in service cost and amortization cost through amortization of actuarial gain or loss, a decrease in interest cost, and vice versa. For 2019, a decrease of 50 basis points in the discount rate increases the projected benefit obligation by approximately ¥97,614 million. The net effect of changes in the discount rate, as well as the net effect of other changes in actuarial assumptions and experience, is deferred until subsequent periods.

Decreases in expected returns on plan assets may increase net periodic benefit cost by decreasing the expected return amounts, while differences between expected value and actual fair value of those assets could affect pension expense in the following years, and vice versa. For 2019, a change of 50 basis points in the expected long-term rate of return on plan assets would cause a change of approximately ¥4,995 million in net periodic benefit cost. Canon multiplies management's expected long-term rate of return on plan assets by the value of its plan assets to arrive at the expected return on plan assets that is included in pension expense. Canon defers recognition of the difference between this expected return on plan assets and the actual return on plan assets. The net deferral affects future pension expense.

Canon recognizes the funded status (i.e., the difference between the fair value of plan assets and the projected benefit obligations) of its pension plans in its consolidated balance sheets, with a corresponding adjustment to an accumulated other comprehensive income (loss), net of tax.

Recently Issued Accounting Guidance

Please refer to Note 1 of the Notes to Consolidated Financial Statements.

CONSOLIDATED RESULTS OF OPERATIONS

SUMMARY OF OPERATIONS

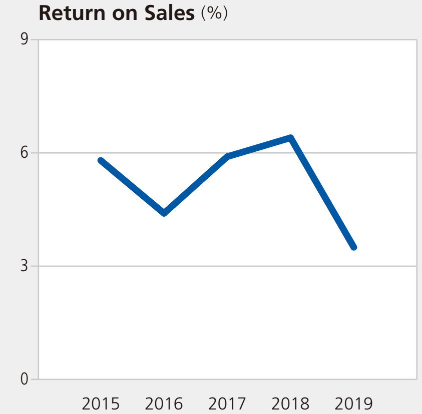
	Millions of yen				
	2019	change	2018	change	2017
Net sales	**3,593,299**	**-9.1%**	3,951,937	-3.1%	4,080,015
Products and Equipment	**2,835,428**	**-11.2%**	3,194,724	-9.3%	3,521,156
Services	**757,871**	**+0.1%**	757,213	+35.5%	558,859
Operating profit	**174,667**	**-49.1%**	342,952	+6.6%	321,605
Income before income taxes	**195,740**	**-46.1%**	362,892	+2.5%	353,884
Net income attributable to Canon Inc.	**125,105**	**-50.5%**	252,755	+4.5%	241,923

Note: See note to KEY PERFORMANCE INDICATORS

Sales

In the current business term, on a global basis, the economic slowdown continued. In such an environment, although each of Canon Group's businesses endeavored to expand sales particularly with respect to new products, Canon's consolidated net sales in 2019 totaled ¥3,593,299 million, a decrease of 9.1% from the previous year largely due to adverse effect of a shrinking market as well as unfavorable currency effects of foreign exchange rate fluctuation. Net sales of products and equipment totaled ¥2,835,428 million, a year-on-year decrease of 11.2%, while net sales of services totaled ¥757,871 million, a year-on-year increase of 0.1%.

Return on Sales (%)



Overseas operations are significant to Canon's operating results and generated 75.7% of total net sales in 2019. Such sales are denominated in the applicable local currency and are subject to fluctuations in the value of the yen relative to those currencies. Despite efforts to reduce the impact of currency fluctuations on operating results, including localization of manufacturing in some regions along with procuring parts and materials from overseas suppliers, Canon believes such fluctuations have had and will continue to have a significant effect on its results of operations.

The average value of the yen during the year was ¥109.03 against the U.S. dollar, a year-on-year appreciation of approximately ¥1, and ¥122.03 against the euro, a year-on-year appreciation of approximately ¥8. The effects of foreign exchange rate fluctuations negatively affected net sales by approximately ¥90,729 million in 2019. This unfavorable impact consisted of approximately ¥19,828 million of unfavorable impact for the U.S. dollar denominated sales and unfavorable impact of ¥52,368 million for the euro denominated sales, and unfavorable impact of ¥18,533 million for other foreign currency denominated sales.

Cost of sales

Cost of sales principally reflects the cost of raw materials, parts and labor used by Canon in the manufacture of its products. A portion of the raw materials used by Canon is imported or includes imported materials. Many of these raw materials are subject to fluctuations in world market prices accompanied by fluctuations in foreign exchange rates that may affect Canon's cost of sales. Other components of cost of sales include depreciation expenses, maintenance expenses, light and fuel expenses, and rent expenses. The ratios of cost of sales to net sales for 2019 and 2018 were 55.2% and 53.6%, respectively.

Gross profit

Canon's gross profit in 2019 decreased by 12.3% to ¥1,610,033 million from 2018. The gross profit ratio also dropped by 1.6 points to 44.8%. The decrease in the gross profit and gross profit ratio were mainly due to a decrease in sales and the negative effect of appreciation of the yen against other foreign currencies such as U.S. dollar and the euro.

Operating expenses

The major components of operating expenses are payroll, R&D, advertising expenses and other marketing expenses. Operating expenses decreased by 3.8% year on year to ¥1,435,366 million, thanks to the pursuit of cost efficiencies in Canon as well as positive effects of currency exchange fluctuation.

Operating profit

Operating profit in 2019 decreased by 49.1% from 2018 to a total of ¥174,667 million. The ratio of operating profit to net sales decreased by 3.8 points to 4.9% from 2018.

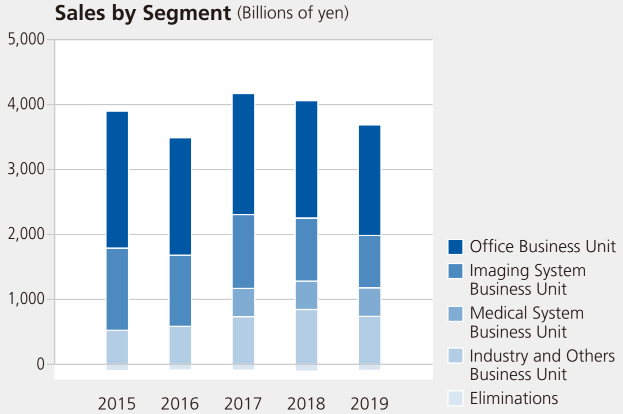
Other income (deductions)

Other income (deductions) for 2019 was ¥21,073 million, an increase of ¥1,133 million from 2018 mainly due to a decrease in foreign currency exchange losses.

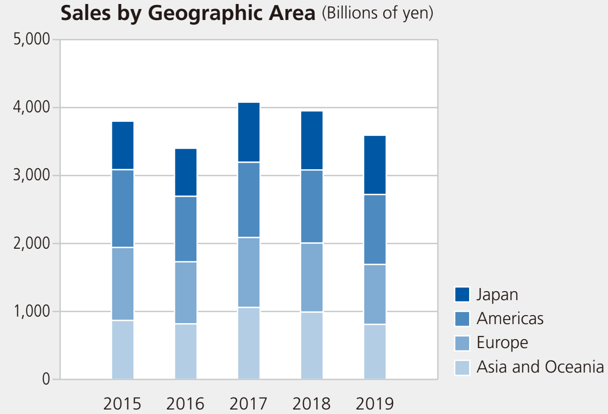
Income before income taxes

Income before income taxes in 2019 was ¥195,740 million, a decrease of 46.1% from 2018, and constituted 5.4% of net sales.

Sales by Segment (Billions of yen)



Sales by Geographic Area (Billions of yen)



Income taxes

Income taxes in 2019 decreased by ¥39,927 million from 2018. The effective tax rate for 2019 was 28.7%, which was lower than the statutory tax rate in Japan. This was mainly due to the tax credit for R&D expense.

Net income attributable to Canon Inc.

As a result, net income attributable to Canon Inc. in 2019 decreased by 50.5% to ¥125,105 million, which represents 3.5% of net sales.

Segment information

Canon operates four segments: the Office Business Unit, the Imaging System Business Unit, the Medical System Business Unit and the Industry and Others Business Unit.

- **The Office Business Unit** mainly includes Office MFDs / Laser MFPs / Laser printers / Digital continuous feed presses / Digital sheet-fed presses / Wide-format printers / Document solutions
- **The Imaging System Business Unit** mainly includes Interchangeable-lens digital cameras / Digital compact cameras / Interchangeable lenses / Compact photo printers / Inkjet printers / Large format inkjet printers / Commercial photo printers / Image scanners / Calculators
- **The Medical System Business Unit** mainly includes Digital radiography systems / Diagnostic X-ray systems / CT systems / MRI systems / Diagnostic ultrasound systems / Clinical chemistry analyzers / Ophthalmic equipment
- **The Industry and Others Business Unit** mainly includes Semiconductor lithography equipment / FPD (Flat panel display) lithography equipment / Vacuum thin-film deposition equipment / Organic LED (OLED) panel manufacturing equipment / Die bonders / Digital camcorders / Digital cinema cameras / Multimedia projectors / Broadcast equipment / Micromotors / Network cameras / Handy terminals / Document scanners

Sales by segment

Within the Office Business Unit, demand for office MFDs was strong for new next-generation color models that feature enhanced security functions. Sales of monochrome models, however, declined due to the impact of economic slowdowns in emerging markets. In the production printing market, sales of a new compact model offering high-speed and high-volume printing steadily increased. As a result, overall unit sales of MFDs increased slightly compared with the previous year. As for laser printers, despite strong demand for new models that offer low energy consumption, compact body designs, and high productivity, overall unit sales decreased compared with the previous year due to decreasing sales of low-speed models, mainly in China where the economic slowdown continued. Sales of consumables decreased, mainly due to the economic slowdown in Europe. These factors resulted in total sales for the business unit of ¥1,702,595 million, a year-on-year decrease of 5.8%, while income before income taxes decreased by 23.9% year on year to ¥174,297 million.

Within the Imaging System Business Unit, sales of the new interchangeable-lens digital cameras for advanced amateur DSLRs enjoyed solid growth. Also, in the growing full-frame mirrorless camera market, Canon benefited from sales of new models launched in the second half of the previous year and the beginning of this year. However, the interchangeable-lens digital cameras market continued to shrink mainly for entry-level models and overall unit sales decreased compared with the previous year. As for inkjet printers, despite efforts to enhance the lineup in refillable ink tank models, overall unit sales decreased compared with the previous year, mainly affected by the sluggish economy in emerging markets. As a result, sales for the business unit decreased by 16.8% year on year to ¥807,414 million, while income before income taxes decreased by 62.1% year on year to ¥49,666 million.

Within the Medical System Business Unit, despite domestic sales increased steadily thanks to a recovery of demand and a series of newly launched products, sales in Europe remained sluggish in the first quarter. As a result, sales for the business unit increased by 0.2% year on year to ¥438,525 million, while income before income taxes decreased by 7.4% year on year to ¥27,283 million due to effects of currency exchange fluctuation.

In the Industry and Others Business Unit, although capital investment towards semiconductor devices relevant to IoT business remained solid, capital investment towards memory devices was restrained because of the deterioration in the market. Additionally, as for FPD lithography equipment and OLED panels manufacturing equipment, sales decreased compared with the previous year as capital investment for small- and medium-size panels entered into a phase of adjustment. On the other hand, sales of network cameras increased reflecting the growth of Axis and the contribution of relevant software, driven by the market's continued expansion based on diversifying market needs and replacement demand. Consequently, sales for the business unit decreased by 12.5% year on year to ¥737,945 million, while income before income taxes decreased by 73.1% year on year to ¥15,563 million.

Intersegment sales of ¥93,180 million are eliminated from total sales for the four segments, and are described as "Eliminations".

SALES BY SEGMENT

	Millions of yen				
	2019	change	2018	change	2017
Office	**1,702,595**	**-5.8%**	1,807,301	+0.1%	1,804,782
Imaging System	**807,414**	**-16.8%**	970,435	-11.7%	1,099,125
Medical System	**438,525**	**+0.2%**	437,578	+0.3%	436,187
Industry and Others	**737,945**	**-12.5%**	842,941	+1.6%	829,913
Eliminations	**(93,180)**	**—**	(106,318)	—	(89,992)
Total	**3,593,299**	**-9.1%**	3,951,937	-3.1%	4,080,015

Note: From the beginning of the first quarter of 2019, Canon has reclassified certain businesses from the Imaging System Business Unit to the Industry and Others Business Unit. Sales amounts for the years ended 2018 and 2017 also have been restated.

SALES BY GEOGRAPHIC AREA

	Millions of yen				
	2019	change	2018	change	2017
Japan	**872,534**	**+0.3%**	869,577	-1.7%	884,828
Americas	**1,029,078**	**-4.4%**	1,076,402	-2.8%	1,107,515
Europe	**882,480**	**-13.1%**	1,015,428	-1.3%	1,028,415
Asia and Oceania	**809,207**	**-18.3%**	990,530	-6.5%	1,059,257
Total	**3,593,299**	**-9.1%**	3,951,937	-3.1%	4,080,015

Note: This summary of net sales by geographic area is determined by the location where the product is shipped to the customers.

Sales by geographic area

Please refer to the table of sales by geographic area in Note 22 of the Notes to Consolidated Financial Statements.

In Japan, net sales increased by 0.3% from the previous year mainly owing to an increase in sales of medical equipment.

In the Americas, despite solid sales of network cameras, net sales decreased by 4.4% from the previous year mainly owing to a decline in sales of interchangeable-lens digital cameras and compact digital cameras.

In Europe, net sales decreased by 13.1% from the previous year mainly owing to a decline in sales of consumables, interchangeable-lens digital cameras and compact digital cameras.

In Asia and Oceania, net sales decreased by 18.3% from the previous year mainly owing to a decline in sales of interchangeable-lens digital cameras, compact digital cameras, OLED panels manufacturing equipment which was supplied by Canon Tokki, and semiconductor lithography equipment.

Income before income taxes by segment

Please refer to the table of segment information in Note 22 of the Notes to Consolidated Financial Statements.

Income before income taxes for the Office Business Unit in 2019 decreased by 23.9% from the previous year to ¥174,297 million, mainly due to a decline in sales of consumables.

Income before income taxes for the Imaging System Business Unit in 2019 decreased by 62.1% from the previous year to ¥49,666 million, owing to shrinking market for interchangeable-lens digital cameras on a global basis.

Income before income taxes for the Medical System Business Unit in 2019 decreased by 7.4% from the previous year to ¥27,283 million, mainly due to a decrease of sales in Europe in the first quarter.

Income before income taxes for the Industry and Others Business Unit in 2019 decreased by 73.1% from the previous year to ¥15,563 million, due to a decrease in sales of semiconductor lithography equipment and OLED panels manufacturing equipment.

FOREIGN OPERATIONS AND FOREIGN CURRENCY TRANSACTIONS

Canon's marketing activities are performed by subsidiaries in various regions in local currencies, while the cost of sales is generally in yen. Given Canon's current operating structure, appreciation of the yen has a negative impact on net sales and the gross profit ratio. To reduce the financial risks from changes in foreign exchange rates, Canon utilizes derivative financial instruments, which consist principally of forward currency exchange contracts.

The operating profit on foreign operation sales is usually lower than that from domestic operations because foreign operations consist mainly of marketing activities. Marketing activities are generally less profitable than production activities, which are mainly conducted by the Company and its domestic subsidiaries. Please refer to the table of geographic information in Note 22 of the Notes to Consolidated Financial Statements.

LIQUIDITY AND CAPITAL RESOURCES

Cash and cash equivalents decreased by ¥107,831 million to ¥412,814 million in fiscal 2019 compared to the previous year. Canon's cash and cash equivalents are primarily denominated in Japanese yen and in U.S. dollars, with the remainder denominated in other currencies.

Net cash provided by operating activities decreased by ¥6,832 million to ¥358,461 million in fiscal 2019 compared to the previous year due to a decrease in profit, despite improving working capital mainly through inventory reduction. The major component of Canon's cash inflow is cash received from customers, and the major components of Canon's cash outflow are payments for parts and materials, selling, general and administrative expenses, R&D expenses and income taxes.

For fiscal 2019, cash inflow from cash received from customers decreased due to sales deterioration. There were no significant changes in Canon's collection rates. Cash outflow for payments for parts and materials decreased due to a decrease of inventory compared with the inventory in fiscal 2018. Cash outflow for payments for income taxes decreased due to a decrease in taxable income in fiscal 2018 compared with taxable income in fiscal 2017.

Net cash used in investing activities increased by ¥32,953 million to ¥228,568 million in fiscal 2019 mainly due to an increase in payment for purchases of fixed assets.

Canon defines "free cash flow" as cash flows from operating activities less cash flows from investing activities. For fiscal 2019, free cash flow decreased by ¥39,785 million to ¥129,893 million as compared with ¥169,678 million for fiscal 2018.

Note: "Free cash flow" is non-GAAP measure. Refer to "Non-GAAP Financial Measures" section for the explanation and the reconciliation to the reported GAAP measure.

Canon's management places importance on cash flow management and frequently monitors this indicator. Furthermore, Canon's management believes that this indicator is significant in understanding Canon's current liquidity and the alternatives of use in financing activities because it takes into consideration its operating and investing activities and believes that such indicator is beneficial to an investor's understanding. Canon refers to this indicator together with relevant U.S. GAAP financial measures shown in its consolidated statements of cash flows and consolidated balance sheets for cash availability analysis.

Net cash used in financing activities totaled ¥232,590 million in fiscal 2019, mainly resulting from the dividend payout of ¥171,487 million, the repurchases and reissuance of treasury stock of ¥50,012 million. The Company paid dividends in fiscal 2019 of ¥160.00 per share.

To the extent Canon relies on external funding for its liquidity and capital requirements, it generally has access to various funding sources, including the issuance of additional share capital, issuance of corporate bond or loans. While Canon has been able to obtain funding from its traditional financing sources and from the capital markets, and believes it will continue to be able to do so in the future, there can be no assurance that adverse economic or other conditions will not affect Canon's liquidity or long-term funding in the future.

Short-term loans (including the current portion of long-term debt) increased by ¥3,507 million to ¥42,034 million at December 31, 2019 compared with ¥38,527 million at December 31, 2018. Long-term debt (excluding the current portion) decreased by ¥4,622 million to ¥357,340 million at December 31, 2019 compared with ¥361,962 million at December 31, 2018 thanks to the repayment for long-term loans.

Canon's long-term debt mainly consists of bank borrowings and finance lease obligations.

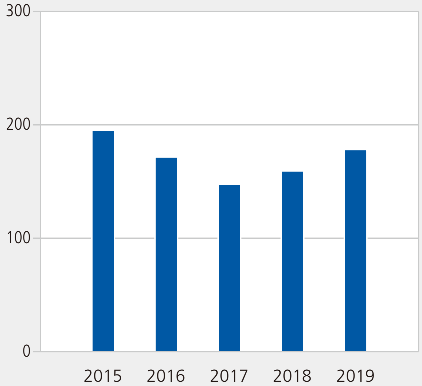
In order to facilitate access to global capital markets, Canon obtains credit ratings from two rating agencies: Moody's Investors Services, Inc. ("Moody's") and Standard and Poor's Ratings Services ("S&P"). In addition, Canon maintains a rating from Rating and Investment Information, Inc. ("R&I"), a rating agency in Japan, for access to the Japanese capital market.

As of February 29, 2020, Canon's debt ratings are: Moody's: A3 (long-term); S&P: A+ (long-term), A-1 (short-term); and R&I: AA+ (long-term). Canon does not have any rating downgrade triggers that would accelerate the maturity of a material amount of its debt. A downgrade in Canon's credit ratings or outlook could, however, increase the cost of its borrowings.

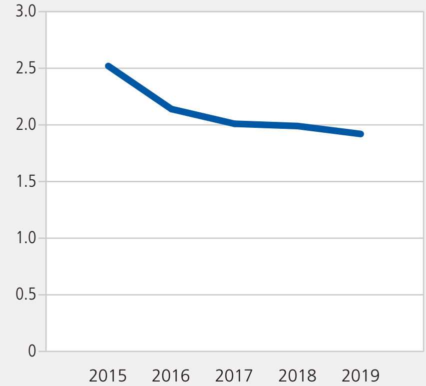
Canon's management policy in recent periods to optimize inventory levels is intended to maintain an appropriate balance among relevant imperatives, including minimizing working capital, avoiding undue exposure to the risk of inventory obsolescence, and maintaining the ability to sustain sales despite the occurrence of unexpected disasters.

Canon's total inventory turnover ratios were 59, 56, and 49 days at the end of the fiscal years 2019, 2018, and 2017,

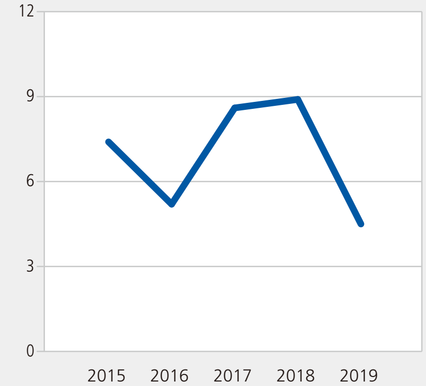
Increase in Property, Plant and Equipment (Billions of yen)



Working Capital Ratio



Return on Canon Inc. Shareholders' Equity (%)



respectively. The inventory turnover in 2019 increased due to sales decline.

Increase in property, plant and equipment on an accrual basis in 2019 amounted to ¥178,088 million compared with ¥159,316 million in 2018 and ¥147,542 million in 2017. For 2020, Canon projects its increase in property, plant and equipment will be approximately ¥160,000 million.

Employer contributions to Canon's worldwide defined benefit pension plans were ¥30,383 million in 2019, ¥35,044 million in 2018 and ¥50,628 million in 2017. Employer contributions to Canon's worldwide defined contribution pension plans were ¥17,414 million in 2019, ¥19,570 million in 2018, and ¥18,979 million in 2017. In addition, employer contributions to the multiemployer pension plan of certain subsidiaries were ¥4,321 million in 2019, ¥4,452 million in 2018 and ¥4,165 million in 2017.

Working capital in 2019 decreased by ¥135,060 million to ¥885,467 million, compared with ¥1,020,527 million in 2018 and ¥1,123,169 million in 2017. Canon believes its working capital will be sufficient for its requirements for the foreseeable future. Canon's capital requirements are primarily dependent on management's business plans regarding the levels and timing of purchases of fixed assets and investments. The working capital ratio (ratio of current assets to current liabilities) for 2019 was 1.92 compared to 1.99 for 2018 and to 2.01 for 2017.

Return on assets (net income attributable to Canon Inc. divided by the average of total assets) was 2.6% in 2019, compared to 5.0% in 2018 and 4.7% in 2017.

Return on Canon Inc. shareholders' equity (net income attributable to Canon Inc. divided by the average of total Canon Inc. shareholders' equity) was 4.5% in 2019 compared with 8.9% in 2018 and 8.6% in 2017.

The debt to total assets ratios were 10.8%, 8.2% and 10.2% as of December 31, 2019, 2018 and 2017, respectively. Canon had short-term loans, current operating lease liabilities, long-term debt, and noncurrent operating lease liabilities of ¥514,946 million as of December 31, 2019, ¥400,489 million as of December 31, 2018 and ¥532,566 million as of December 31, 2017. The company includes current operating lease liability and noncurrent operating lease liability as debt since 2019 due to adopting new accounting standard ASU No. 2016-02, Leases (Topic 842) Section A. Please refer to Note 1 (x) for more detailed information.

Non-GAAP Financial Measures

We have reported our financial results in accordance with U.S. GAAP. In addition, we have discussed our results using the combination of two GAAP cash flow measures, Net cash provided by operating activities and Net cash used for investing activities, which we refer to as "Free Cash Flow" which is non-GAAP measure. We believe this measure is beneficial to an investor's understanding on Canon's current liquidity and the alternatives of use in financing activities because it takes into consideration its operating and investing activities.

A reconciliation of this non-GAAP financial measure and the most directly comparable measure calculated and presented in accordance with GAAP is set forth on the following table.

FREE CASH FLOW

	Millions of yen	
	2019	2018
Net cash provided by operating activities	**358,461**	365,293
Net cash used in investing activities	**(228,568)**	(195,615)
Free cash flow	**129,893**	169,678

OFF-BALANCE SHEET ARRANGEMENTS

As part of its ongoing business, Canon does not participate in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Canon provides guarantees for its employees, affiliates and other companies. The guarantees for the employees are principally made for their housing loans. The guarantees for affiliates and other companies are made for their lease obligations and bank loans to ensure that those companies operate with less financial risk.

Canon would have to perform under a guarantee if the borrower defaults on a payment within the contract terms. The contract terms are 1 year to 15 years in case of employees with housing loans, and 1 year to 5 years in case of affiliates and other companies with lease obligations and bank loans. The maximum amount of undiscounted payments Canon would have had to make in the event of default is ¥2,987 million at December 31, 2019. The carrying amounts of the liabilities recognized for Canon's obligations as a guarantor under those guarantees at December 31, 2019 were not significant.

CONTRACTUAL OBLIGATIONS AND COMMERCIAL COMMITMENTS

The following summarizes Canon's contractual obligations at December 31, 2019.

		Payments due by period			
Millions of yen	**Total**	Less than 1 year	1-3 years	3-5 years	More than 5 years
Contractual obiligations:					
Long-term debt:					
Loan from the banks	**354,000**	—	354,000	—	—
Other debt	**4,574**	1,234	2,020	690	630
Operating lease obligations	**122,673**	34,317	45,018	24,230	19,108
Purchase commitments for:					
Property, plant and equipment	**36,241**	36,241	—	—	—
Parts and raw materials	**112,831**	112,831	—	—	—
Other long-term liabilities:					
Contribution to defined benefit pension plans	**32,242**	32,242	—	—	—
Total	**662,561**	216,865	401,038	24,920	19,738

Note: The table does not include provisions for uncertain tax positions and related accrued interest and penalties, as the specific timing of future payments related to these obligations cannot be projected with reasonable certainty. See Note 11, Income Taxes in the Notes to Consolidated Financial Statements for further details. Contribution to defined benefit pension plans reflects the expected amount only for the next fiscal year, since contributions beyond the next fiscal year are not currently determinable due to uncertainties related to changes in actuarial assumptions, returns on plan assets and changes to plan membership.

Canon provides warranties of generally less than one year against defects in materials and workmanship on most of its consumer products. Estimated product warranty related costs are recorded at the time revenue is recognized and are included in selling, general and administrative expenses. Estimates for accrued product warranty costs are primarily based on historical experience, and are affected by ongoing product failure rates, specific product class failures outside of the baseline experience, material usage and service delivery costs incurred in correcting a product failure. As of December 31, 2019 accrued product warranty costs are included in accured expenses and amounted to ¥15,846 million.

At December 31, 2019, commitments outstanding for the purchase of property, plant and equipment were approximately ¥36,241 million, and commitments outstanding for the purchase of parts and raw materials were approximately ¥112,831 million, both for use in the ordinary course of its business. Canon anticipates that funds needed to fulfill these commitments will be generated internally through operations.

During 2019, Canon expects to contribute ¥13,257 million to its Japanese defined benefit pension plans and ¥18,985 million to its foreign defined benefit pension plans.

Canon's management believes that current financial resources, cash generated from operations and Canon's potential capacity for additional debt and/or equity financing will be sufficient to fund current and future capital requirements.

RESEARCH AND DEVELOPMENT, PATENTS AND LICENSES

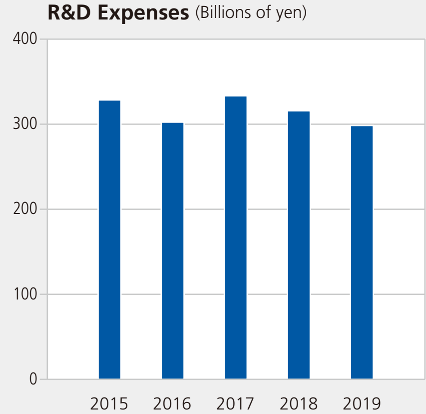
Canon has started its 5-year management plan, the Excellent Global Corporation Plan Phase V ("Phase V") from the year 2016. In Phase V, our slogan is "Embrace the challenge of new growth through a grand strategic transformation" and there are three key strategies related to R&D:

- Establish a new production system to achieve a cost-of-sales ratio of 45%;
- Reinforce and expand new businesses while creating future businesses; and
- Enhance R&D capabilities through open innovation.

Canon has been striving to implement the three R&D related strategies as follows:

- Establish a new production system to achieve a cost-of-sales ratio of 45%:
  Strengthen domestic mother factories by integrating design, procurement, production engineering and manufacturing technology operations while pursuing total cost

R&D Expenses (Billions of yen)



reduction by advancing production engineering capabilities with more sophisticated robots and next-generation technologies such as the IoT, big data and artificial intelligence.

- Reinforce and expand new businesses while creating future businesses:
  Create and expand new businesses by accelerating the horizontal expansion of existing business with the exploration of new application possibility of Canon's technologies into new fields. Also, invest intensively on the R&D of promising businesses areas such as commercial printing, network cameras and healthcare while actively taking advantage of mergers and acquisitions ("M&A") to accelerate the early expansion of these businesses.
- Enhance R&D capabilities through open innovation:
  Construct a more open R&D system that proactively leverages external technologies and knowledge to accelerate and improve efficiency of the R&D. Especially in our fundamental research and development, Canon is promoting joint and contract research with various partners including universities, research institutes, and startups around the world.

Canon is currently working on collaborative research with Massachusetts General Hospital and Brigham and Women's Hospital to commercialize the products such as needle-guiding system which is consisted of ultra-miniature endoscope, image-guided navigation software and robot for needle insertion at the Healthcare Optics Research Laboratory in Boston. Also, CMSC is currently working on collaborative research on Deep Learning Reconstruction in MRI systems, together with Kumamoto University and the University of Bordeaux. Moreover, Canon started collaborative research with the Center for iPS Cell Research and Application, Kyoto University, to realize high-quality autologous iPS cells.

Canon has developed simulation systems covering comprehensive image processing including optical design, mechanical noise analysis, and thermal air flow analysis. With these simulation systems, Canon has succeeded in further reducing the need for prototypes, lowering costs and shortening product development lead times.

Canon believes that new products protected by the robust patent portfolio will not easily allow competitors to compete with them, and will give them an advantage in establishing standards in the market and industry.

Canon obtained the third greatest number of patents in the United States in 2019, according to the annual ranking list, released by IFI CLAIMS® Patent Services.

MARKET RISK EXPOSURES

Canon is exposed to market risks, including changes in foreign currency exchange rates, interest rates and prices of marketable securities and investments. In order to hedge the risk of changes in foreign currency exchange rates, Canon uses derivative financial instruments.

Equity price risk

Canon holds marketable securities included in current assets, which consist generally of highly-liquid and low-risk instruments. Investments included in noncurrent assets are held as long-term investments. Canon does not hold marketable securities and investments for trading purposes.

Maturities and fair values of such marketable securities and investments with original maturities of more than three months were as follows at December 31, 2019.

	Millions of yen
	Fair value
Fund trusts and others	730
Equity securities	16,740
	17,470

Foreign currency exchange rate and interest rate risk

Canon operates internationally, exposing it to the risk of changes in foreign currency exchange rates. Derivative financial instruments are comprised principally of foreign currency exchange contracts utilized by the Company and certain of its subsidiaries to reduce the risk. Canon assesses foreign currency exchange rate risk by continually monitoring changes in the exposures and by evaluating hedging opportunities. Canon does not hold or issue derivative financial instruments for trading purposes. Canon is also exposed to credit-related losses in the event of non-performance by counterparties to derivative financial instruments, but it is not expected that any counterparties will fail to meet their obligations. Most of the counterparties are internationally recognized financial institutions and selected by Canon taking into account their financial condition, and contracts are diversified across a number of major financial institutions.

Canon's international operations expose Canon to the risk of changes in foreign currency exchange rates. Canon uses foreign exchange contracts to manage certain foreign currency exchange exposures principally from the exchange of U.S. dollars and euros into Japanese yen. These contracts are primarily used to hedge the foreign currency exposure of forecasted intercompany sales and intercompany trade receivables which are denominated in foreign currencies. In accordance with Canon's policy, a specific portion of foreign currency exposure resulting from forecasted intercompany sales are hedged using foreign exchange contracts which principally mature within three months.

The following table provides information about Canon's major derivative financial instruments related to foreign currency exchange transactions existing at December 31, 2019. All of the foreign exchange contracts described in the following table have a contractual maturity date in 2020.

Millions of yen	U.S.$	Euro	Others	Total
Forwards to sell foreign currencies:				
Contract amounts	75,838	94,308	10,096	180,242
Estimated fair value	(600)	(1,451)	(172)	(2,223)
Forwards to buy foreign currencies:				
Contract amounts	24,816	1,712	6,090	32,618
Estimated fair value	(173)	(16)	190	1

Canon expects that fair value changes and cash flows resulting from reasonable near-term changes in interest rates will be immaterial. Accordingly, Canon believes interest rate risk is insignificant. See also Note 8 of the Notes to Consolidated Financial Statements.

Changes in the fair value of derivative financial instruments designated as cash flow hedges, including foreign exchange contracts associated with forecasted intercompany sales, are reported in accumulated other comprehensive income (loss). These amounts are subsequently reclassified into earnings in the same period as the hedged items affect earnings. Substantially all amounts recorded in accumulated other comprehensive income (loss) as of December 31, 2019 are expected to be recognized in net sales over the next twelve months. After the adoption of ASU No. 2017-12 from the quarter beginning January 1, 2019, Canon includes the time value component in the assessment of hedge effectiveness, which had been previously excluded. Changes in the fair value of a foreign exchange contract for the period between the date that the forecasted intercompany sales occur and its maturity date are recognized in earnings.

The amount of the hedging ineffectiveness was not material for the years ended December 31, 2018 and 2017. The amounts of net losses excluded from the assessment of hedge effectiveness (time value component) which was recorded in other income (deductions) were ¥682 million and ¥332 million for the years ended December 31, 2018 and 2017, respectively.

Canon has entered into certain foreign currency exchange contracts to manage its foreign currency exposures. These foreign currency exchange contracts have not been designated as hedges. Accordingly, the changes in fair values of these contracts are recorded in earnings immediately.

LOOKING FORWARD

Under the corporate philosophy of *kyosei*—living and working together for the common good—Canon's basic management policy is to contribute to the prosperity and well-being of the world while endeavoring to become a truly excellent global corporation targeting continued growth and development.

Based on this basic management policy, Canon launched the Excellent Global Corporation Plan in 1996 and, from Phase I through to Phase IV, has worked to strengthen its management base and improve corporate value. In 2016, under the slogan "Embracing the challenge of new growth through a grand strategic transformation," Canon embarked on a new five-year initiative: Phase V of the Excellent Global Corporation Plan. Under this plan, Canon aims to facilitate growth through structural transformation by reinforcing existing businesses and taking steps to cultivate and strengthen new businesses.

The global economy in 2020, while a modest recovery is expected, uncertainty is increasing due to growing geopolitical risks and concerns of a relapse in U.S.-China trade friction. In addition, uncertainty about the effects of the global spread of the coronavirus disease "COVID-19", which has already affected the global economy, has continued to increase.

In the businesses in which Canon is involved, overall demand of office MFDs is expected to increase slightly thanks to solid demand for color models. Demand for laser printers, however, is expected to be below that of last year as only a modest economic recovery is expected. As for interchangeable-lens digital cameras, although demand for entry-level models is expected to continue to shrink, demand for mirrorless cameras is expected to remain firm, particularly for advanced amateur models, including models with full-frame sensors. Demand for inkjet printers is expected to recover moderately, mainly in emerging markets. As for medical equipment, solid demand is expected thanks, in part, to expanding demand in emerging markets to improve medical infrastructure. With regard to semiconductor lithography equipment, capital investment is recovering because the price of memory devices has bottomed out. As for FPD lithography equipment and OLED panels manufacturing equipment, a gradual rise in capital investment in small- and medium-size display panels is expected, as is continued solid investment into high-resolution, large-size display panels. As for network cameras, continued market expansion is expected due to growing demand for security and diversification in the way network cameras are being used.

In 2020, while securing and maintaining a high market share by investing into new competitive products in our existing businesses in a timely manner, and securing high profit margin, even amid market shrinkage, we will endeavor to accelerate the great strategic transformation by implementing the following priority measures in our new businesses to realize their early expansion in terms of both sales and profit.

(1) Commercial printing and industrial printing

Taking advantage of the trend that drives the transition from offset printing to digital printing, we will continue to expand and strengthen the business through the enhancement of our product portfolio and service structure. We will also push forward with product development targeting the areas of package printing and label printing, which are expected to grow going forward, based on our original technologies.

(2) Network cameras

By bringing together all our group strengths, we will endeavor to expand and strengthen our solution business through the integrations of cameras, video management software, and video analysis software.

(3) Medical systems

In the diagnostic imaging systems segment, which is our core business field, we will endeavor to strengthen the sales capability in overseas markets, particularly in the U.S. We will also aim to expand into business fields with high growth potential, such as healthcare IT and bioscience.

(4) Industrial equipment

We have an overwhelming share in the market of OLED panel manufacturing equipment for smartphones and will aim to increase its competitiveness further and apply it to the segment of large-size displays for televisions.

Recent development

The global spread of COVID-19 has had disruptive effects on the supply chain and operations of manufacturers, particularly in Asia. As a result, Canon temporarily suspended operations in certain of Canon's factories and has experienced reduced production in some of Canon's factories. Although Canon expects the negative impact of COVID-19 on global economic and market conditions will adversely affect Canon's business, the duration and extent of the further spread of COVID-19 remain uncertain at this time, and therefore the impact on results of operations remains unknown.

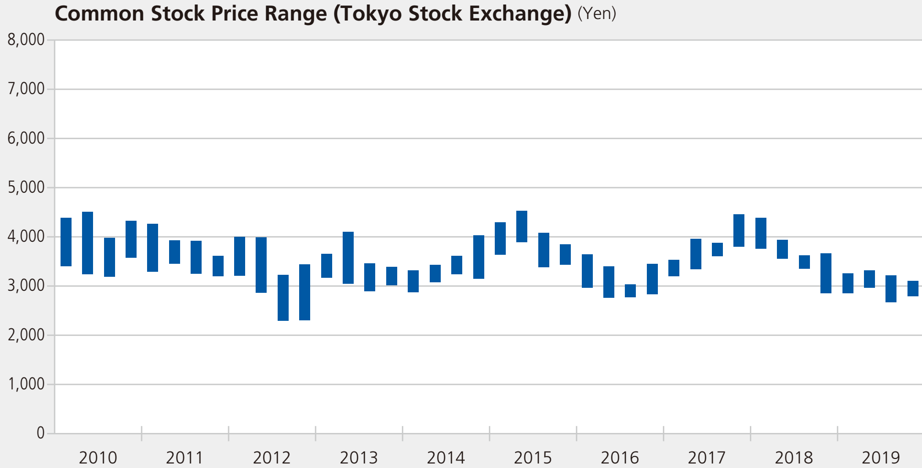
Forward looking statements

The foregoing discussion and other disclosure in this report contains forward-looking statements that reflect management's current views with respect to certain future events and financial performance. Actual results may differ materially from those projected or implied in the forward-looking statements. Further, certain forward-looking statements are based upon assumptions of future events that may not prove to be accurate. The following important factors could cause actual results to differ materially from those projected or implied in any forward-looking statements: foreign currency exchange rate fluctuations; the uncertainty of Canon's ability to implement its plans to localize production and other measures to reduce the impact of foreign currency exchange rate fluctuations; uncertainty as to economic conditions in Canon's major markets; uncertainty of continued demand for Canon's high-value-added products; Canon's ability to continue to develop products and to market products that incorporate new technology on a timely basis, are competitively priced, and achieve market acceptance; the possibility of losses resulting from foreign currency transactions designed to reduce financial risks from changes in foreign currency exchange rates; and inventory risk due to shifts in market demand.

TEN-YEAR FINANCIAL SUMMARY

	Millions of yen (except per share amounts)			
	2019	2018	2017	2016
Net sales:				
Domestic	**872,534**	869,577	884,828	706,979
Overseas	**2,720,765**	3,082,360	3,195,187	2,694,508
Total	**3,593,299**	3,951,937	4,080,015	3,401,487
Percentage of previous year	**90.9%**	96.9%	119.9%	89.5%
Net income attributable to Canon Inc.	**125,105**	252,755	241,923	150,650
Percentage of sales	**3.5%**	6.4%	5.9%	4.4%
Advertising	**46,665**	58,729	61,207	58,707
Research and development expenses	**298,503**	315,842	333,371	306,537
Depreciation of property, plant and equipment	**170,418**	175,771	189,712	199,133
Increase in property, plant and equipment	**178,088**	159,316	147,542	171,597
Long-term debt, excluding current installments	**357,340**	361,962	493,238	611,289
Canon Inc. shareholders' equity	**2,692,595**	2,827,602	2,870,630	2,783,129
Total assets	**4,768,351**	4,899,465	5,198,291	5,138,529
Per share data:				
Net income attributable to Canon Inc. shareholders per share:				
Basic	**116.93**	234.09	222.88	137.95
Diluted	**116.91**	234.08	222.88	137.95
Dividend per share	**160.00**	160.00	160.00	150.00
Stock price:				
High	**3,338**	4,395	4,472	3,656
Low	**2,688**	2,877	3,218	2,780
Average number of common shares in thousands	**1,069,957**	1,079,753	1,085,439	1,092,071
Number of employees	**187,041**	195,056	197,776	197,673

Common Stock Price Range (Tokyo Stock Exchange) (Yen)



2015	2014	2013	2012	2011	2010	Thousands of U.S. dollars (except per share amounts) 2019
714,280	724,317	715,863	720,286	694,450	695,749	**$ 7,932,127**
3,085,991	3,002,935	3,015,517	2,759,502	2,862,983	3,011,152	**24,734,228**
3,800,271	3,727,252	3,731,380	3,479,788	3,557,433	3,706,901	**32,666,355**
102.0%	99.9%	107.2%	97.8%	96.0%	115.5%	**90.9%**
220,209	254,797	230,483	224,564	248,630	246,603	**1,137,318**
5.8%	6.8%	6.2%	6.5%	7.0%	6.7%	**3.5%**
80,907	79,765	86,398	83,134	81,232	94,794	**424,227**
332,678	311,896	307,500	296,281	308,900	317,286	**2,713,664**
223,759	213,739	223,158	211,973	210,179	232,327	**1,549,255**
195,120	182,343	188,826	270,457	226,869	158,976	**1,618,982**
881	1,148	1,448	2,117	3,368	4,131	**$ 3,248,545**
2,966,415	2,978,184	2,910,262	2,598,026	2,551,132	2,645,782	**24,478,136**
4,427,773	4,460,618	4,242,710	3,955,503	3,930,727	3,983,820	**43,348,645**
201.65	229.03	200.78	191.34	204.49	199.71	**$ 1.06**
201.65	229.03	200.78	191.34	204.48	199.70	**1.06**
150.00	150.00	130.00	130.00	120.00	120.00	**1.45**
4,539	4,045	4,115	4,015	4,280	4,520	**30.35**
3,402	2,889	2,913	2,308	3,220	3,205	**24.44**
1,092,018	1,112,510	1,147,934	1,173,648	1,215,832	1,234,817	
189,571	191,889	194,151	196,968	198,307	197,386	

Notes: 1. U.S. dollar amounts are translated from yen at the rate of U.S.$1 = JPY110, the approximate exchange rate on the Tokyo Foreign Exchange Market as of December 30, 2019.

2. Canon adopted ASU No. 2017-07 from the quarter beginning January 1, 2018. The adoption of the new presentation requirement of the service cost component and the other components of net benefit cost resulted in reclassification from cost of sales, and selling, general and administrative expenses, and research and development expenses into other income (deductions) for the years ended December 31 from 2017 to 2010 respectively.

CONSOLIDATED BALANCE SHEETS

Canon Inc. and Subsidiaries
December 31, 2019 and 2018

	Millions of yen	
ASSETS	**2019**	2018
Current assets:		
Cash and cash equivalents (Note 1)	**412,814**	520,645
Short-term investments (Note 2)	**1,767**	956
Trade receivables, net (Note 3)	**559,836**	612,953
Inventories (Note 4)	**584,756**	611,281
Prepaid expenses and other current assets (Notes 6, 14 and 17)	**286,792**	304,346
Total current assets	**1,845,965**	2,050,181
Noncurrent receivables (Note 19)	**17,135**	18,230
Investments (Note 2)	**48,361**	42,556
Property, plant and equipment, net (Notes 5 and 6)	**1,089,671**	1,090,992
Operating lease right-of-use assets (Note 18)	**114,418**	—
Intangible assets, net (Note 7)	**347,921**	391,021
Goodwill (Note 7)	**898,661**	908,511
Other assets (Notes 6, 10 and 11)	**406,219**	397,974
Total assets	**4,768,351**	4,899,465

LIABILITIES AND EQUITY		
Current liabilities:		
Short-term loans and current portion of long-term debt (Note 8)	**42,034**	38,527
Trade payables (Note 9)	**305,312**	352,489
Accrued income taxes (Note 11)	**18,801**	41,264
Accrued expenses (Notes 10 and 19)	**324,891**	321,137
Current operating lease liabilities (Note 18)	**31,884**	—
Other current liabilities (Notes 5, 14 and 17)	**237,576**	276,237
Total current liabilities	**960,498**	1,029,654
Long-term debt, excluding current installments (Notes 8 and 20)	**357,340**	361,962
Accrued pension and severance cost (Note 10)	**368,507**	382,789
Noncurrent operating lease liabilities (Note 18)	**83,688**	—
Other noncurrent liabilities (Note 11)	**106,400**	107,147
Total liabilities	**1,876,433**	1,881,552
Commitments and contingent liabilities (Note 19)		
Equity:		
Canon Inc. shareholders' equity:		
Common stock		
Authorized 3,000,000,000 shares; issued 1,333,763,464 shares in 2019 and 2018	**174,762**	174,762
Additional paid-in capital	**405,017**	404,389
Legal reserve (Note 12)	**67,572**	67,116
Retained earnings (Note 12)	**3,462,182**	3,508,908
Accumulated other comprehensive income (loss) (Note 13)	**(308,442)**	(269,071)
Treasury stock, at cost; 269,928,993 shares in 2019 and 254,013,641 shares in 2018	**(1,108,496)**	(1,058,502)
Total Canon Inc. shareholders' equity	**2,692,595**	2,827,602
Noncontrolling interests	**199,323**	190,311
Total equity	**2,891,918**	3,017,913
Total liabilities and equity	**4,768,351**	4,899,465

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF INCOME

Canon Inc. and Subsidiaries
Years ended December 31, 2019, 2018 and 2017

	Millions of yen		
	2019	2018	2017
Net sales (Notes 6, 14 and 17)			
Products and Equipment	**2,835,428**	3,194,724	3,521,156
Services	**757,871**	757,213	558,859
	3,593,299	3,951,937	4,080,015
Cost of sales (Notes 5, 7, 10 and 18)			
Products and Equipment	**1,627,858**	1,762,171	1,875,581
Services	**355,408**	354,212	213,880
	1,983,266	2,116,383	2,089,461
Gross profit	**1,610,033**	1,835,554	1,990,554
Operating expenses (Notes 1, 5, 7, 10, 15, 18 and 19):			
Selling, general and administrative expenses	**1,136,863**	1,176,760	1,301,666
Research and development expenses	**298,503**	315,842	333,371
Impairment losses on goodwill	**—**	—	33,912
	1,435,366	1,492,602	1,668,949
Operating profit	**174,667**	342,952	321,605
Other income (deductions):			
Interest and dividend income	**5,526**	6,604	6,012
Interest expense	**(1,038)**	(797)	(818)
Other, net (Notes 1, 2, 10, 13 and 17)	**16,585**	14,133	27,085
	21,073	19,940	32,279
Income before income taxes	**195,740**	362,892	353,884
Income taxes (Note 11)	**56,223**	96,150	98,024
Consolidated net income	**139,517**	266,742	255,860
Less: Net income attributable to noncontrolling interests	**14,412**	13,987	13,937
Net income attributable to Canon Inc.	**125,105**	252,755	241,923
	Yen		
Net income attributable to Canon Inc. shareholders per share (Note 16):			
Basic	**116.93**	234.09	222.88
Diluted	**116.91**	234.08	222.88
Cash dividends per share	**160.00**	160.00	160.00

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

Canon Inc. and Subsidiaries
Years ended December 31, 2019, 2018 and 2017

	Millions of yen		
	2019	2018	2017
Consolidated net income	**139,517**	266,742	255,860
Other comprehensive income (loss), net of tax (Note 13):			
Foreign currency translation adjustments	**(32,157)**	(93,146)	47,090
Net unrealized gains and losses on securities	**—**	(141)	(9,362)
Net gains and losses on derivative instruments	**(1,068)**	488	2,588
Pension liability adjustments	**(3,630)**	(30,570)	21,207
	(36,855)	(123,369)	61,523
Comprehensive income (loss)	**102,662**	143,373	317,383
Less: Comprehensive income attributable to noncontrolling interests	**16,382**	6,918	18,807
Comprehensive income (loss) attributable to Canon Inc.	**86,280**	136,455	298,576

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF EQUITY

Canon Inc. and Subsidiaries
Years ended December 31, 2019, 2018 and 2017

	Millions of yen								
	Common stock	Additional paid-in capital	Legal reserve	Retained earnings	Accumulated other comprehensive income (loss)	Treasury stock	Total Canon Inc. shareholders' equity	Non-controlling interests	Total equity
Balance at December 31, 2016	174,762	401,385	66,558	3,350,728	(199,881)	(1,010,423)	2,783,129	211,493	2,994,622
Equity transactions with noncontrolling interests and other		1					1	(1)	—
Dividends to Canon Inc. shareholders				(162,887)			(162,887)		(162,887)
Dividends to noncontrolling interests								(4,814)	(4,814)
Acquisition of subsidiaries								60	60
Transfer to legal reserve			321	(321)			—		—
Comprehensive income:									
Net income				241,923			241,923	13,937	255,860
Other comprehensive income (loss), net of tax (Note 13):									
Foreign currency translation adjustments					44,168		44,168	2,922	47,090
Net unrealized gains and losses on securities					(9,767)		(9,767)	405	(9,362)
Net gains and losses on derivative instruments					2,562		2,562	26	2,588
Pension liability adjustments					19,690		19,690	1,517	21,207
Total comprehensive income (loss)							298,576	18,807	317,383
Repurchases of treasury stock						(50,036)	(50,036)		(50,036)
Reissuance of treasury stock				(131)		1,978	1,847		1,847
Balance at December 31, 2017	174,762	401,386	66,879	3,429,312	(143,228)	(1,058,481)	2,870,630	225,545	3,096,175
Cumulative effects of accounting standard update—adoption of ASU No. 2014-09				(106)			(106)	(76)	(182)
Cumulative effects of accounting standard update—adoption of ASU No. 2016-01				5,343	(5,343)		—	—	—
Equity transactions with noncontrolling interests and other		3,003			(4,200)		(1,197)	(36,518)	(37,715)
Dividends to Canon Inc. shareholders				(178,159)			(178,159)		(178,159)
Dividends to noncontrolling interests								(5,558)	(5,558)
Transfers to legal reserve			237	(237)			—		—
Comprehensive income:									
Net income				252,755			252,755	13,987	266,742
Other comprehensive income (loss), net of tax (Note 13):									
Foreign currency translation adjustments					(89,823)		(89,823)	(3,323)	(93,146)
Net unrealized gains and losses on securities					(141)		(141)	—	(141)
Net gains and losses on derivative instruments					488		488	—	488
Pension liability adjustments					(26,824)		(26,824)	(3,746)	(30,570)
Total comprehensive income (loss)							136,455	6,918	143,373
Repurchases of treasury stock						(25)	(25)		(25)
Reissuance of treasury stock				0		4	4		4
Balance at December 31, 2018	174,762	404,389	67,116	3,508,908	(269,071)	(1,058,502)	2,827,602	190,311	3,017,913
Cumulative effects of accounting standard update—adoption of ASU No. 2017-12				**122**	**(122)**		**—**	**—**	**—**
Equity transactions with noncontrolling interests and other		**641**			**(424)**		**217**	**(1,813)**	**(1,596)**
Dividends to Canon Inc. shareholders				**(171,487)**			**(171,487)**		**(171,487)**
Dividends to noncontrolling interests								**(5,557)**	**(5,557)**
Transfers to legal reserve			**456**	**(456)**			**—**		**—**
Comprehensive income:									
Net income				**125,105**			**125,105**	**14,412**	**139,517**
Other comprehensive income (loss), net of tax (Note 13):									
Foreign currency translation adjustments					**(32,043)**		**(32,043)**	**(114)**	**(32,157)**
Net unrealized gains and losses on securities					**—**		**—**	**—**	**—**
Net gains and losses on derivative instruments					**(1,073)**		**(1,073)**	**5**	**(1,068)**
Pension liability adjustments					**(5,709)**		**(5,709)**	**2,079**	**(3,630)**
Total comprehensive income (loss)							**86,280**	**16,382**	**102,662**
Repurchases of treasury stock						**(50,015)**	**(50,015)**		**(50,015)**
Reissuance of treasury stock		**(13)**		**(10)**		**21**	**(2)**		**(2)**
Balance at December 31, 2019	**174,762**	**405,017**	**67,572**	**3,462,182**	**(308,442)**	**(1,108,496)**	**2,692,595**	**199,323**	**2,891,918**

See accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF CASH FLOWS

Canon Inc. and Subsidiaries

Years ended December 31, 2019, 2018 and 2017

	Millions of yen		
	2019	2018	2017
Cash flows from operating activities:			
Consolidated net income	**139,517**	266,742	255,860
Adjustments to reconcile consolidated net income to net cash provided by operating activities:			
Depreciation and amortization	**237,327**	251,554	261,881
Loss on disposal of fixed assets	**5,991**	5,726	6,935
Equity in earnings of affiliated companies	**311**	(1,414)	(1,196)
Impairment losses on goodwill	**—**	—	33,912
Gain on securities contributed to retirement benefit trust	**—**	—	(17,836)
Deferred income taxes	**(6,446)**	(11,849)	(17,603)
(Increase) decrease in trade receivables	**43,504**	(17,724)	3,563
(Increase) decrease in inventories	**19,895**	(61,755)	2,967
Increase (decrease) in trade payables	**(35,509)**	(31,212)	4,951
Increase (decrease) in accrued income taxes	**(22,279)**	(35,284)	46,296
Increase in accrued expenses	**9,491**	2,541	18,503
Increase (decrease) in accrued (prepaid) pension and severance cost	**(13,722)**	(17,738)	522
Other, net (Note 6)	**(19,619)**	15,706	(8,198)
Net cash provided by operating activities	**358,461**	365,293	590,557
Cash flows from investing activities:			
Purchases of fixed assets (Note 5)	**(215,671)**	(191,399)	(189,484)
Proceeds from sale of fixed assets (Note 5)	**885**	9,634	26,444
Purchases of securities	**(4,907)**	(2,311)	(2,220)
Proceeds from sale and maturity of securities	**828**	1,615	970
(Increase) decrease in time deposits, net	**(1,511)**	401	3,373
Acquisitions of businesses, net of cash acquired	**(8,880)**	(13,346)	(6,557)
Other, net	**688**	(209)	2,464
Net cash used in investing activities	**(228,568)**	(195,615)	(165,010)
Cash flows from financing activities:			
Proceeds from issuance of long-term debt (Note 8)	**—**	439	1,570
Repayments of long-term debt (Note 8)	**(8,678)**	(136,094)	(126,578)
Increase in short-term loans, net (Note 8)	**4,913**	2,501	5,628
Transactions with noncontrolling interests	**(1,769)**	(37,942)	—
Dividends paid	**(171,487)**	(178,159)	(162,887)
Repurchases and reissuance of treasury stock	**(50,012)**	(21)	(50,034)
Other, net	**(5,557)**	(5,554)	(8,163)
Net cash provided by (used in) financing activities	**(232,590)**	(354,830)	(340,464)
Effect of exchange rate changes on cash and cash equivalents	**(5,134)**	(16,017)	6,538
Net change in cash and cash equivalents	**(107,831)**	(201,169)	91,621
Cash and cash equivalents at beginning of year	**520,645**	721,814	630,193
Cash and cash equivalents at end of year	**412,814**	520,645	721,814
Supplemental disclosure for cash flow information:			
Cash paid during the year for:			
Interest	**888**	749	1,026
Income taxes	**77,654**	131,616	71,473

See accompanying Notes to Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Canon Inc. and Subsidiaries

1. BASIS OF PRESENTATION AND SIGNIFICANT ACCOUNTING POLICIES

(a) Description of Business

Canon Inc. (the "Company") and subsidiaries (collectively "Canon") is one of the world's leading manufacturers in such fields as office products, imaging system products, medical system products and industry and other products. Office products consist mainly of office multifunction devices ("MFDs"), laser multifunction printers ("MFPs"), laser printers, digital continuous feed presses, digital sheet-fed presses, wide-format printers and document solutions. Imaging system products consist mainly of interchangeable-lens digital cameras, digital compact cameras, interchangeable lenses, compact photo printers, inkjet printers, large format inkjet printers, commercial photo printers, image scanners and calculators. Medical system products consist mainly of digital radiography systems, diagnostic X-ray systems, computed tomography ("CT") systems, magnetic resonance imaging ("MRI") systems, diagnostic ultrasound systems, clinical chemistry analyzers and ophthalmic equipment. Industry and other products consist mainly of semiconductor lithography equipment, FPD (Flat panel display) lithography equipment, vacuum thin-film deposition equipment, organic LED ("OLED") panel manufacturing equipment, die bonders, network cameras, digital camcorders, digital cinema cameras, multimedia projectors, broadcast equipment, micromotors, handy terminals and document scanners. Sales are made principally under the Canon brand name, almost entirely through sales subsidiaries. These subsidiaries are responsible for marketing and distribution, and primarily sell to retail dealers in their geographic area. Further segment information is described in Note 22.

Canon sells laser printers on an OEM basis to HP Inc.; such sales constituted 13.0%, 13.6% and 13.1% of consolidated net sales for the years ended December 31, 2019, 2018 and 2017, respectively, and are included in the Office Business Unit.

Canon's manufacturing operations are conducted primarily at 29 plants in Japan and 14 overseas plants which are located in countries or regions such as the United States, Germany, France, the Netherlands, Taiwan, China, Malaysia, Thailand, Vietnam and Philippines.

(b) Basis of Presentation

The Company and its domestic subsidiaries maintain their books of account in conformity with financial accounting standards of Japan. Foreign subsidiaries maintain their books of account in conformity with financial accounting standards of the countries of their domicile.

Certain adjustments and reclassifications have been incorporated in the accompanying consolidated financial statements to conform with U.S. generally accepted accounting principles ("U.S. GAAP"). These adjustments were not recorded in the statutory books of account.

(c) Principles of Consolidation

The consolidated financial statements include the accounts of the Company, its majority owned subsidiaries and those variable interest entities where the Company or its consolidated subsidiaries are the primary beneficiaries. All significant intercompany balances and transactions have been eliminated.

(d) Use of Estimates

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the period. Significant estimates and assumptions are reflected in valuation and disclosure of accounts including: revenue recognition, allowance for doubtful receivables, inventories, long-lived assets, goodwill and other intangible assets with indefinite useful lives, environmental liabilities, deferred tax assets, uncertain tax positions and employee retirement and severance benefit obligations. Actual results could differ materially from those estimates.

(e) Translation of Foreign Currencies

Assets and liabilities of the Company's subsidiaries located outside Japan with functional currencies other than Japanese yen are translated into Japanese yen at the rates of exchange in effect at the balance sheet date. Income and expense items are translated at the average exchange rates prevailing during the year. Gains and losses resulting from translation of financial statements are excluded from earnings and are reported in other comprehensive income (loss).

Gains and losses resulting from foreign currency transactions and translation of assets and liabilities denominated in foreign currencies are included in other income (deductions) in the consolidated statements of income. Foreign currency exchange gains and losses were net losses of ¥4,236 million, ¥6,044 million and ¥9,775 million for the years ended December 31, 2019, 2018 and 2017, respectively.

(f) Cash Equivalents

All highly liquid investments acquired with original maturities of three months or less are considered to be cash equivalents. Certain debt securities with original maturities of less than three months, classified as available-for-sale securities of ¥506 million and ¥70,500 million at December 31, 2019 and 2018, respectively, are included in cash and cash equivalents in the consolidated balance sheets.

(g) Investments

Investments consist primarily of time deposits with original maturities of more than three months, debt and equity securities and investments in affiliated companies.

Canon classifies investments in debt securities as available-for-sale securities. Canon does not hold any trading securities which are bought and held primarily for the purpose of sale in the near term, or any held-to-maturity securities. Canon reports investments with maturities of less than one year as short-term investments.

Available-for-sale debt securities and equity securities with readily determinable fair value that are not accounted for under the equity method are recorded at fair value which is determined based on quoted market prices, projected discounted cash flows or other valuation techniques as appropriate. The changes in fair value are recognized in net income for equity securities and in other comprehensive income for available-for-sale debt securities.

Available-for-sale debt securities are regularly reviewed for other-than-temporary declines in the carrying amount based on criteria that include the length of time and the extent to which the market value has been less than cost, the financial condition and near-term prospects of the issuer and Canon's intent and ability to retain the investment for a period of time sufficient to allow for any anticipated recovery in market value. For available-for-sale securities for which the declines are deemed to be other-than-temporary and there is no intent to sell, the impairment are separated into the amount related to credit loss, which is recognized in earnings and the amount related to all other factors is recognized in other comprehensive income (loss). For available-for-sale securities for which the declines are deemed to be other-than-temporary and there is an intent to sell, the impairments in their entirety are recognized in earnings. Canon recognizes an impairment loss to the extent by which the cost basis of the investment exceeds the fair value of the investment.

Canon measures non-marketable equity securities without readily determinable fair value at cost, minus impairment, if any, plus or minus changes resulting from observables price changes in orderly transactions for the identical or a similar investment of the same issuer.

Realized gains and losses are determined by the average cost method and reflected in earnings.

Investments in affiliated companies over which Canon has the ability to exercise significant influence, but does not hold a controlling financial interest, are accounted for by the equity method.

(h) Allowance for Doubtful Receivables

Allowance for doubtful trade and finance receivables is maintained for all customers based on a combination of factors, including aging analysis, macroeconomic conditions and historical experience. An additional reserve for individual accounts is recorded when Canon becomes aware of a customer's inability to meet its financial obligations, such as in the case of bankruptcy filings. If circumstances related to customers change, estimates of the recoverability of receivables would be further adjusted. When all collection options are exhausted including legal recourse, the accounts or portions thereof are deemed to be uncollectable and charged against the allowance.

(i) Inventories

Inventories are stated at the lower of cost or net realizable value. Cost is determined by the average method for domestic inventories and principally by the first-in, first-out method for overseas inventories.

(j) Impairment of Long-Lived Assets

Long-lived assets, such as property, plant and equipment, and acquired intangible assets subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of the asset and the estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of the asset exceeds its estimated undiscounted future cash flows, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. Assets to be disposed of by sale are reported at the lower of the carrying amount or fair value less costs to sell, and are no longer depreciated.

(k) Property, Plant and Equipment

Property, plant and equipment are stated at cost. Depreciation is calculated principally by the declining-balance method, except for certain assets which are depreciated by the straight-line method over the estimated useful lives of the assets.

The depreciation period ranges from 3 years to 60 years for buildings and 1 year to 20 years for machinery and equipment.

Assets leased to others under operating leases are stated at cost and depreciated to the estimated residual value of the assets by the straight-line method over the lease term, generally from 2 years to 50 years.

(l) Leases

As for lessor accounting, Canon provides leasing arrangement to its customers primarily for the sales of office products. Revenue from the sale of these products under sales-type leases is recognized at the inception of the lease. Interest income on sales-type leases and direct-financing leases is recognized over the life of each respective lease using the interest method. Leases not qualifying as sales-type leases or direct-financing leases are accounted for as operating leases and related revenue is recognized ratably over the lease term. When product leases are bundled with maintenance contracts, revenue is allocated based upon the estimated standalone selling prices of the lease and non-lease components. Lease components generally include product and financing while non-lease components generally consist of maintenance contracts and supplies. Some of the contracts include options to extend or to terminate the lease. Canon takes such options into account to determine the lease term when it is reasonably certain that it will exercise these options. The majority of Canon's lease contracts do not contain bargain purchase options for their customers.

As for lessee accounting, Canon has operating and finance leases for various assets including office buildings, warehouses, employees' accommodations, and vehicles. Canon determines if an arrangement is a lease at the inception of each contract. Some of the contracts include options to extend or to terminate the lease. Canon takes such options into accounts to determine the lease term when it is reasonably certain that it will exercise these options. Canon's lease arrangements do not contain material residual value guarantees or material restrictive covenants. As a rate implicit in the most of Canon's leases cannot be determined, Canon uses incremental borrowing rate based on the information available at commencement to determine the present values of lease payments. Canon has lease contracts with lease and non-lease components, which are accounted for separately. Canon allocates the consideration in the lease contract to the lease and non-lease components based upon the estimated standalone prices. Costs associated with operating lease assets are recognized on a straight-line basis over the term of the lease.

(m) Goodwill and Other Intangible Assets

Goodwill and other intangible assets with indefinite useful lives are not amortized, but are instead tested for impairment annually in the fourth quarter of each year, or more frequently if indicators of potential impairment exist. All goodwill is assigned to the reporting unit or units that benefit from the synergies arising from each business combination. If the carrying amount assigned to the reporting unit exceeds the fair value of the reporting unit, Canon recognizes an impairment charge in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit.

Intangible assets with finite useful lives consist primarily of software, trademarks, patents and developed technology, license fees and customer relationships, which are amortized using the straight-line method. The estimated useful lives of software are from 3 years to 8 years, trademarks are 15 years, patents and developed technology are from 7 years to 17 years, license fees are 7 years, and customer relationships are from 8 years to 15 years, respectively. Certain costs incurred in connection with developing or obtaining internal-use software are capitalized. These costs consist primarily of payments made to third parties and the salaries of employees working on such software development. Costs incurred in connection with developing internal-use software are capitalized at the application development stage. In addition, Canon develops or obtains certain software to be sold where related costs are capitalized after establishment of technological feasibility.

(n) Environmental Liabilities

Liabilities for environmental remediation and other environmental costs are accrued when environmental assessments or remedial efforts are probable and the costs can be reasonably estimated. Such liabilities are adjusted as further information develops or circumstances change. Costs of future obligations are not discounted to their present values.

(o) Income Taxes

Deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and operating loss and tax credit carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Canon records a valuation allowance to reduce the deferred tax assets to the amount that is more likely than not realizable.

Canon recognizes the financial statement effects of tax positions when it is more likely than not, based on the technical merits, that the tax positions will be sustained upon examination by the tax authorities. Benefits from tax positions that meet the more-likely-than-not recognition threshold are measured at the largest amount of benefit that is greater than 50% likely of being realized upon settlement. Interest and penalties accrued related to unrecognized tax benefits are included in income taxes in the consolidated statements of income.

(p) Stock-Based Compensation

Canon measures stock-based compensation cost at the grant date, based on the fair value of the award, and recognizes the cost on a straight-line basis over the requisite service period, which is the vesting period.

(q) Net Income Attributable to Canon Inc. Shareholders per Share

Basic net income attributable to Canon Inc. shareholders per share is computed by dividing net income attributable to Canon Inc. by the weighted-average number of common shares outstanding during each year. Diluted net income attributable to Canon Inc. shareholders per share includes the effect from potential issuances of common stock based on the assumptions that all stock options were exercised.

(r) Revenue Recognition

Canon generates revenue principally through the sale of office, imaging system and medical system products, industrial equipment, supplies and related services under separate contractual arrangements. Revenue is recognized when, or as, control of promised goods or services transfers to customers in an amount that reflects the consideration to which Canon expects to be entitled in exchange for transferring these goods or services. For further information, please refer to Note 14.

(s) Research and Development Costs

Research and development costs are expensed as incurred.

(t) Advertising Costs

Advertising costs are expensed as incurred. Advertising expenses were ¥46,665 million, ¥58,729 million and ¥61,207 million for the years ended December 31, 2019, 2018 and 2017, respectively.

(u) Shipping and Handling Costs

Shipping and handling costs totaled ¥51,718 million, ¥54,844 million and ¥52,953 million for the years ended December 31, 2019, 2018 and 2017, respectively, and are included in selling, general and administrative expenses in the consolidated statements of income.

(v) Derivative Financial Instruments

All derivatives are recognized at fair value and are included in prepaid expenses and other current assets, or other current liabilities in the consolidated balance sheets.

Canon uses and designates certain derivatives as a hedge of a forecasted transaction or the variability of cash flows to be received or paid related to a recognized asset or liability ("cash flow" hedge). Canon formally documents all relationships between hedging instruments and hedged items, as well as its risk-management objective and strategy for undertaking various hedge transactions. Canon also formally assesses, both at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in cash flows of hedged items. When it is determined that a derivative is not highly effective as a hedge or that it has ceased to be a highly effective hedge, Canon discontinues hedge accounting prospectively. Changes in the fair value of a derivative that is designated and qualifies as a cash flow hedge are recorded in other comprehensive income (loss), until earnings are affected by the variability in cash flows of the hedged item, and reclassified in the same income statement line item in which the earnings effect of the hedged item is reported.

Canon also uses certain derivative financial instruments which are not designated as hedges. The changes in fair values of these derivative financial instruments are immediately recorded in earnings.

Canon classifies cash flows from derivatives as cash flows from operating activities in the consolidated statements of cash flows.

(w) Guarantees

Canon recognizes, at the inception of a guarantee, a liability for the fair value of the obligation it has undertaken in issuing guarantees.

(x) Recent Accounting Guidance

Recently adopted accounting guidance

In February 2016, the Financial Accounting Standards Board ("FASB") issued ASU No. 2016-02, Leases (Topic 842) Section A – Leases: Amendments to the FASB Accounting Standards Codification, which requires lessees to recognize most leases on their balance sheets but recognize expenses on their income statements in a manner similar to the previous guidance. For lessors, the standard modifies the classification criteria and the accounting for sales-type and direct financing leases. The FASB also modified the definition of a lease. Additionally, this guidance expands the qualitative and quantitative disclosures related to leases. This guidance is effective for annual reporting periods beginning after December 15, 2018. Canon applied the guidance from the quarter beginning January 1, 2019. Canon applied the package of practical expedients that allows it not to reassess whether any existing contracts at or expired contracts prior to the adoption date are or contain leases, lease classification and whether initial direct costs qualify for capitalization, in addition to the short term lease exception. Canon also adopted the transition method for which no restatement of comparative periods and no reassessment of land easements not previously accounted for as a lease that existed at or expired prior to the adoption date are required. The right of use assets for operating leases recognized at January 1, 2019 was ¥125,649 million. The corresponding lease liabilities were also recognized. The adoption of this guidance did not have a material impact on its consolidated results of operation. For further information, please refer to Notes 6 and 18.

In August 2017, the FASB issued ASU No. 2017-12, Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities, which amends existing guidance to simplify the application of the hedge accounting in certain situations and enables an entity to better portray the economic results of an entity's risk management activities in its financial statements. This guidance eliminates the requirement to separately measure and report hedge ineffectiveness, and requires an entity to present the earnings effect of the hedging instrument in the same income statement line item in which the earnings effect of the hedged item is reported. Canon adopted this guidance from the quarter beginning January 1, 2019 with the modified retrospective method through a cumulative effect adjustment directly to retained earnings as of the beginning of the period. Gains and losses resulting from derivative financial instruments designated as cash flow hedges associated with forecasted intercompany sales, which were previously included in other income (deductions) in the consolidated statements of income, are included in net sales after the adoption of this guidance. The adoption of this guidance did not have a material impact on its consolidated results of operation and financial condition.

Recently issued accounting guidance not yet adopted

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments – Credit Losses – (Topic 326): Measurement of Credit Losses on Financial Instruments, which requires entities to use a current expected credit loss model to measure impairments of certain financial assets. Using this model will result in earlier recognition of losses than under the current incurred loss approach, which requires waiting to recognize a loss until it is probable of being incurred. This guidance should be applied on a modified retrospective basis through a cumulative effect adjustment directly to retained earnings as of the beginning of the period of adoption. Canon will adopt the guidance from the quarter beginning January 1, 2020. Canon does not expect material impacts from the adoption on its consolidated results of operation and financial condition.

2. INVESTMENTS

The unrealized and realized gains and losses related to equity securities for the year ended December 31, 2019 and 2018 are as follows:

Years ended December 31	Millions of yen	
	2019	2018
Net gains and (losses) recognized during the period on equity securities	**2,148**	(6,092)
Less: Net gains and (losses) recognized during the period on equity securities sold during the period	**(76)**	675
Unrealized gains and (losses) recognized during the period on equity securities still held at December 31	**2,224**	(6,767)

Gross realized gains related to equity securities were ¥18,514 million for the year ended December 31, 2017. Gross realized losses, including write-downs for impairments that were other-than-temporary, were ¥42 million for the years ended December 31, 2017.

During the year ended December 31, 2017, Canon contributed certain marketable equity securities, not including those of its subsidiaries and affiliated companies, to an established employee retirement benefit trust, with no cash proceeds there on. The fair value of those securities at the time of contribution was ¥30,473 million. Upon contribution of those available-for-sale securities, the unrealized gains amounting to ¥17,836 million were realized and were included in "Other, net" in the consolidated statements of income.

The carrying amount of non-marketable equity securities without readily determinable fair value totaled ¥8,448 million and ¥4,629 million at December 31, 2019 and 2018, respectively. The impairment or other adjustments resulting from observable price changes recorded during the year ended December 31, 2019 and 2018 were not significant.

The unrealized and realized gains and losses related to debt securities were not significant for the years ended December 31, 2019, 2018 and 2017, respectively.

Time deposits with original maturities of more than three months are ¥1,767 million and ¥326 million at December 31, 2019 and 2018, respectively, and are included in short-term investments in the accompanying consolidated balance sheets.

Investments in affiliated companies accounted for by the equity method amounted to ¥19,988 million and ¥21,312 million at December 31, 2019 and 2018, respectively. Canon's share of the net earnings in affiliated companies accounted for by the equity method, included in other income (deductions), were losses of ¥311 million for the year ended December 31, 2019, and earnings of ¥1,414 million and ¥1,196 million for the years ended December 31, 2018 and 2017 respectively.

3. TRADE RECEIVABLES

Trade receivables are summarized as follows:

December 31	Millions of yen	
	2019	2018
Notes	**32,952**	29,878
Accounts	**537,243**	594,552
	570,195	624,430
Less allowance for doubtful receivables	**(10,359)**	(11,477)
	559,836	612,953

4. INVENTORIES

Inventories are summarized as follows:

December 31	Millions of yen	
	2019	2018
Finished goods	**367,332**	393,820
Work in process	**165,399**	165,003
Raw materials	**52,025**	52,458
	584,756	611,281

5. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment are stated at cost less accumulated depreciation and are summarized as follows:

December 31	Millions of yen	
	2019	2018
Land	**273,014**	272,443
Buildings	**1,658,270**	1,629,683
Machinery and equipment	**1,802,624**	1,789,226
Construction in progress	**77,953**	67,045
Finance lease right-of-use assets	**4,999**	4,517
	3,816,860	3,762,914
Less accumulated depreciation	**(2,727,189)**	(2,671,922)
	1,089,671	1,090,992

After the adoption of ASU No. 2016-02 from the beginning of the first quarter of 2019, Canon has reclassified finance lease assets from buildings and machinery and equipment to finance lease right-of-use assets. Finance lease assets at December 31, 2018 also have been reclassified.

Depreciation expenses for the years ended December 31, 2019, 2018 and 2017 were ¥170,418 million, ¥175,771 million and ¥189,712 million, respectively.

Amounts due for purchases of property, plant and equipment were ¥30,601 million and ¥32,433 million at December 31, 2019 and 2018, respectively, and are included in other current liabilities in the accompanying consolidated balance sheets. Fixed assets presented in the consolidated statements of cash flows include property, plant and equipment and intangible assets.

6. LESSOR ACCOUNTING

Lease income is included in Products and Equipment sales in the accompanying consolidated statement of income. Supplemental income statement information is as follows:

Year ended December 31	Millions of yen
	2019
Lease income – sales-type and direct financing leases	
Revenue at lease commencement	**114,312**
Interest income on lease receivables	**20,382**
	134,694
Lease income – operating leases	**25,403**
Variable lease income	**6,216**
	166,313

Finance Receivables and Operating Leases

Finance receivables represent financing leases which consist of sales-type leases and direct financing leases resulting from the sales of Canon's and complementary third-party products. These receivables typically have terms ranging from 1 year to 7 years. The components of the finance receivables, which are included in prepaid expenses and other current assets, and other assets in the accompanying consolidated balance sheets, are as follows:

December 31	Millions of yen	
	2019	2018
Total minimum lease payments receivable	**360,146**	351,198
Unguaranteed residual values	**13,070**	12,661
Executory costs	**—**	(2,112)
Unearned income	**(33,338)**	(31,007)
	339,878	330,740
Less allowance for credit losses	**(2,627)**	(2,675)
	337,251	328,065
Less current portion	**(113,892)**	(111,629)
	223,359	216,436

Allowance for Credit Losses

The activities in the allowance for credit losses are as follows:

Years ended December 31	Millions of yen	
	2019	2018
Balance at beginning of year	**2,675**	2,681
Charge-offs	**(1,653)**	(1,284)
Provision	**1,495**	938
Translation adjustments and other	**110**	340
Balance at end of year	**2,627**	2,675

Canon has policies in place to ensure that its products are sold to customers with an appropriate credit history and continuously monitors its customers' credit quality based on information including length of period in arrears, macroeconomic conditions, initiation of legal proceedings against customers and bankruptcy filings. The allowance for credit losses of finance receivables is evaluated collectively based on historical experience of credit losses. An additional reserve for individual accounts is recorded when Canon becomes aware of a customer's inability to meet its financial obligations, such as in the case of bankruptcy filings. Finance receivables which are past due or are individually evaluated for impairment at December 31, 2019 and December 31, 2018 are not significant.

Equipment leased to customers

The cost of equipment leased to customers under operating leases included in property, plant and equipment, net at December 31, 2019 and 2018 was ¥116,681 million and ¥120,457 million, respectively. Accumulated depreciation on equipment under operating leases at December 31, 2019 and 2018 was ¥82,633 million and ¥82,698 million, respectively.

Maturity Analysis

The following is a schedule by year of the future minimum lease payments to be received under finance leases and non-cancellable operating leases at December 31, 2019.

Year ending December 31:	Millions of yen	
	Financing leases	Operating leases
2020	128,674	9,893
2021	100,569	6,115
2022	68,921	3,593
2023	39,314	1,116
2024	16,363	401
Thereafter	6,305	56
	360,146	21,174

Information about transferring finance receivables

Canon has syndication arrangements to sell its entire interests in finance receivables to the third-party financial institutions. The transactions under the arrangements are accounted for as sales in accordance with ASC 860 "Transfers and Servicing." The sales of finance receivables were ¥11,710 million and ¥21,909 million for the year ended December 31, 2019 and 2018. The amount remained uncollected were ¥28,616 million and ¥22,956 million at December 31, 2019 and 2018, respectively. Cash proceeds from the transactions are included in other, net under the cash flow from operating activities in the consolidated statement of cash flows. Canon continues to provide collection and administrative services for the financial institutions. The amount associated with the servicing liability measured at fair value was not material at December 31, 2019 and 2018, respectively. Canon also retains limited recourse obligations which cover credit defaults. The recourse obligation was not material at December 31, 2019 and 2018, respectively.

7. GOODWILL AND OTHER INTANGIBLE ASSETS

Intangible assets subject to amortization acquired during the year ended December 31, 2019, including those recorded from businesses acquired, totaled ¥34,259 million, which primarily consist of software of ¥32,334 million. The weighted average amortization periods for intangible assets in total acquired during the year ended December 31, 2019 are approximately 5 years. The weighted average amortization period for software acquired during the year ended December 31, 2019 is approximately 5 years.

Intangible assets subject to amortization acquired during the year ended December 31, 2018, including those recorded from businesses acquired, totaled ¥48,004 million, which primarily consist of software of ¥36,859 million, and patent and developed technology of ¥6,109 million. The weighted average amortization periods for intangible assets in total acquired during the year ended December 31, 2018 are approximately 6 years. The weighted average amortization periods for software, and patent and developed technology acquired during the year ended December 31, 2018 are approximately 5 years and 11 years, respectively.

The components of intangible assets subject to amortization at December 31, 2019 and 2018 were as follows:

December 31	2019		2018	
Millions of yen	Gross carrying amount	Accumulated amortization	Gross carrying amount	Accumulated amortization
Software	**370,178**	**262,405**	362,130	244,188
Customer relationships	**153,708**	**35,276**	156,679	27,263
Patents and developed technology	**123,609**	**46,263**	123,831	36,029
Trademarks	**41,688**	**13,582**	44,449	12,062
License fees	**15,944**	**8,482**	16,071	6,461
Other	**18,972**	**11,846**	19,319	9,859
	724,099	**377,854**	722,479	335,862

Aggregate amortization expense for the years ended December 31, 2019, 2018 and 2017 was ¥66,909 million, ¥75,783 million and ¥72,169 million, respectively. Estimated amortization expense for intangible assets currently held for the next five years ending December 31 is ¥58,646 million in 2020, ¥51,386 million in 2021, ¥42,866 million in 2022, ¥32,678 million in 2023, and ¥27,818 million in 2024.

Intangible assets not subject to amortization other than goodwill at December 31, 2019 and 2018 were not significant.

For management reporting purposes, goodwill is not allocated to the segments. Goodwill has been allocated to its respective segment for impairment testing.

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

Year ended December 31 Millions of yen	Office	Imaging System	Medical System	Industry and Others	Total
2019: Goodwill -gross	**127,860**	**48,670**	**500,896**	**263,513**	**940,939**
Accumulated impairment losses	**(20,770)**	**—**	**—**	**(11,658)**	**(32,428)**
Balance at beginning of year	**107,090**	**48,670**	**500,896**	**251,855**	**908,511**
Goodwill acquired during the year	**—**	**—**	**8,330**	**—**	**8,330**
Translation adjustments and other	**(2,518)**	**(1,717)**	**(319)**	**(13,626)**	**(18,180)**
Goodwill -gross	**124,613**	**46,953**	**508,907**	**249,478**	**929,951**
Accumulated impairment losses	**(20,041)**	**—**	**—**	**(11,249)**	**(31,290)**
Balance at end of year	**104,572**	**46,953**	**508,907**	**238,229**	**898,661**

Year ended December 31 Millions of yen	Office	Imaging System	Medical System	Industry and Others	Total
2018: Goodwill -gross	135,125	52,561	499,915	283,577	971,178
Accumulated impairment losses	(22,069)	—	—	(12,387)	(34,456)
Balance at beginning of year	113,056	52,561	499,915	271,190	936,722
Goodwill acquired during the year	—	—	1,521	6,106	7,627
Translation adjustments and other	(5,966)	(3,891)	(540)	(25,441)	(35,838)
Goodwill -gross	127,860	48,670	500,896	263,513	940,939
Accumulated impairment losses	(20,770)	—	—	(11,658)	(32,428)
Balance at end of year	107,090	48,670	500,896	251,855	908,511

8. SHORT-TERM LOANS AND LONG-TERM DEBT

Short-term loans consisting of bank borrowings at December 31, 2019 and 2018 were ¥40,800 million and ¥35,887 million, respectively. The weighted average interest rate on short-term borrowings outstanding at December 31, 2019 and 2018 were 0.21% and 0.43%, respectively. Unused overdraft facilities at December 31, 2019 were ¥150,000 million. The overdraft facilities bear interest at a rate equal to a base rate plus a spread.

Long-term debt consisted of the following:

December 31	Millions of yen	
	2019	2018
Loan from banks; bearing interest of 0.08% at December 31, 2019 and 0.07% at December 31, 2018 *1	**354,000**	360,000
Other debt*2	**4,574**	4,602
	358,574	364,602
Less current portion	**(1,234)**	(2,640)
	357,340	361,962

*1 Canon has the unsecured revolving credit facility contracts expiring in December 2021. Canon prepaid ¥6,000 million of the loan with cash flows generated during the year ended December 31, 2019. The outstanding loans under the credit facilities are ¥354,000 million at a floating interest of 0.08% and Canon has no unused credit facilities as of December 31, 2019.

*2 The other debt consisted of term-loans and finance lease obligations as of December 31, 2019 and 2018.

The aggregate annual maturities of long-term debt outstanding at December 31, 2019 were as follows:

Year ending December 31:	Millions of yen
2020	1,234
2021	355,199
2022	821
2023	487
2024	203
Thereafter	630
	358,574

Both short-term and long-term bank loans are primarily made under general agreements which provide that security and guarantees for present and future indebtedness will be given upon request of the bank, and that the bank shall have the right to offset cash deposits against obligations that have become due or, in the event of default, against all obligations due to the bank.

9. TRADE PAYABLES

Trade payables are summarized as follows:

December 31	Millions of yen	
	2019	2018
Notes	**56,865**	68,140
Accounts	**248,447**	284,349
	305,312	352,489

10. EMPLOYEE RETIREMENT AND SEVERANCE BENEFITS

The Company and certain of its subsidiaries have contributory and noncontributory defined benefit pension plans covering substantially all of their employees. Benefits payable under the plans are based on employee earnings and years of service. The Company and certain of its subsidiaries also have defined contribution pension plans covering substantially all of their employees. Canon Medical Systems Corporation ("CMSC") temporarily participated in Toshiba Corporate Pension Funds ("Toshiba Funds") after CMSC was acquired by Canon in 2016. In April 2018, CMSC established a new pension provision which provides participants an equivalent level of benefits as compared to the Toshiba Funds. As of December 31, 2018, a majority of plan participants had been transferred from the Toshiba Funds into the new pension provision. Canon calculated the projected benefit obligations for the remaining participants within the Toshiba Funds based on the benefit level of the Toshiba Funds and included the proportional share of the plan assets to which CMSC had a legal right in the following tables for the remaining participants as of December 31, 2018. In March 2019, CMSC settled the pension obligations attributed to the remaining participants within the Toshiba Funds. The loss recognized due to the settlement in the consolidated statement of income for the year ended December 31, 2019 was not significant.

Obligations and funded status

Reconciliations of beginning and ending balances of the projected benefit obligations and the fair value of the plan assets are as follows:

December 31	Japanese plans		Foreign plans	
	Millions of yen		Millions of yen	
	2019	2018	**2019**	2018
Change in benefit obligations:				
Projected benefit obligations at beginning of year	**927,006**	929,630	**385,949**	423,579
Service cost	**30,903**	31,241	**6,264**	7,982
Interest cost	**5,074**	5,419	**8,643**	8,691
Plan participants' contributions	**—**	—	**1,432**	1,535
Actuarial (gain) loss	**15,289**	(1,844)	**52,261**	(24,297)
Benefits paid	**(35,372)**	(33,477)	**(10,863)**	(10,135)
Plan amendments	**—**	(3,963)	**362**	3,257
Curtailments and settlements	**(17,510)**	—	**(3,608)**	(1,149)
Foreign currency exchange rate changes	**—**	—	**(816)**	(23,514)
Projected benefit obligations at end of year	**925,390**	927,006	**439,624**	385,949
Change in plan assets:				
Fair value of plan assets at beginning of year	**682,695**	735,513	**248,642**	254,020
Actual return on plan assets	**54,170**	(38,010)	**35,298**	(6,042)
Employer contributions	**12,367**	12,651	**18,016**	22,393
Plan participants' contributions	**—**	—	**1,432**	1,535
Benefits paid	**(28,549)**	(27,459)	**(10,863)**	(10,135)
Settlements	**(16,514)**	—	**—**	(1,150)
Foreign currency exchange rate changes	**—**	—	**2,304**	(11,979)
Fair value of plan assets at end of year	**704,169**	682,695	**294,829**	248,642
Funded status at end of year	**(221,221)**	(244,311)	**(144,795)**	(137,307)

Amounts recognized in the consolidated balance sheets at December 31, 2019 and 2018 are as follows:

December 31	Japanese plans		Foreign plans	
	Millions of yen		Millions of yen	
	2019	2018	**2019**	2018
Other assets	**1,904**	1,536	**2,342**	1,306
Accrued expenses	**(818)**	(679)	**(937)**	(992)
Accrued pension and severance cost	**(222,307)**	(245,168)	**(146,200)**	(137,621)
	(221,221)	(244,311)	**(144,795)**	(137,307)

Amounts recognized in accumulated other comprehensive income (loss) at December 31, 2019 and 2018 before the effect of income taxes are as follows:

December 31	Japanese plans		Foreign plans	
	Millions of yen		Millions of yen	
	2019	2018	**2019**	2018
Actuarial loss	**231,811**	267,355	**118,247**	95,121
Prior service credit	**(36,506)**	(48,392)	**268**	(227)
	195,305	218,963	**118,515**	94,894

The accumulated benefit obligation for all defined benefit plans was as follows:

December 31	Japanese plans		Foreign plans	
	Millions of yen		Millions of yen	
	2019	2018	**2019**	2018
Accumulated benefit obligation	**892,154**	893,154	**421,460**	371,653

The projected benefit obligations and the fair value of plan assets for the pension plans with projected benefit obligations in excess of plan assets, and the accumulated benefit obligations and the fair value of plan assets for the pension plans with accumulated benefit obligations in excess of plan assets are as follows:

December 31	Japanese plans		Foreign plans	
	Millions of yen		Millions of yen	
	2019	2018	**2019**	2018
Plans with projected benefit obligations in excess of plan assets:				
Projected benefit obligations	**916,562**	918,736	**437,780**	384,167
Fair value of plan assets	**693,437**	672,889	**290,643**	245,554
Plans with accumulated benefit obligations in excess of plan assets:				
Accumulated benefit obligations	**887,138**	891,204	**414,729**	369,215
Fair value of plan assets	**688,754**	670,826	**285,341**	244,826

Components of net periodic benefit cost and other amounts recognized in other comprehensive income (loss)

Net periodic benefit cost for Canon's employee retirement and severance defined benefit plans for the years ended December 31, 2019, 2018 and 2017 consisted of the following components:

Years ended December 31	Japanese plans			Foreign plans		
	Millions of yen			Millions of yen		
	2019	2018	2017	**2019**	2018	2017
Service cost	**30,903**	31,241	30,889	**6,264**	7,982	6,962
Interest cost	**5,074**	5,419	5,689	**8,643**	8,691	8,691
Expected return on plan assets	**(19,553)**	(21,983)	(20,493)	**(11,919)**	(12,601)	(10,722)
Amortization of prior service credit	**(11,877)**	(13,001)	(12,860)	**(133)**	(217)	(83)
Amortization of actuarial loss	**15,247**	11,900	14,220	**4,345**	5,108	5,747
(Gain) loss on curtailments and settlements	**(36)**	—	(63)	**(2,197)**	—	—
	19,758	13,576	17,382	**5,003**	8,963	10,595

Service cost component of net periodic benefit cost for Canon's employee retirement and severance defined benefit plans is included in cost of sales and operating expenses in the consolidated statements of income. The components other than the service cost component are included in other, net of other income (deductions) in the consolidated statements of income.

Other changes in plan assets and benefit obligations recognized in other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017 are summarized as follows:

Years ended December 31	Japanese plans			Foreign plans		
	Millions of yen			Millions of yen		
	2019	2018	2017	**2019**	2018	2017
Current year actuarial (gain) loss	**(19,328)**	58,149	(15,771)	**28,882**	(5,654)	(5,300)
Current year prior service credit	**—**	(3,963)	1,149	**362**	3,257	(1,069)
Amortization of actuarial loss	**(15,247)**	(11,900)	(14,220)	**(4,345)**	(5,108)	(5,747)
Amortization of prior service credit	**11,877**	13,001	12,860	**133**	217	83
Curtailments and settlements	**(960)**	—	19	**(1,411)**	(63)	—
	(23,658)	55,287	(15,963)	**23,621**	(7,351)	(12,033)

The estimated prior service credit and actuarial loss for the defined benefit pension plans that will be amortized from accumulated other comprehensive income (loss) into net periodic benefit cost over the next year are summarized as follows:

	Japanese plans	Foreign plans
	Millions of yen	Millions of yen
Prior service credit	(8,736)	(123)
Actuarial loss	12,506	6,073

Assumptions

Weighted-average assumptions used to determine benefit obligations are as follows:

December 31	Japanese plans		Foreign plans	
	2019	2018	**2019**	2018
Discount rate	**0.5%**	0.6%	**1.6%**	2.4%
Assumed rate of increase in future compensation levels	**2.6%**	2.6%	**1.0%**	1.9%

Weighted-average assumptions used to determine net periodic benefit cost are as follows:

Years ended December 31	Japanese plans			Foreign plans		
	2019	2018	2017	**2019**	2018	2017
Discount rate	**0.6%**	0.6%	0.7%	**2.4%**	2.2%	2.2%
Assumed rate of increase in future compensation levels	**2.6%**	2.6%	2.6%	**1.9%**	1.8%	2.1%
Expected long-term rate of return on plan assets	**3.0%**	2.9%	3.1%	**5.2%**	4.4%	4.2%

Canon determines the expected long-term rate of return based on the expected long-term return of the various asset categories in which it invests. Canon considers the current expectations for future returns and the actual historical returns of each plan asset category.

Plan assets

Canon's investment policies are designed to ensure adequate plan assets are available to provide future payments of pension benefits to eligible participants. Taking into account the expected long-term rate of return on plan assets, Canon formulates a "model" portfolio comprised of the optimal combination of equity securities and debt securities. Plan assets are invested in individual equity and debt securities using the guidelines of the "model" portfolio in order to produce a total return that will match the expected return on a mid-term to long-term basis. Canon evaluates the gap between expected return and actual return of invested plan assets on an annual basis to determine if such differences necessitate a revision in the formulation of the "model" portfolio. Canon revises the "model" portfolio when and to the extent considered necessary to achieve the expected long-term rate of return on plan assets.

Canon's model portfolio for Japanese plans consists of three major components: approximately 25% is invested in equity securities, approximately 50% is invested in debt securities, and approximately 25% is invested in other investment vehicles, primarily consisting of investments in life insurance company general accounts.

Outside Japan, investment policies vary by country, but the long-term investment objectives and strategies remain consistent. Canon's model portfolio for foreign plans has been developed as follows: approximately 35% is invested in equity securities, approximately 20% is invested in debt securities, and approximately 45% is invested in other investment vehicles, primarily consisting of investments in real estate assets.

The equity securities are selected primarily from stocks that are listed on the securities exchanges. Prior to investing, Canon has investigated the business condition of the investee companies, and appropriately diversified investments by type of industry and other relevant factors. The debt securities are selected primarily from government bonds, public debt instruments, and corporate bonds. Prior to investing, Canon has investigated the quality of the issue, including rating, interest rate, and repayment dates, and has appropriately diversified the investments. Pooled funds are selected using strategies consistent with the equity and debt securities described above. As for investments in life insurance company general accounts, the contracts with the insurance companies include a guaranteed interest rate and return of capital. With respect to investments in foreign investment vehicles, Canon has investigated the stability of the underlying governments and economies, the market characteristics such as settlement systems and the taxation systems. For each such investment, Canon has selected the appropriate investment country and currency.

The three levels of input used to measure fair value are more fully described in Note 21. The fair values of Canon's pension plan assets at December 31, 2019 and 2018, by asset category, are as follows:

December 31, 2019	Millions of yen							
	Japanese plans				Foreign plans			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Equity securities:								
Japanese companies (a)	**77,484**	**—**	**—**	**77,484**	**—**	**—**	**—**	**—**
Foreign companies	**5,164**	**—**	**—**	**5,164**	**10,298**	**—**	**—**	**10,298**
Pooled funds (b)	**—**	**164,662**	**—**	**164,662**	**—**	**63,557**	**—**	**63,557**
Debt securities:								
Government bonds (c)	**130,180**	**—**	**—**	**130,180**	**—**	**—**	**—**	**—**
Municipal bonds	**—**	**1,202**	**—**	**1,202**	**—**	**2,302**	**—**	**2,302**
Corporate bonds	**—**	**11,711**	**—**	**11,711**	**—**	**6,472**	**—**	**6,472**
Pooled funds (d)	**—**	**136,655**	**—**	**136,655**	**—**	**64,259**	**—**	**64,259**
Mortgage backed securities (and other asset backed securities)	**—**	**12,090**	**—**	**12,090**	**—**	**2,511**	**—**	**2,511**
Life insurance company general accounts	**—**	**121,573**	**—**	**121,573**	**—**	**9,676**	**—**	**9,676**
Other assets	**—**	**26,979**	**218**	**27,197**	**—**	**115,102**	**—**	**115,102**
Investment measured at net asset value	**—**	**—**	**—**	**16,251**	**—**	**—**	**—**	**20,652**
	212,828	**474,872**	**218**	**704,169**	**10,298**	**263,879**	**—**	**294,829**

December 31, 2018	Millions of yen							
	Japanese plans				Foreign plans			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Equity securities:								
Japanese companies (e)	67,283	—	—	67,283	—	—	—	—
Foreign companies	5,451	—	—	5,451	8,567	—	—	8,567
Pooled funds (f)	—	137,712	—	137,712	—	49,312	—	49,312
Debt securities:								
Government bonds (g)	137,858	—	—	137,858	—	—	—	—
Municipal bonds	—	1,483	—	1,483	—	2,642	—	2,642
Corporate bonds	—	12,595	—	12,595	—	6,318	—	6,318
Pooled funds (h)	—	140,712	—	140,712	—	59,419	—	59,419
Mortgage backed securities (and other asset backed securities)	—	8,489	—	8,489	—	—	—	—
Life insurance company general accounts	—	123,747	—	123,747	—	9,019	—	9,019
Other assets	—	30,009	1,451	31,460	—	95,844	—	95,844
Investment measured at net asset value	—	—	—	15,905	—	—	—	17,521
	210,592	454,747	1,451	682,695	8,567	222,554	—	248,642

(a) The plan's equity securities include common stock of the Company and certain of its subsidiaries in the amounts of ¥118 million.
(b) These funds invest in listed equity securities consisting of approximately 30% Japanese companies and 70% foreign companies for Japanese plans, and mainly foreign companies for foreign plans.
(c) This class includes approximately 85% Japanese government bonds and 15% foreign government bonds for Japanese plans, and mainly foreign government bonds for foreign plans.
(d) These funds invest in approximately 25% Japanese government bonds, 55% foreign government bonds, 5% Japanese municipal bonds, and 15% corporate bonds for Japanese plans. These funds invest in approximately 75% foreign government bonds and 25% corporate bonds for foreign plans.
(e) The plan's equity securities include common stock of the Company and certain of its subsidiaries in the amounts of ¥147 million.
(f) These funds invest in listed equity securities consisting of approximately 30% Japanese companies and 70% foreign companies for Japanese plans, and mainly foreign companies for foreign plans.
(g) This class includes approximately 90% Japanese government bonds and 10% foreign government bonds for Japanese plans, and mainly foreign government bonds for foreign plans.
(h) These funds invest in approximately 30% Japanese government bonds, 50% foreign government bonds, 5% Japanese municipal bonds, and 15% corporate bonds for Japanese plans. These funds invest in approximately 35% foreign government bonds and 65% corporate bonds for foreign plans.

Each level into which assets are categorized is based on inputs used to measure the fair value of the assets, and does not necessarily indicate the risks or ratings of the assets.

Level 1 assets are comprised principally of equity securities and government bonds, which are valued using unadjusted quoted market prices in active markets with sufficient volume and frequency of transactions. Level 2 assets are comprised principally of pooled funds that invest in equity and debt securities, corporate bonds, investments in life insurance company general accounts and other assets. Pooled funds are valued at their net asset values that are calculated by the sponsor of the fund and have daily liquidity. Corporate bonds are valued using quoted prices for identical assets in markets that are not active. Investments in life insurance company general accounts are valued at conversion value. Other assets are comprised principally of interest bearing cash and hedge funds.

The fair values of Level 3 asset, consisting of hedge funds, were ¥218 million and ¥1,451 million at December 31, 2019 and 2018, respectively. Amounts of actual returns on, purchases and sales of these assets during the years ended December 31, 2019 and 2018 were not significant.

The fair values of plan assets for the participants with Toshiba Funds by each asset category in 2018 were calculated based on a pro-rata basis of total plan assets of Toshiba Funds.

Contributions

Canon expects to contribute ¥13,257 million to its Japanese defined benefit pension plans and ¥18,985 million to its foreign defined benefit pension plans for the year ending December 31, 2020.

Estimated future benefit payments

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

Year ending December 31:	Japanese plans	Foreign plans
	Millions of yen	Millions of yen
2020	37,164	12,564
2021	38,203	13,181
2022	41,146	14,083
2023	42,625	14,947
2024	42,803	15,742
2025 – 2029	222,813	94,532

Multiemployer pension plans

The amounts of cost recognized for the multiemployer pension plans primarily in the Netherlands for the years ended December 31, 2019, 2018 and 2017 were ¥4,321 million, ¥4,452 million and ¥4,165 million, respectively. The multiemployer pension plan in which the subsidiaries in the Netherlands participated was 98% funded as of December 31, 2018. The collective bargaining agreements have no expiration date. Canon is not liable for other participating employers' obligations under the terms and conditions of the agreements.

Defined contribution plans

The amounts of cost recognized for the defined contribution pension plans of the Company and certain of its subsidiaries for the years ended December 31, 2019, 2018 and 2017 were ¥17,414 million, ¥19,570 million and ¥18,979 million, respectively.

11. INCOME TAXES

Domestic and foreign components of income before income taxes and the current and deferred income tax expense attributable to such income are summarized as follows:

Years ended December 31	Millions of yen		
	Japanese	Foreign	Total
2019: Income before income taxes	**107,329**	**88,411**	**195,740**
Income taxes:			
Current	**39,483**	**23,186**	**62,669**
Deferred	**(4,199)**	**(2,247)**	**(6,446)**
	35,284	**20,939**	**56,223**
2018: Income before income taxes	241,474	121,418	362,892
Income taxes:			
Current	75,556	32,443	107,999
Deferred	(6,552)	(5,297)	(11,849)
	69,004	27,146	96,150
2017: Income before income taxes	276,149	77,735	353,884
Income taxes:			
Current	80,225	35,402	115,627
Deferred	(7,453)	(10,150)	(17,603)
	72,772	25,252	98,024

The Company and its domestic subsidiaries are subject to a number of income taxes, which, in the aggregate, represent a statutory income tax rate of approximately 31% for the years ended December 31, 2019, 2018 and 2017.

The United States enacted tax reform legislation (the “Tax Reform Legislation”) on December 22, 2017. Due to the Tax Reform Legislation, the federal corporate income tax rate in the U.S. was reduced from 35% to 21% from the fiscal year commencing on January 1, 2018. The adjustment to deferred tax assets and liabilities for the tax rate change was a tax benefit of ¥14,563 million for the year ended December 31, 2017. The impacts related to other changes from the Tax Reform Legislation are not material.

A reconciliation of the Japanese statutory income tax rate and the effective income tax rate as a percentage of income before income taxes is as follows:

Years ended December 31	**2019**	2018	2017
Japanese statutory income tax rate	**31.0%**	31.0%	31.0%
Increase (reduction) in income taxes resulting from:			
Expenses not deductible for tax purposes*	**1.7**	0.7	3.7
Income of foreign subsidiaries taxed at lower than Japanese statutory tax rate	**(4.5)**	(3.0)	(2.1)
Tax credit for research and development expenses	**(2.3)**	(3.4)	(4.8)
Change in valuation allowance	**0.0**	0.4	1.7
Effect of enacted changes in U.S. tax laws	**—**	—	(3.6)
Deferred tax liabilities on undistributed earnings of foreign subsidiaries	**2.3**	0.9	1.1
Other	**0.5**	(0.1)	0.7
Effective income tax rate	**28.7%**	26.5%	27.7%

* Expenses not deductible for tax purposes for the year ended December 31, 2017 primarily consist of impairment losses on goodwill.

Net deferred income tax assets and liabilities are included in the accompanying consolidated balance sheets under the following captions:

December 31	Millions of yen	
	2019	2018
Other assets	**153,948**	160,541
Other noncurrent liabilities	**(59,888)**	(70,336)
	94,060	90,205

The tax effects of temporary differences that give rise to the deferred tax assets and deferred tax liabilities at December 31, 2019 and 2018 are presented below:

December 31	Millions of yen	
	2019	2018
Deferred tax assets:		
Inventories	**10,225**	10,739
Accrued business tax	**1,282**	2,361
Accrued pension and severance cost	**107,463**	105,933
Research and development – costs capitalized for tax purposes	**4,751**	4,690
Property, plant and equipment	**32,040**	33,738
Operating lease liabilities	**25,646**	—
Accrued expenses	**25,845**	28,015
Net operating losses carried forward	**21,294**	28,549
Other	**41,759**	38,683
	270,305	252,708
Less valuation allowance	**(27,678)**	(30,734)
Total deferred tax assets	**242,627**	221,974
Deferred tax liabilities:		
Undistributed earnings of foreign subsidiaries	**(8,769)**	(7,615)
Tax deductible reserve	**(4,050)**	(4,050)
Financing lease revenue	**(19,029)**	(26,441)
Operating lease right-of-use assets	**(25,249)**	—
Intangible assets	**(59,350)**	(66,189)
Other	**(32,120)**	(27,474)
Total deferred tax liabilities	**(148,567)**	(131,769)
Net deferred tax assets	**94,060**	90,205

The net changes in the total valuation allowance were a decrease of ¥3,056 million, a decrease of ¥49 million and an increase of ¥4,096 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Based on the level of historical taxable income and projections for future taxable income over the periods which the net deductible temporary differences are expected to reverse, management believes it is more likely than not that Canon will realize the benefits of these deferred tax assets, net of the valuation allowance, at December 31, 2019.

At December 31, 2019, Canon had net operating losses which can be carried forward for income tax purposes of ¥130,907 million to reduce future taxable income. Periods available to reduce future taxable income vary in each tax jurisdiction and generally range from one year to an indefinite period as follows:

	Millions of yen
Within one year	1,980
After one year through five years	28,550
After five years through ten years	31,871
After ten years through twenty years	17,137
Indefinite period	51,369
	130,907

Income taxes have not been accrued on undistributed earnings of domestic subsidiaries as the tax law provides a means by which the dividends from a domestic subsidiary can be received tax free.

Canon has not recognized deferred tax liabilities of ¥24,886 million for a portion of undistributed earnings of foreign subsidiaries of ¥994,886 million as of December 31, 2019 because Canon intends to permanently reinvest such undistributed earnings of foreign subsidiaries. Deferred tax liabilities will be recognized when such undistributed earnings are no longer permanently reinvested.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

Years ended December 31	Millions of yen		
	2019	2018	2017
Balance at beginning of year	**8,649**	10,282	7,318
Additions for tax positions of the current year	**—**	45	2,956
Additions for tax positions of prior years	**204**	178	250
Reductions for tax positions of prior years	**(44)**	(17)	(915)
Settlements with tax authorities	**(402)**	(1,286)	—
Other	**(287)**	(553)	673
Balance at end of year*	**8,120**	8,649	10,282

* The unrecognized tax benefits were offset by deferred tax assets in the amount of ¥933 million, ¥2,043 million and ¥124 million as of December 31, 2019, 2018 and 2017, respectively, and reported under "other noncurrent liabilities" on the consolidated balance sheets.

The total amounts of unrecognized tax benefits that would reduce the effective tax rate, if recognized, were ¥8,120 million and ¥8,649 million at December 31, 2019 and 2018, respectively.

Although Canon believes its estimates and assumptions of unrecognized tax benefits are reasonable, uncertainty regarding the final determination of tax examination settlements and any related litigation could affect the effective tax rate in a future period. Based on each of the items of which Canon is aware at December 31, 2019, no significant changes to the unrecognized tax benefits are expected within the next twelve months.

Canon recognizes interest and penalties accrued related to unrecognized tax benefits in income taxes. Both interest and penalties accrued at December 31, 2019 and 2018, and interest and penalties included in income taxes for the years ended December 31, 2019, 2018 and 2017 were not significant.

Canon files income tax returns in Japan and various foreign tax jurisdictions. In Japan, Canon is no longer subject to regular income tax examinations by the tax authority for years before 2017 with few exceptions. Canon is also no longer subject to a transfer pricing examination by the tax authority for years before 2017 with few exceptions. In other major foreign tax jurisdictions, including the United States and the Netherlands, Canon is no longer subject to income tax examinations by tax authorities for years before 2009 with few exceptions.

12. LEGAL RESERVE AND RETAINED EARNINGS

The Corporation Law of Japan provides that an amount equal to 10% of distributions from retained earnings paid by the Company and its Japanese subsidiaries be appropriated as a legal reserve. No further appropriations are required when the total amount of the additional paid-in capital and the legal reserve equals 25% of their respective stated capital. The Corporation Law of Japan also provides that additional paid-in capital and legal reserve are available for appropriations by resolution of the shareholders. Certain foreign subsidiaries are also required to appropriate their earnings to legal reserves under the laws of their respective countries.

Cash dividends and appropriations to the legal reserve charged to retained earnings for the years ended December 31, 2019, 2018 and 2017 represent dividends paid out during those years and the related appropriations to the legal reserve. Retained earnings at December 31, 2019 did not reflect current year-end dividends in the amount of ¥85,107 million which were approved by the shareholders in March 2020.

The amount available for dividends under the Corporation Law of Japan is based on the amount recorded in the Company's nonconsolidated books of account in accordance with financial accounting standards of Japan. Such amount was ¥853,374 million at December 31, 2019.

Retained earnings at December 31, 2019 included Canon's equity in undistributed earnings of affiliated companies accounted for by the equity method in the amount of ¥17,657 million.

13. OTHER COMPREHENSIVE INCOME (LOSS)

Changes in accumulated other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017 are as follows:

Millions of yen	Foreign currency translation adjustments	Unrealized gains and losses on securities	Gains and losses on derivative instruments	Pension liability adjustments	Total
Balance at December 31, 2016	(13,960)	15,251	(2,742)	(198,430)	(199,881)
Equity transactions with noncontrolling interests and other	—	—	—	—	—
Other comprehensive income (loss) before reclassifications	44,184	2,813	(1,452)	14,785	60,330
Amounts reclassified from accumulated other comprehensive income (loss)	(16)	(12,580)	4,014	4,905	(3,677)
Net change during the year	44,168	(9,767)	2,562	19,690	56,653
Balance at December 31, 2017	30,208	5,484	(180)	(178,740)	(143,228)
Cumulative effects of accounting standard update—adoption of ASU No. 2016-01	—	(5,343)	—	—	(5,343)
Equity transactions with noncontrolling interests and other	(4,200)	—	—	—	(4,200)
Other comprehensive income (loss) before reclassifications	(89,823)	—	(457)	(29,909)	(120,189)
Amounts reclassified from accumulated other comprehensive income (loss)	—	(141)	945	3,085	3,889
Net change during the year	(94,023)	(141)	488	(26,824)	(120,500)
Balance at December 31, 2018	**(63,815)**	**—**	**308**	**(205,564)**	**(269,071)**
Cumulative effects of accounting standard update—adoption of ASU No. 2017-12*	**—**	**—**	**(122)**	**—**	**(122)**
Equity transactions with noncontrolling interests and other	**(424)**	**—**	**—**	**—**	**(424)**
Other comprehensive income (loss) before reclassifications	**(31,889)**	**—**	**(1,723)**	**(12,763)**	**(46,375)**
Amounts reclassified from accumulated other comprehensive income (loss)	**(154)**	**—**	**650**	**7,054**	**7,550**
Net change during the year	**(32,467)**	**—**	**(1,073)**	**(5,709)**	**(39,249)**
Balance at December 31, 2019	**(96,282)**	**—**	**(887)**	**(211,273)**	**(308,442)**

* Represents the impact of adopting the new accounting standard related to financial instruments. Please refer to Note 1(x) for more detailed information.

Reclassifications out of accumulated other comprehensive income (loss) for the years ended December 31, 2019, 2018 and 2017 are as follows:

Years ended December 31	Amount reclassified from accumulated other comprehensive income (loss) *1			Affected line items in consolidated statements of income
	Millions of yen			
	2019	2018	2017	
Foreign currency translation adjustments	**(154)**	—	(39)	Other, net
	—	—	12	Income taxes
	(154)	—	(27)	Consolidated net income
	—	—	11	Net income attributable to noncontrolling interests
	(154)	—	(16)	Net income attributable to Canon Inc.
Unrealized gains and losses on securities	**—**	(178)	(18,472)	Other, net
	—	37	5,727	Income taxes
	—	(141)	(12,745)	Consolidated net income
	—	—	165	Net income attributable to noncontrolling interests
	—	(141)	(12,580)	Net income attributable to Canon Inc.
Gains and losses on derivative instruments	**661**	1,341	5,772	*2
	(2)	(392)	(1,732)	Income taxes
	659	949	4,040	Consolidated net income
	(9)	(4)	(26)	Net income attributable to noncontrolling interests
	650	945	4,014	Net income attributable to Canon Inc.
Pension liability adjustments	**9,953**	3,853	7,005	Other, net
	(2,523)	(699)	(1,832)	Income taxes
	7,430	3,154	5,173	Consolidated net income
	(376)	(69)	(268)	Net income attributable to noncontrolling interests
	7,054	3,085	4,905	Net income attributable to Canon Inc.
Total amount reclassified, net of tax and noncontrolling interests	**7,550**	3,889	(3,677)	

*1 Amounts in parentheses indicate gains in consolidated statements of income.
*2 After the adoption of ASU No. 2017-12, gains and losses on derivative are reclassified into net sales, which had been classified into other, net. Please refer to Notes 1(x) and 17 for more detailed information.

Tax effects allocated to each component of other comprehensive income (loss) and reclassification adjustments, including amounts attributable to noncontrolling interests, are as follows:

Years ended December 31	Millions of yen		
	Before-tax amount	Tax (expense) or benefit	Net-of-tax amount
2019:			
Foreign currency translation adjustments:			
Amount arising during the year	**(32,396)**	**393**	**(32,003)**
Reclassification adjustments for gains and losses realized in net income	**(154)**	**—**	**(154)**
Net change during the year	**(32,550)**	**393**	**(32,157)**
Net unrealized gains and losses on securities:			
Amount arising during the year	**—**	**—**	**—**
Reclassification adjustments for gains and losses realized in net income	**—**	**—**	**—**
Net change during the year	**—**	**—**	**—**
Net gains and losses on derivative instruments:			
Amount arising during the year	**(2,180)**	**453**	**(1,727)**
Reclassification adjustments for gains and losses realized in net income	**661**	**(2)**	**659**
Net change during the year	**(1,519)**	**451**	**(1,068)**
Pension liability adjustments:			
Amount arising during the year	**(9,916)**	**(1,144)**	**(11,060)**
Reclassification adjustments for gains and losses realized in net income	**9,953**	**(2,523)**	**7,430**
Net change during the year	**37**	**(3,667)**	**(3,630)**
Other comprehensive income (loss)	**(34,032)**	**(2,823)**	**(36,855)**
2018:			
Foreign currency translation adjustments:			
Amount arising during the year	(93,955)	809	(93,146)
Reclassification adjustments for gains and losses realized in net income	—	—	—
Net change during the year	(93,955)	809	(93,146)
Net unrealized gains and losses on securities:			
Amount arising during the year	—	—	—
Reclassification adjustments for gains and losses realized in net income	(178)	37	(141)
Net change during the year	(178)	37	(141)
Net gains and losses on derivative instruments:			
Amount arising during the year	(586)	125	(461)
Reclassification adjustments for gains and losses realized in net income	1,341	(392)	949
Net change during the year	755	(267)	488
Pension liability adjustments:			
Amount arising during the year	(51,789)	18,065	(33,724)
Reclassification adjustments for gains and losses realized in net income	3,853	(699)	3,154
Net change during the year	(47,936)	17,366	(30,570)
Other comprehensive income (loss)	(141,314)	17,945	(123,369)
2017:			
Foreign currency translation adjustments:			
Amount arising during the year	47,825	(708)	47,117
Reclassification adjustments for gains and losses realized in net income	(39)	12	(27)
Net change during the year	47,786	(696)	47,090
Net unrealized gains and losses on securities:			
Amount arising during the year	5,100	(1,717)	3,383
Reclassification adjustments for gains and losses realized in net income	(18,472)	5,727	(12,745)
Net change during the year	(13,372)	4,010	(9,362)
Net gains and losses on derivative instruments:			
Amount arising during the year	(2,080)	628	(1,452)
Reclassification adjustments for gains and losses realized in net income	5,772	(1,732)	4,040
Net change during the year	3,692	(1,104)	2,588
Pension liability adjustments:			
Amount arising during the year	20,991	(4,957)	16,034
Reclassification adjustments for gains and losses realized in net income	7,005	(1,832)	5,173
Net change during the year	27,996	(6,789)	21,207
Other comprehensive income (loss)	66,102	(4,579)	61,523

14. REVENUE

Revenue from sales of office products, such as office MFDs and laser printers, and imaging system products, such as digital cameras and inkjet printers, is recognized upon shipment or delivery, depending upon when the customer obtains controls of these products.

Revenue from sales of equipment that are sold with customer acceptance provisions related to their functionality including optical equipment such as semiconductor lithography equipment and FPD lithography equipment, and certain medical equipment such as CT systems and MRI systems, is recognized when the equipment is installed at the customer site and the agreed-upon specifications are objectively satisfied.

Most of Canon's service revenue is generated from office and medical system products which is recognized over time. For the service contracts of office products, the customer typically pays a variable amount based on usage, a stated fixed fee or a stated base fee plus a variable amount which frequently include the provision of consumables as well as break fix activities. The majority portion of service revenue from the office products is recognized as billed since the invoiced amount directly correlates with the value to the customer of the underlying performance obligation to date. For the service contracts of medical system products, the customer typically pays a stated fixed fee for the stand ready maintenance service and revenue is recognized ratably over the contract period.

The majority of service arrangements for office products are executed in combination with related products. Transaction prices for products and services need to be allocated to each performance obligation on a relative standalone selling price basis where judgements are required. Canon estimates the standalone selling price using a range of prices that would meet the allocation objective based on all the information that is reasonably available including market conditions and other observable inputs. If transaction prices of the product or service contracts are not within the acceptable range then the revenue is subject to allocation based on the estimated standalone selling prices. Canon recognizes the incremental costs of obtaining a contract as an expense when related office products are sold.

The transaction prices that Canon is entitled to receive in exchange for transferring goods or services to the customer include certain forms of variable consideration, including product discounts, customer promotions and volume-based rebates mainly for imaging system products, which are sold predominantly through distributors and retailers. Canon includes estimated amounts in the transaction price only to the extent it is probable that a significant reversal of cumulative revenue recognized will not occur when the uncertainty associated with the variable consideration is resolved. Variable considerations are estimated based upon historical trends and other known factors at the time of sale, and are subsequently adjusted in each period based on current information. In addition, Canon may provide a right of return on our products for a short time period after a sale. These rights are accounted for as variable consideration when determining the transaction price, and accordingly Canon recognizes revenue based on the estimated amount to which Canon expects to be entitled after considering expected returns.

Disaggregated revenue by timing is as follows. Disaggregated revenue by business unit, product and geographic area are described in Note 22.

	Millions of yen					
	Office	Imaging System	Medical System	Industry and Others	Corporate and eliminations	Consolidated
2019:						
Revenue recognized at a point in time	**1,187,306**	**793,832**	**290,702**	**582,156**	**(93,180)**	**2,760,816**
Revenue recognized over time	**515,289**	**13,582**	**147,823**	**155,789**	**—**	**832,483**
Total	**1,702,595**	**807,414**	**438,525**	**737,945**	**(93,180)**	**3,593,299**
2018:						
Revenue recognized at a point in time	1,286,100	957,518	305,457	635,906	(106,318)	3,078,663
Revenue recognized over time	521,201	12,917	132,121	207,035	—	873,274
Total	1,807,301	970,435	437,578	842,941	(106,318)	3,951,937

Revenue recognized over time includes primarily revenue from maintenance service in the office and medical system products and sales of certain industrial equipment which do not have alternative use and for which Canon has enforceable right to payment to the customers for the performance completed to date.

Canon recognizes contract assets primarily for unbilled receivables mainly arising from services contracts for office products. Contract assets at December 31, 2019 and 2018 were ¥43,783 million and ¥50,799 million, respectively, and are included in prepaid expenses and other current assets in the consolidated balance sheets.

Canon typically bills to the customer when the performance obligation is satisfied and collects the payment in relatively short term except for certain maintenance service of office and medical products and certain industrial equipment for which Canon occasionally receives the payment in advance from customers. The amount received in excess of revenue recognized is recognized as deferred revenue until the performance obligation for distinct goods or services are satisfied. Deferred revenue at December 31, 2019 and 2018 were ¥113,030 million and ¥123,686 million, respectively, and are included in other current liabilities in the accompanying consolidated balance sheets. Revenue recognized for the year ended December 31, 2019, which had been included in the deferred revenue balance at December 31, 2018, was ¥88,306 million.

Remaining performance obligations for products and equipment at December 31, 2019 primarily arise from the sales of certain industrial equipment, amounting to ¥114,617 million, 73% of which is expected to be recognized as revenue within one year and remaining 27% is within two years. Disclosure of remaining performance obligations is not required for the majority of services since the related revenue is recognized on an as billed basis applying the right to invoice practical expedient or is generated from the contracts with original expected duration of less than one year. The portion of fixed maintenance service contract for office and medical products with original expected duration of more than one year is approximately 12% of total service revenue and the average remaining period for these fixed contracts as of December 31, 2019 is about 2 years.

Taxes collected from customers and remitted to governmental authorities are excluded from revenues in the consolidated statements of income.

15. STOCK-BASED COMPENSATION

On April 26, 2019, based on the approval of the shareholders, the Company granted stock options to its directors and executive officers to acquire 116,300 shares of common stock. Those to whom stock acquisition rights are granted (the "Holder(s)") shall be entitled to exercise all the stock acquisition rights together within 10 days (in case the last day is not a business day, the following business day) from after the date when they cease to hold any position as a director or an executive officer of the Company. These option awards have a 30 year exercisable period. The grant-date fair value per share of the stock options granted during the year ended December 31, 2019 was ¥2,281.

On May 2, 2018, based on the approval of the shareholders, the Company granted stock options to its directors and executive officers to acquire 74,000 shares of common stock. The Holders shall be entitled to exercise all the stock acquisition rights together within 10 days (in case the last day is not a business day, the following business day) from after the date when they cease to hold any position as a director or an executive officer of the Company. These option awards have a 30 year exercisable period. The grant-date fair value per share of the stock options granted during the year ended December 31, 2018 was ¥2,948.

On May 1, 2011, based on the approval of the shareholders, the Company granted stock options to its directors, executive officers and certain employees to acquire 912,000 shares of common stock. These option awards vest after two years of continued service beginning on the grant date and have a four year exercisable period. The grant-date fair value per share of the stock options granted during the year ended December 31, 2011 was ¥772.

The compensation cost recognized for these stock options for the years ended December 31, 2019 was ¥265 million and 2018 was ¥218 million and 2017 was nil, and it is included in selling, general and administrative expenses in the consolidated statements of income.

The fair value of the option award was estimated on the date of grant using the Black-Sholes option pricing model that incorporates the assumptions presented below:

Years ended December 31	**2019**	2018
Expected term of option (in years)	**6.0**	6.0
Expected volatility	**19.97%**	23.02%
Dividend yield	**5.05%**	4.14%
Risk-free interest rate	**(0.16%)**	(0.07%)

A summary of option activity under the stock option plans as of and for the years ended December 31, 2019, 2018 and 2017 is presented below:

	Shares	Weighted-average exercise price	Weighted-average remaining contractual term	Aggregate intrinsic value
		Yen	Year	Millions of yen
Outstanding at January 1, 2017	603,000	3,990	0.2	—
Forfeited/Expired	(603,000)	3,990		
Outstanding at December 31, 2017	—	—		—
Granted	74,000	1		
Outstanding at December 31, 2018	74,000	1	29.3	222
Granted	**116,300**	**1**		
Exercised	**(4,500)**	**1**		
Outstanding at December 31, 2019	**185,800**	**1**	**29.0**	**555**
Exercisable at December 31, 2019	**185,800**	**1**	**29.0**	**555**

The total fair values of shares vested during the years ended December 31, 2019 and 2018 were ¥265 million and ¥218 million, respectively, and 2017 was nil. Cash received from the exercise of stock options for the year ended December 31, 2019 was not significant, and for the years ended December 31, 2018 and 2017 was nil.

16. NET INCOME ATTRIBUTABLE TO CANON INC. SHAREHOLDERS PER SHARE

A reconciliation of the numerators and denominators of basic and diluted net income attributable to Canon Inc. shareholders per share computations is as follows:

Years ended December 31	Millions of yen		
	2019	2018	2017
Basic net income attributable to Canon Inc.	**125,105**	252,755	241,923
Diluted net income attributable to Canon Inc.	**125,103**	252,755	241,923
	Number of shares		
Average common shares outstanding	**1,069,956,767**	1,079,753,008	1,085,439,370
Effect of dilutive securities:			
Stock options	**158,173**	49,319	—
Diluted common shares outstanding	**1,070,114,940**	1,079,802,327	1,085,439,370
	Yen		
Net income attributable to Canon Inc. shareholders per share:			
Basic	**116.93**	234.09	222.88
Diluted	**116.91**	234.08	222.88

The computation of diluted net income attributable to Canon Inc. shareholders per share for the year ended December 31, 2017 excludes outstanding stock options because the effect would be anti-dilutive.

17. DERIVATIVES AND HEDGING ACTIVITIES

Risk management policy

Canon operates internationally, exposing it to the risk of changes in foreign currency exchange rates. Derivative financial instruments are comprised principally of foreign exchange contracts utilized by the Company and certain of its subsidiaries to reduce the risk. Canon assesses foreign currency exchange rate risk by continually monitoring changes in the exposures and by evaluating hedging opportunities. Canon does not hold or issue derivative financial instruments for trading purposes. Canon is also exposed to credit-related losses in the event of non-performance by counterparties to derivative financial instruments, but it is not expected that any counterparties will fail to meet their obligations. Most of the counterparties are internationally recognized financial institutions and selected by Canon taking into account their financial condition, and contracts are diversified across a number of major financial institutions.

Foreign currency exchange rate risk management

Canon's international operations expose Canon to the risk of changes in foreign currency exchange rates. Canon uses foreign exchange contracts to manage certain foreign currency exchange exposures principally from the exchange of U.S. dollars and euros into Japanese yen. These contracts are primarily used to hedge the foreign currency exposure of forecasted intercompany sales and intercompany trade receivables that are denominated in foreign currencies. In accordance with Canon's policy, a specific portion of foreign currency exposure resulting from forecasted intercompany sales are hedged using foreign exchange contracts which principally mature within three months.

Cash flow hedge

Changes in the fair value of derivative financial instruments designated as cash flow hedges, including foreign exchange contracts associated with forecasted intercompany sales, are reported in accumulated other comprehensive income (loss). These amounts are subsequently reclassified into earnings in the same period as the hedged items affect earnings. Substantially all amounts recorded in accumulated other comprehensive income (loss) as of December 31, 2019 are expected to be recognized in net sales over the next twelve months. After the adoption of ASU No. 2017-12 from the quarter beginning January 1, 2019, Canon includes the time value component in the assessment of hedge effectiveness, which had been previously excluded. Changes in the fair value of a foreign exchange contract for the period between the date that the forecasted intercompany sales occur and its maturity date are recognized in earnings.

Derivatives not designated as hedges

Canon has entered into certain foreign exchange contracts to primarily offset the earnings impact related to fluctuations in foreign currency exchange rates associated with certain assets denominated in foreign currencies. Although these foreign exchange contracts have not been designated as hedges as required in order to apply hedge accounting, the contracts are effective from an economic perspective. The changes in the fair value of these contracts are recorded in earnings immediately.

Contract amounts of foreign exchange contracts at December 31, 2019 and 2018 are set forth below:

December 31	Millions of yen	
	2019	2018
To sell foreign currencies	**180,242**	230,505
To buy foreign currencies	**32,618**	30,816

Fair value of derivative instruments in the consolidated balance sheets

The following tables present Canon's derivative instruments measured at gross fair value as reflected in the consolidated balance sheets at December 31, 2019 and 2018.

Derivatives designated as hedging instruments

December 31		Fair value	
		Millions of yen	
	Balance sheet location	**2019**	2018
Assets:			
Foreign exchange contracts	Prepaid expenses and other current assets	**34**	521
Liabilities:			
Foreign exchange contracts	Other current liabilities	**828**	323

Derivatives not designated as hedging instruments

December 31		Fair value	
		Millions of yen	
	Balance sheet location	**2019**	2018
Assets:			
Foreign exchange contracts	Prepaid expenses and other current assets	**317**	2,622
Liabilities:			
Foreign exchange contracts	Other current liabilities	**1,745**	443

Effect of derivative instruments in the consolidated statements of income

The following tables present the effect of Canon's derivative instruments in the consolidated statements of income for the years ended December 31, 2019, 2018 and 2017.

Derivatives in cash flow hedging relationships

Year ended December 31	Gain (loss) recognized in OCI	Gain (loss) reclassified from accumulated OCI into income	
Millions of yen	Amount	Location	Amount
2019: Foreign exchange contracts	**(2,180)**	Net sales	**(661)**

Years ended December 31	Gain (loss) recognized in OCI (effective portion)	Gain (loss) reclassified from accumulated OCI into income (effective portion)		Gain (loss) recognized in income (ineffective portion and amount excluded from effectiveness testing)	
Millions of yen	Amount	Location	Amount	Location	Amount
2018: Foreign exchange contracts	(586)	Other, net	(1,341)	Other, net	(682)
2017: Foreign exchange contracts	(2,080)	Other, net	(5,772)	Other, net	(332)

Derivatives not designated as hedging instruments

Years ended December 31		Gain (loss) recognized in income on derivative		
		Millions of yen		
	Location	**2019**	2018	2017
Foreign exchange contracts	Other, net	**805**	5,284	(7,932)

18. LESSEE ACCOUNTING

Lease costs are included in cost of goods sold or selling general and administrative expense in accompanying consolidated statement of income. Supplemental income statement information is as follows:

Year ended December 31	Millions of yen
	2019
Operating lease cost	**43,236**
Short-term lease cost	**14,374**
Other lease cost	**168**
	57,778

Operating lease cashflow

Supplemental cash flow information is as follows:

Year ended December 31	Millions of yen
	2019
Cash paid for amount included in the measurement of lease liabilities	
Operating cash flows from operating leases	**41,368**
Noncash activity - Rights of use assets obtained in exchange for lease liabilities	
Operating leases	**33,939**

Maturity Analysis

The following is a schedule by year of the future minimum lease payments under operating leases at December 31, 2019.

Year ending December 31:	Millions of yen
2020	34,317
2021	26,094
2022	18,924
2023	13,950
2024	10,280
Thereafter	19,108
Total future minimum lease payments	122,673
Less Imputed Interest	(7,101)
	115,572

Remaining lease term and discount rate

The following is remaining lease term and discount rate under operating leases at December 31, 2019.

December 31	2019
Weighted-average remaining lease term	62 months
Weighted-average discount rate	2.2%

19. COMMITMENTS AND CONTINGENT LIABILITIES

Commitments

At December 31, 2019, commitments outstanding for the purchase of property, plant and equipment approximated ¥36,241 million, and commitments outstanding for the purchase of parts and raw materials approximated ¥112,831 million.

Guarantees

Canon occupies sales offices and other facilities under lease arrangements accounted for as operating leases. Deposits mainly for restoration made under such arrangements aggregated ¥11,778 million and ¥12,728 million at December 31, 2019 and 2018, respectively, and are included in noncurrent receivables in the accompanying consolidated balance sheets.

Canon provides guarantees for its employees, affiliates and other companies. The guarantees for the employees are principally made for their housing loans. The guarantees for affiliates and other companies are made for their lease obligations and bank loans to ensure that those companies operate with less financial risk.

Canon would have to perform under a guarantee if the borrower defaults on a payment within the contract terms. The contract terms are 1 year to 15 years in case of employees with housing loans, and 1 year to 5 years in case of affiliates and other companies with lease obligations and bank loans. The maximum amount of undiscounted payments Canon would have had to make in the event of default is ¥2,987 million at December 31, 2019. The carrying amounts of the liabilities recognized for Canon's obligations as a guarantor under those guarantees at December 31, 2019 were not significant.

Canon also offers assurance-type warranties under which it generally guarantees the performance of products delivered and services rendered for a certain period or term. Estimated product warranty costs are recorded at the time revenue is recognized and are included in selling, general and administrative expenses in the accompanying consolidated statements of income. Estimates for accrued product warranty costs are based on historical experience. Accrued product warranty costs are included in accrued expenses in the accompanying consolidated balance sheets and the changes for the years ended December 31, 2019 and 2018 are summarized as follows:

Years ended December 31	Millions of yen	
	2019	2018
Balance at beginning of year	**17,318**	17,452
Additions	**15,945**	18,870
Utilization	**(14,488)**	(14,707)
Other	**(2,929)**	(4,297)
Balance at end of year	**15,846**	17,318

Legal proceedings

Canon is involved in various claims and legal actions arising in the ordinary course of business. Canon has recorded provisions for liabilities when it is probable that liabilities have been incurred and the amount of loss can be reasonably estimated. Canon reviews these provisions at least quarterly and adjusts these provisions to reflect the impact of the negotiations, settlements, rulings, advice of legal counsel and other information and events pertaining to a particular case. Based on its experience, although litigation is inherently unpredictable, Canon believes that any damage amounts claimed in outstanding matters are not a meaningful indicator of Canon's potential liability. In the opinion of management, any reasonably possible range of losses from outstanding matters would not have a material adverse effect on Canon's consolidated financial position, results of operations, and cash flows.

20. DISCLOSURES ABOUT THE FAIR VALUE OF FINANCIAL INSTRUMENTS AND CONCENTRATIONS OF CREDIT RISK

Fair value of financial instruments

The estimated fair values of Canon's financial instruments at December 31, 2019 and 2018 are set forth below. The following summary excludes cash and cash equivalents, trade receivables, finance receivables, noncurrent receivables, short-term loans, trade payables and accrued expenses, and the fair values of these instruments approximate their carrying amounts. The summary also excludes investments and derivative instruments which are disclosed in Note 2 and Note 21, and Note 17, respectively.

December 31	Millions of yen			
	2019		2018	
	Carrying amount	Estimated fair value	Carrying amount	Estimated fair value
Long-term debt, including current installments	**(354,444)**	**(354,444)**	(364,602)	(364,570)

The following methods and assumptions are used to estimate the fair value in the above table.

Long-term debt

Canon's long-term debt instruments are classified as Level 2 instruments and valued based on the present value of future cash flows associated with each instrument discounted using current market borrowing rates for similar debt instruments of comparable maturity. The levels are more fully described in Note 21.

Limitations of fair value estimates

Fair value estimates are made at a specific point in time, based on relevant market information and information about the financial instruments. These estimates are subjective in nature and involve uncertainties and matters of significant judgment and therefore cannot be determined with precision. Changes in assumptions could significantly affect the estimates.

Concentrations of credit risk

At December 31, 2019 and 2018, one customer accounted for approximately 10% and 12% of consolidated trade receivables, respectively. Although Canon does not expect that the customer will fail to meet its obligations, Canon is potentially exposed to concentrations of credit risk if the customer failed to perform according to the terms of the contracts.

21. FAIR VALUE MEASUREMENTS

Fair value is the price that would be received to sell 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 at the measurement date. A three-level fair value hierarchy that prioritizes the inputs used to measure fair value is as follows:

Level 1— Inputs are quoted prices in active markets for identical assets or liabilities.

Level 2— Inputs are quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable, and inputs that are derived principally from or corroborated by observable market data by correlation or other means.

Level 3— Inputs are derived from valuation techniques in which one or more significant inputs or value drivers are unobservable, which reflect the reporting entity's own assumptions about the assumptions that market participants would use in establishing a price.

Assets and liabilities measured at fair value on a recurring basis

The following tables present Canon's assets and liabilities that are measured at fair value on a recurring basis consistent with the fair value hierarchy at December 31, 2019 and 2018.

December 31 Millions of yen	Level 1	Level 2	Level 3	Total
2019: Assets:				
Cash and cash equivalents	**—**	**506**	**—**	**506**
Investments:				
Fund trusts and others	**489**	**241**	**—**	**730**
Equity securities	**16,740**	**—**	**—**	**16,740**
Prepaid expenses and other current assets:				
Derivatives	**—**	**351**	**—**	**351**
Total assets	**17,229**	**1,098**	**—**	**18,327**
Liabilities:				
Other current liabilities:				
Derivatives	**—**	**2,573**	**—**	**2,573**
Total liabilities	**—**	**2,573**	**—**	**2,573**

Millions of yen	Level 1	Level 2	Level 3	Total
2018: Assets:				
Cash and cash equivalents	—	70,500	—	70,500
Short-term investments:				
Available-for-sale:				
Corporate bonds	630	—	—	630
Investments:				
Fund trusts and others	630	408	—	1,038
Equity securities	13,787	—	—	13,787
Prepaid expenses and other current assets:				
Derivatives	—	3,143	—	3,143
Total assets	15,047	74,051	—	89,098
Liabilities:				
Other current liabilities:				
Derivatives	—	766	—	766
Total liabilities	—	766	—	766

Level 1 investments are comprised principally of Japanese equity securities, which are valued using an unadjusted quoted market price in active markets with sufficient volume and frequency of transactions. Level 2 cash and cash equivalents are valued based on market approach, using quoted prices for identical assets in markets that are not active.

Derivative financial instruments are comprised of foreign exchange contracts. Level 2 derivatives are valued using quotes obtained from counterparties or third parties, which are periodically validated by pricing models using observable market inputs, such as foreign currency exchange rates and interest rates, based on market approach.

Assets and liabilities measured at fair value on a nonrecurring basis

There were no significant assets or liabilities to be measured at fair value on a nonrecurring basis during the year ended December 31, 2019 and 2018.

22. SEGMENT INFORMATION

Canon operates its business in four segments: the Office Business Unit, the Imaging System Business Unit, the Medical System Business Unit, and the Industry and Others Business Unit, which are based on the organizational structure and information reviewed by Canon's management to evaluate results and allocate resources.

Based on the realignment of Canon's internal reporting and management structure, from the beginning of the first quarter of 2019, Canon has reclassified certain businesses from the Imaging System Business Unit to the Industry and Others Business Unit. Segment information for the year ended December 31, 2019 has reflected these changes. Prior period amounts also have been restated.

The primary products included in each segment are as follows:

Office Business Unit:
Office multifunction devices (MFDs) / Laser multifunction printers (MFPs) / Laser printers / Digital continuous feed presses / Digital sheet-fed presses / Wide-format printers / Document solutions

Imaging System Business Unit:
Interchangeable-lens digital cameras / Digital compact cameras / Interchangeable lenses / Compact photo printers / Inkjet printers / Large format inkjet printers / Commercial photo printers / Image scanners / Calculators

Medical System Business Unit:
Digital radiography systems / Diagnostic X-ray systems / Computed tomography (CT) systems / Magnetic resonance imaging (MRI) systems / Diagnostic ultrasound systems / Clinical chemistry analyzers / Ophthalmic equipment

Industry and Others Business Unit:
Semiconductor lithography equipment / FPD (Flat panel display) lithography equipment / Vacuum thin-film deposition equipment / Organic LED (OLED) panel manufacturing equipment / Die bonders / Network cameras / Digital camcorders / Digital cinema cameras / Multimedia projectors / Broadcast equipment / Micromotors / Handy terminals / Document scanners

The accounting policies of the segments are substantially the same as those described in the significant accounting policies in Note 1.

Information about operating results and assets for each segment as of and for the years ended December 31, 2019, 2018 and 2017 is as follows:

Millions of yen	Office	Imaging System	Medical System	Industry and Others	Corporate and eliminations	Consolidated
2019: Net sales:						
External customers	**1,699,653**	**806,425**	**437,456**	**648,165**	**1,600**	**3,593,299**
Intersegment	**2,942**	**989**	**1,069**	**89,780**	**(94,780)**	**—**
Total	**1,702,595**	**807,414**	**438,525**	**737,945**	**(93,180)**	**3,593,299**
Operating cost and expenses*	**1,533,688**	**759,247**	**411,781**	**722,464**	**(8,548)**	**3,418,632**
Operating profit	**168,907**	**48,167**	**26,744**	**15,481**	**(84,632)**	**174,667**
Other income (deductions)	**5,390**	**1,499**	**539**	**82**	**13,563**	**21,073**
Income before income taxes	**174,297**	**49,666**	**27,283**	**15,563**	**(71,069)**	**195,740**
Total assets	**863,381**	**313,141**	**273,525**	**424,911**	**2,893,393**	**4,768,351**
Depreciation and amortization	**58,373**	**35,805**	**11,760**	**41,420**	**89,969**	**237,327**
Capital expenditures	**51,623**	**24,016**	**7,074**	**33,515**	**95,000**	**211,228**
2018: Net sales:						
External customers	1,804,002	969,660	437,305	740,970	—	3,951,937
Intersegment	3,299	775	273	101,971	(106,318)	—
Total	1,807,301	970,435	437,578	842,941	(106,318)	3,951,937
Operating cost and expenses	1,586,497	843,599	408,739	787,276	(17,126)	3,608,985
Operating profit	220,804	126,836	28,839	55,665	(89,192)	342,952
Other income (deductions)	8,383	4,179	640	2,181	4,557	19,940
Income before income taxes	229,187	131,015	29,479	57,846	(84,635)	362,892
Total assets	923,261	371,944	247,282	404,628	2,952,350	4,899,465
Depreciation and amortization	64,964	38,054	9,365	41,069	98,102	251,554
Capital expenditures	48,127	25,712	7,454	24,175	95,036	200,504
2017: Net sales:						
External customers	1,802,542	1,098,525	434,985	743,963	—	4,080,015
Intersegment	2,240	600	1,202	85,950	(89,992)	—
Total	1,804,782	1,099,125	436,187	829,913	(89,992)	4,080,015
Operating cost and expenses	1,615,521	922,838	414,246	791,947	13,858	3,758,410
Operating profit	189,261	176,287	21,941	37,966	(103,850)	321,605
Other income (deductions)	6,108	2,572	564	1,155	21,880	32,279
Income before income taxes	195,369	178,859	22,505	39,121	(81,970)	353,884
Total assets	946,213	368,410	238,824	394,742	3,250,102	5,198,291
Depreciation and amortization	72,346	39,694	5,212	41,737	102,892	261,881
Impairment losses on goodwill	21,721	—	—	12,191	—	33,912
Capital expenditures	46,769	27,220	8,963	17,908	80,529	181,389

* During 2019, the Company implemented a restructuring plan centered in Europe with the goal of reorganizing sales structure and improving profitability mainly in the Office Business Unit. The employee severance charges in the Office Business Unit under the plan for the year ended December 31, 2019 were ¥15,621 million and most of the charges are included in selling, general and administrative expenses in the consolidated statement of income. The balance of the related employee severance liability as of December 31, 2019 is ¥10,225 million. The restructuring charges for the years ended December 31, 2018 and 2017 were not significant.

Intersegment sales are recorded at the same prices used in transactions with third parties. Expenses not directly associated with specific segments are allocated based on the most reasonable measures applicable. Corporate expenses include certain corporate research and development expenses. Amortization costs of identified intangible assets resulting from the purchase price allocation of CMSC are also included in corporate expenses. Segment assets are based on those directly associated with each segment. Corporate assets primarily consist of cash and cash equivalents, investments, deferred tax assets, goodwill, identified intangible assets from acquisitions and corporate properties. Capital expenditures represent the additions to property, plant and equipment and intangible assets measured on an accrual basis.

Information about sales by product to external customers for each segment for the years ended December 31, 2019, 2018 and 2017 is as follows:

Years ended December 31	Millions of yen		
	2019	2018	2017
Office			
Monochrome copiers	**261,964**	280,035	287,823
Color copiers	**382,845**	403,522	405,576
Printers	**624,601**	702,378	702,491
Others	**430,243**	418,067	406,652
Total	**1,699,653**	1,804,002	1,802,542
Imaging System			
Cameras	**466,306**	594,567	702,598
Inkjet printers	**285,821**	318,382	333,721
Others	**54,298**	56,711	62,206
Total	**806,425**	969,660	1,098,525
Medical System			
Diagnostic equipment	**437,456**	437,305	434,985
Industry and Others			
Lithography equipment	**157,160**	199,722	193,113
Others	**491,005**	541,248	550,850
Total	**648,165**	740,970	743,963
Corporate	**1,600**	—	—
Consolidated	**3,593,299**	3,951,937	4,080,015

Information by major geographic area as of and for the years ended December 31, 2019, 2018 and 2017 is as follows:

	Millions of yen		
	2019	2018	2017
Net sales:			
Japan	**872,534**	869,577	884,828
Americas	**1,029,078**	1,076,402	1,107,515
Europe	**882,480**	1,015,428	1,028,415
Asia and Oceania	**809,207**	990,530	1,059,257
Total	**3,593,299**	3,951,937	4,080,015
Long-lived assets:			
Japan	**1,053,074**	1,046,065	1,081,522
Americas	**148,669**	129,989	141,937
Europe	**191,050**	169,357	174,889
Asia and Oceania	**159,217**	136,602	149,244
Total	**1,552,010**	1,482,013	1,547,592

Net sales are attributed to areas based on the location where the product is shipped and the service is performed to the customers. Other than in Japan and the United States, Canon does not conduct business in any individual country in which its sales in that country exceed 10% of consolidated net sales. Net sales in the United States were ¥958,442 million, ¥995,245 million and ¥1,022,305 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Long-lived assets represent property, plant and equipment, intangible assets, and operating lease right-of-use assets for each geographic area.

23. SUBSEQUENT EVENTS

On January 17, 2020, Canon borrowed ¥100,000 million under its existing overdraft facilities with Mizuho Bank, Ltd. and MUFG Bank, Ltd. for required operating funds. Additionally, on March 19, 2020, Canon borrowed ¥50,000 million under its existing overdraft facilities with Mizuho Bank, Ltd. and MUFG Bank, Ltd. for required operating funds. The overdraft facilities bear interest at a rate equal to a base rate plus a spread.

On February 25, 2020, the Board of Directors of the Company approved and implemented a plan to repurchase up to 19.2 million shares of the Company's common stock at a cost of up to ¥50,000 million for the period from February 26, 2020 to May 27, 2020. Such repurchases are intended to improve capital efficiency and ensure flexible capital strategy. Common stock repurchased in the Tokyo Stock Exchange between February 26, 2020 and March 6, 2020 under the aforementioned plan was 18,093,400 shares at a cost of ¥50,000 million.

SCHEDULE II VALUATION AND QUALIFYING ACCOUNTS

Years ended December 31 Millions of yen	Balance at beginning of period	Addition-charged to income	Deduction bad debts written off	Translation adjustments and other	Balance at end of period
2019: Allowance for doubtful receivables					
Trade receivables	**11,477**	**1,840**	**(2,189)**	**(769)**	**10,359**
Finance receivables	**2,675**	**1,495**	**(1,653)**	**110**	**2,627**
2018: Allowance for doubtful receivables					
Trade receivables	13,378	1,347	(2,789)	(459)	11,477
Finance receivables	2,681	938	(1,284)	340	2,675
2017: Allowance for doubtful receivables					
Trade receivables	11,075	3,574	(1,787)	516	13,378
Finance receivables	2,325	1,436	(1,523)	443	2,681

MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Canon is responsible for establishing and maintaining adequate internal control over financial reporting. Internal control over financial reporting is defined in Rule 13a-15(f) promulgated under the Securities Exchange Act of 1934, as amended, as a process designed by, or under the supervision of, the company's principal executive and principal financial officers and effected by the company's board of directors, management and other personnel, 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 and includes those policies and procedures that (1) pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

Canon's management assessed the effectiveness of internal control over financial reporting as of December 31, 2019. In making this assessment, management used the criteria established in internal Control –Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the "COSO criteria").

Based on its assessment, management concluded that, as of December 31, 2019, Canon's internal control over financial reporting was effective based on the COSO criteria.

Canon's independent registered public accounting firm, Ernst & Young ShinNihon LLC, has issued an audit report on the effectiveness of Canon's internal control over financial reporting. This report appears in Item 18 of FORM 20-F.

Fujio Mitarai
Chairman & CEO

Toshizo Tanaka
Executive Vice President & CFO

March 27, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

EY
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To the Shareholders and the Board of Directors of
Canon Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Canon Inc. and subsidiaries (the Company) as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and schedule of valuation and qualifying accounts (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at 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 U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 27, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the 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 audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) 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 matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Valuation of goodwill

Description of the Matter

As discussed in Note 1 to the consolidated financial statements, goodwill is tested for impairment at least annually at the reporting unit level. At December 31, 2019, goodwill related to the Commercial printing business and the Medical system business unit was ¥27,205 million and ¥508,907 million, respectively. The calculated fair value of these reporting units was in excess of the carrying value by narrower margins than impairment tests performed for the other reporting units.

Significant estimation is required in determining the fair value of the reporting units. In particular, the fair value estimates were sensitive to significant assumptions such as revenue growth rates, operating profit ratio and weighted average costs of capital which are affected by expectations about future markets or economic conditions. Auditing such annual goodwill impairment tests was complex and judgmental.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls that address the risk of material misstatement relating to management's annual assessment of goodwill impairment, including internal controls over the significant assumptions.

To test the estimated fair value of the Company's reporting units, we performed audit procedures that included, among other things, evaluating the valuation methodology used for fair value estimation and testing the weighted average cost of capital with assistance of our network firm specialist. We evaluated the significant assumptions used by management by comparing those assumptions to historical results, current economic trends, and other relevant factors. We compared the assumptions used in the previous year's impairment test and the actual results and evaluated the effect on the fair value estimation for the current year. We performed sensitivity analyses of significant assumptions by evaluating the changes in the fair value of the reporting units that would result from changes in significant assumptions. In addition, we compared management's reconciliation of the aggregate fair value of the reporting units to the market capitalization of the Company.

Valuation of rebate accruals

Description of the Matter

As described in Note 14 to the consolidated financial statements, sales transaction prices are determined based on contracts with customers that contain certain forms of variable consideration, including volume-based rebates. Variable consideration is estimated based upon historical trends and other known factors at the time of sales. The Company recorded accruals for variable consideration ("rebate accruals") within the accrued expenses on the consolidated balance sheets.

Rebate accruals related to volume-based rebates which will be paid for products that will sell through from retailers or distributors to end users are sensitive to significant assumptions such as the estimated units to be sold during the promotion periods and level of the rebate provided on those units. Auditing such rebate accruals at period end was complex and judgmental.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls that address the risk of material misstatement relating to management's assessment of the rebate accrual estimation including evaluating the controls related to the significant assumptions described above.

To test the year end rebate accruals, we performed audit procedures that included, among other things, evaluating the data utilized in establishing the rebate accruals including sales volume and levels of rebate provided. We also compared rebate accruals recorded in the prior year to actual rebate claims to evaluate the effect on the estimation for current year rebate accruals. In addition, we tested actual rebate claims and additional rebate accruals established subsequent to the year end and considered whether they corroborate or contradict the year end rebate accruals.

Ernst & Young ShinNihon LLC

We have served as the Company's auditor for SEC reporting purposes since 2004, and as its Japanese statutory auditor since 1978.

March 27, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Ernst & Young ShinNihon LLC
Hibiya Mitsui Tower,
Tokyo Midtown Hibiya,
1-1-2 Yurakucho, Chiyoda-ku,
Tokyo, Japan 100-0006

Tel: +81 3 3503 1100
www.eyjapan.jp

To the Shareholders and the Board of Directors of
Canon Inc.

Opinion on Internal Control over Financial Reporting

We have audited Canon Inc. and subsidiaries' internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Canon Inc. and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2019 and 2018, the related consolidated statements of income, comprehensive income, equity and cash flows for each of the three years in the period ended December 31, 2019, and the related notes and schedule of valuation and qualifying accounts and our report dated March 27, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible 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 an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

Ernst & Young ShinNihon LLC

March 27, 2020

TRANSFER AND REGISTRAR'S OFFICE

Canon Inc.

30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501, Japan

Manager of the Register of Shareholders

Mizuho Trust & Banking Co., Ltd.
2-1, Yaesu 1-chome, Chuo-ku, Tokyo 103-8670, Japan

Depositary and Agent with Respect to American Depositary Receipts for Common Shares

JPMorgan Chase Bank, N.A.
383 Madison Avenue, Floor 11, New York, NY 10179, USA

SHAREHOLDER INFORMATION

Stock Exchange Listings:

Tokyo, Nagoya, Fukuoka, Sapporo and New York stock exchanges

American Depositary Receipts are traded on the New York Stock Exchange (CAJ).

Ordinary General Meeting of Shareholders:

March of each year

Further Information:

For publications or information, please contact the Public Affairs Headquarters, Canon Inc., Tokyo, or access Canon's Website at global.canon/en

MAJOR CONSOLIDATED SUBSIDIARIES

(As of December 31, 2019)

Manufacturing

Canon Precision Inc.
Canon Tokki Corporation
Fukushima Canon Inc.
Canon Medical Systems Corporation
Canon Electron Tubes & Devices Co., Ltd.
Canon Components, Inc.
Canon Semiconductor Equipment Inc.
Canon Chemicals Inc.
Canon Electronics Inc.
Canon Finetech Nisca Inc.
Canon ANELVA Corporation
Nagahama Canon Inc.
Canon Machinery Inc.
Oita Canon Materials Inc.
Oita Canon Inc.
Nagasaki Canon Inc.
Miyazaki Canon Inc.
Canon Virginia, Inc.
Canon Bretagne S.A.S.
Océ-Technologies B.V.
Océ Printing Systems G.m.b.H. & Co. KG
Axis Communications AB
Canon Dalian Business Machines, Inc.
Canon (Suzhou) Inc.
Canon Zhongshan Business Machines Co., Ltd.
Canon Zhuhai, Inc.
Canon Inc., Taiwan
Canon Vietnam Co., Ltd.
Canon Hi-Tech (Thailand) Ltd.
Canon Prachinburi (Thailand) Ltd.
Canon Business Machines (Philippines), Inc.
Canon Opto (Malaysia) Sdn. Bhd.
Canon Medical Systems Manufacturing Asia Sdn. Bhd.

Research & Development

Canon Research Centre France S.A.S.

Marketing & Other

Canon Marketing Japan Inc.
Canon System and Support Inc.
Canon IT Solutions Inc.
Canon Medical Finance Co., Ltd.
Canon U.S.A., Inc.
Canon Canada Inc.
Canon Solutions America, Inc.
Canon Financial Services, Inc.
Canon Medical Systems USA, Inc.
Axis AB
Canon Europa N.V.
Canon Europe Ltd.
Canon Ru LLC
Canon (UK) Ltd.
Canon Deutschland GmbH
Canon (Schweiz) AG
Canon Nederland N.V.
Canon France S.A.S.
Canon Middle East FZ-LLC
Canon Italia S.p.A.
Canon Medical Systems Europe B.V.
Milestone Systems A/S
Canon (China) Co., Ltd.
Canon Hongkong Co., Ltd.
Canon Singapore Pte. Ltd.
Canon India Pvt. Ltd.
Canon Australia Pty. Ltd.

CANON INC.
30-2, Shimomaruko 3-chome, Ohta-ku, Tokyo 146-8501, Japan