

**Dear
IBM Investor:**

Over the past decade, hundreds of thousands of IBMers have transformed your company. Today, IBM has laid the foundation for a new era of technology and business.



2019
Annual Report

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Over the past decade, hundreds of thousands of IBMers have transformed your company. Today, IBM has laid the foundation for a new era of technology and business.

It's easy to forget that we are still in the early stages of a long cycle of technological revolution. The driving forces of this change are well understood: the phenomenon of data, the value of cloud and the scaling of artificial intelligence.

As a result, we are experiencing a great wave of corporate transformations, as the most essential organizations in the world—transportation providers, hospital networks, financial services, telecommunications networks, government agencies and more—become digital.

But the most challenging and complex work of these digital transformations still lies ahead. We call this work “Chapter 2,” in which our clients modernize and move their mission-critical workloads to the cloud, and infuse AI deep into the decision-making workflows of their business.

At the end of this journey is something we have termed the Cognitive Enterprise: an agile organization that is fueled by data, guided by AI insight and built for change on a hybrid cloud.

The IBM company itself has been transformed to enable our clients' digital reinvention. In my last letter to you as CEO, I will share our 2019 financial results, detail the many changes we have made to build a strong foundation for growth and prepare your company for the future, and share our plans for transitioning to new leadership in 2020.



Virginia M. Rometty
Chairman, President and
Chief Executive Officer

2019: Enabling sustainable growth

In 2019, IBM delivered a second consecutive year of revenue growth excluding the impact of currency and divestitures. We ended the year on a strong note, with accelerating revenue growth and our strongest year-to-year increase in gross profit margins in over a decade.

For the full year, the company achieved \$77.1 billion in revenue, operating gross profit margins of 48 percent and operating earnings per share of \$12.81. We had strong cash generation with net cash from operating activities of \$14.8 billion and free cash flow of \$11.9 billion. We returned \$7.1 billion in capital to our shareholders, including dividends of \$5.7 billion. This was the 24th consecutive year of raising our dividend, and the 104th consecutive year of providing one.

These results are the product of bold moves to transform your company from top to bottom, strengthening our integrated value proposition and positioning us for sustainable growth.

The new foundation of integrated value

The problems we solve for clients are complex equations that cannot be satisfied with technology alone. They require a partner that can also offer deep industry expertise and a relationship of trust.

IBM is the only company that combines the portfolio, people and sense of purpose necessary to meet today's enterprise demands. Over the last decade, we have forged the foundations of our end-to-end, integrated value proposition through a series of transformative actions.

1. Capital: A bold shift to drive innovation

Transformation requires investment. And since 2012, we have devoted significant capital to developing new capabilities. In all, we invested more than \$120 billion to transform our strategy, our portfolio and our workforce. At the same time, we returned \$97 billion to shareholders.

We invested nearly \$30 billion in capital expenditures, building our cloud and cognitive offerings and bolstering our security and services capabilities.

We have also invested \$45 billion in research and development, forging the futures of cloud, AI, blockchain and quantum computing. IBM inventors received 9,262 U.S. patents in 2019, the most ever awarded to a U.S. company. It was our 27th straight year of patent leadership.

We have bolstered our portfolio with 65 companies, including Red Hat, the largest acquisition in the history of IBM. In Red Hat, we acquired a powerful growth engine, and a company synonymous with the cloud, open source and interoperability. Its singular architecture allows clients to build an application once and run it anywhere. And it enables the seamless integration of multiple clouds, from any vendor, addressing a \$1.2 trillion hybrid cloud market opportunity.

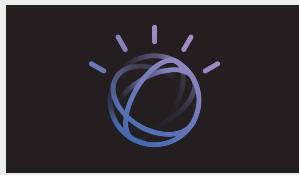
2. Portfolio: Built for the future

The shifts in capital allocation were designed to build a portfolio that is stronger and more aligned with the fastest growing segments of the market. Since 2012, we also divested businesses with annual revenues of more than \$10 billion (\$2 billion in 2019 alone) that do not strengthen our hand in Chapter 2. We did this while keeping annualized revenue growth approximately flat, excluding the impact of divestitures and currency. Today, we have reinvented 50 percent of our portfolio, including:

- **Cloud:** In 2013, cloud represented only 4 percent of IBM's revenue. Today, cloud is 27 percent—a \$21.2 billion business—and growing rapidly. In the past year, we've substantially enhanced our public cloud offerings, including dramatic improvements in ease of use, 99.999% availability and the strongest security posture in the industry. That's why clients with the most demanding regulatory and resiliency requirements, like BNP Paribas, are moving their most critical workloads to the IBM Cloud.
- **Data and AI:** Our investments in data and AI have cemented our position of enterprise market leadership. For the third straight year, IDC has named IBM the global leader in AI. We secured more than 1,800 AI patents in 2019 alone. Our Data Science Elite team is accelerating client journeys to AI. And there are more than 30,000 Watson client engagements across 20 different industries, helping clients like Yara build a digital farming platform, Woodside Energy optimize its operations and Vodafone Idea transform its core IT infrastructure.
- **Security:** IBM helps secure 95 percent of the Fortune Global 500 and manages more than 70 billion events every day. In 2019, we introduced Cloud Pak for Security, a powerful new security solution designed to solve a critical pain point in the industry: connecting and orchestrating disparate security tools.
- **Blockchain:** IBM is the global leader in enterprise blockchain solutions, with hundreds of client engagements infusing new levels of trust and transparency into the global supply chain. We have more than 2,000 blockchain experts. And we are working with more than 20 large consortium networks that are reshaping entire industries, like IBM Food Trust for reliable food supply and TradeLens for shipping.

Moments from IBM's transformation

As our company has led clients on their digital journeys, IBM has also transformed itself—through acquisitions, breakthrough technologies and social innovations.



IBM Watson

IBM Watson helped AI emerge from a long “winter” and is now deployed in customer service, healthcare, supply chain, weather forecasts, energy exploration and other fields—totaling more than 30,000 client engagements.



P-TECH

Pathways in Technology Early College High Schools (P-TECH) is a new education model co-developed by IBM working together with educators, policymakers and elected officials.



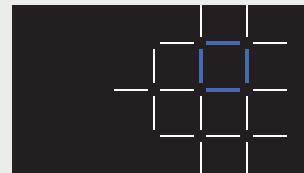
IBM Cloud

IBM Cloud has grown to be a more than \$21 billion business offering enterprises public, private and hybrid cloud solutions. In 2019, IBM introduced the world's first financial services-ready public cloud, secure and purpose-built for the industry.



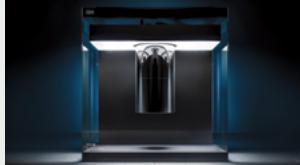
IBM Security

IBM Security was built for industry-leading compliance, threat monitoring and container security. In 2019, Cloud Pak for Security was introduced to orchestrate tools across the entire security stack.



IBM Blockchain

IBM Food Trust, TradeLens and other initiatives are streamlining supply chain processes and bringing trust and transparency to transactions.



IBM Q

A fundamentally different way of computing, quantum has the potential to transform business and solve some of the world's biggest problems. IBM has led in quantum research and development and now offers a fleet of 15 advanced quantum computers.



IBM Garage

A comprehensive approach to innovation and transformation, the IBM Garage process brings designers and developers together with clients and stakeholders. The process helps create and scale new ideas and achieve business value.

1. Purpose
2. Ownership
3. Transparency

Principles for Trust & Transparency

For more than a century, IBM has earned the trust of clients and society. In 2018, we codified the core principles that guide everything we do, from handling client data to the responsible deployment of new technologies.



Red Hat

One of the largest technology acquisitions in history combined the power and flexibility of Red Hat's open hybrid cloud technologies with the scale and depth of IBM's innovation and industry expertise.



Strategic Divestitures

Over eight years, IBM has sold businesses with more than \$10 billion in revenue, including semiconductor manufacturing and x86 servers, in order to allocate capital to innovation.



Business Roundtable

In 2019, IBM signed the Business Roundtable Statement on the Purpose of a Corporation. The Business Roundtable is a group that brings together the CEOs of nearly 200 American companies.

- **IBM Services:** From digital strategy to infrastructure services, IBM Services exemplifies the end-to-end capability of our company. Over the last 10 years, we have built the world's largest digital agency, with 57 studios and 17,000 IBM iX digital consultants. And we have scaled our global delivery network, with services professionals that have breadth of experience and industry expertise in areas like financial services, telecommunications and supply chain, around the world.
- **IBM Systems:** The recently launched IBM z15 is our most secure and capable mainframe ever, with encryption that can be applied across hybrid cloud environments, cloud-native development capabilities and an industry-first approach to instant recovery.
- **Quantum:** In 2019, IBM introduced a 53-qubit quantum computer, the largest universal quantum computing system available for commercial use. More than 100 global clients and 200,000 registered users have run over 160 billion experiments on the IBM Quantum Computation Center's fleet of 15 quantum systems through the cloud, including Daimler AG, JPMorgan Chase and Anthem.

3. IBMers: Talent, skills and culture

AI and other advanced technologies are changing the very nature of work. To keep up with the rate and pace of these changes, IBM has revitalized the skills of our workforce. In the last five years, the percentage of IBMers with skills of the future increased to 90 percent.

At the heart of our workforce transformation is the constant acquisition of relevant skills. To support this work, we built a platform that allows IBMers to plainly see the skills they have, and the skills they need. And we developed an AI-based, personalized learning system to help them acquire those skills. More than 26 million learning hours were logged in 2019 alone.

As important, IBM is committed to fostering a culture in which all IBMers feel they can bring their best selves to work. Diversity and inclusion are essential to our business. They fuel innovation and drive employee satisfaction. And in 2019, we achieved record diversity across all representation groups and best-in-class inclusion scores. We were again widely recognized as one of the best places to work for mothers, veterans, LGBTQ employees and more.

IBM understands that diversity is a fact, but inclusion is a choice. We have made our choice. And that is just one reason why our employee engagement score is at an all-time high, improving 17 points since 2014.

4. Speed: Changing the way we work

Today, enterprise client expectations are dictated by their consumer technology experiences. In order to match the speed of development found in consumer markets, we needed to fundamentally change the way IBM worked.

This process began with the creation of IBM Design Thinking, an enterprise-grade variant of the well-known human-centered design process. We then adopted agile development practices, to create the working conditions for small, diverse teams to solve problems and introduce new solutions quickly.

IBM has hired more than 20,000 designers. We have more than 100,000 employees working in agile methodology. And we have converted more than 10 million square feet of offices into agile workspaces.

This led to a significant change in the way our clients experience IBM today: the IBM Garage. These are dedicated, physical spaces in which clients work side by side with IBMers to co-create solutions, applying IBM Design Thinking and agile methods. They can happen anywhere in the world, in dedicated IBM spaces or client offices.

In 2019, we conducted approximately 600 engagements in which we helped clients adopt these same practices. The end result has been record Net Promoter Scores from clients across all IBM businesses.

5. Good tech: A model of responsible stewardship for the digital age

Of all the work we have done to transform IBM, I am most proud of the way in which we are defining responsible stewardship in the digital age.

At IBM, we have always taken the long view. That means grounding strategy and business decisions in core values that endure through decades of political, technological and societal change. They are:

- Dedication to every client's success.
- Innovation that matters, for our company and for the world.
- Trust and personal responsibility in all relationships.

Leading with values is not wide-eyed altruism. It is clear-eyed business strategy. Values attract the best employees. They sustain our client relationships. And they have guided our efforts to lead the industry in modeling what "good tech" looks like.

For example, our Principles for Trust and Transparency have become the global ethical standard of digital responsibility, inspiring similar doctrine in businesses and governments around the world:

- The purpose of new technology is to augment mankind, not replace it.
- Data and the insights it yields belong only to the owner of that data.
- AI should be open, transparent and explainable.

At IBM, we consider the full impact of our technology on society. And we readily accept our leadership role in making the digital era an inclusive era.

As such, we have pioneered programs that ensure the many—not just a few—benefit from the digital economy. To that end, we substantially expanded our 21st-century apprenticeship program and P-TECH six-year high school education model in 2019. Enrollment in the apprentice program grew twice as fast as expected. And P-TECH doubled the number of participating schools to 220, in 24 countries, with a pipeline of 150,000 students.

Our Call for Code and Code and Response programs continue to scale, tapping the talents of developers to address some of society's most intractable challenges. In 2019, 180,000 developers from 165 countries created more than 5,000 applications focused on disaster relief.

In 2019, IBM published its 29th annual IBM and the Environment Report, and advanced our environmental leadership as a founding member of the Climate Leadership Council, where we have supported a carbon tax that will reduce carbon emissions globally through market-based incentives. At the same time, we remain on track to achieve a 40 percent reduction of carbon dioxide emissions associated with our own energy consumption by 2025. In addition, IBM developed a breakthrough method of recycling polyethylene terephthalate (PET), a widely used plastic with a high carbon footprint that is difficult to recycle. IBM's new method will make it possible for more types of PET plastic to become 100 percent recyclable, helping to reduce the 8 million tons of plastics that enter our oceans each year.

New leadership for a new era

I am enormously proud of the work we have done to transform IBM for this moment. And with the foundation for growth now in place, it is the right time for a new leader to continue this critically important journey for IBM and our clients.

As such, I have elected to retire at the end of 2020 after nearly 40 years with the company. Effective April 6, 2020, Arvind Krishna, our Senior Vice President for Cloud and Cognitive, will become the next Chief Executive Officer of IBM and a member of the Board. Jim Whitehurst, CEO of Red Hat, will become President of IBM.

Arvind is a brilliant business leader and technologist who has played a significant role in developing our key technologies including artificial intelligence, cloud, quantum computing and blockchain. And Jim is a seasoned leader who built Red Hat into the world's leading provider of open source enterprise IT software solutions and services. Together, this dream team of technological acumen and business savvy will build on IBM's new foundations.

As we make this transition, I want you to know that my belief in IBM and IBMers has never been stronger. It has been the privilege of my life to lead this great company during this time of significant transformation. And, most importantly, I would like to thank our employees for their tireless dedication, our clients for their trust and partnership, and our investors for their continued belief in our company and its strategy.

At IBM, we believe in the fundamental promise of technology: that when we apply science to real-world problems, we can create a tomorrow that is better than today; a tomorrow that is more sustainable, more profitable and more equitable.

And I believe that IBM is essential to fulfilling that promise.



Virginia M. Rometty

Chairman, President and Chief Executive Officer

In an effort to provide additional and useful information regarding the company's financial results and other financial information, as determined by generally accepted accounting principles (GAAP), these materials contain non-GAAP financial measures on a continuing operations basis, including operating earnings per share, operating gross profit margin, free cash flow, and revenue adjusted for divested businesses and constant currency. The rationale for management's use of this non-GAAP information is included on pages 26, 27 and 58 of the company's 2019 Annual Report, which is Exhibit 13 to the Form 10-K submitted with the SEC on February 25, 2020. For reconciliation of these non-GAAP financial measures to GAAP and other information, please refer to pages 39, 46, 59 and 139 of the company's 2019 Annual Report.

What does it take to lead IBM's clients in their next chapter of digital transformation?

+ Innovative Technology

We help build agile organizations, fueled by data, guided by AI insight and built for change in any cloud environment. Add blockchain and the coming era of quantum computing, and we'll continue leading our clients' journeys to the Cognitive Enterprise.

+ Industry Expertise

The problems we solve and the opportunities we discover for clients cannot be achieved through technology alone. Providing counsel and insights, based on deep industry knowledge and experience, IBM is the only company with the portfolio and the people to meet today's enterprise demands.

+ Trust and Security

We build trust, privacy and security into even our most cutting-edge technologies. Just as crucial is the trust we build into our business relationships. Continually considering the full impact of our technology on society, we are committed to responsible stewardship for the digital age.

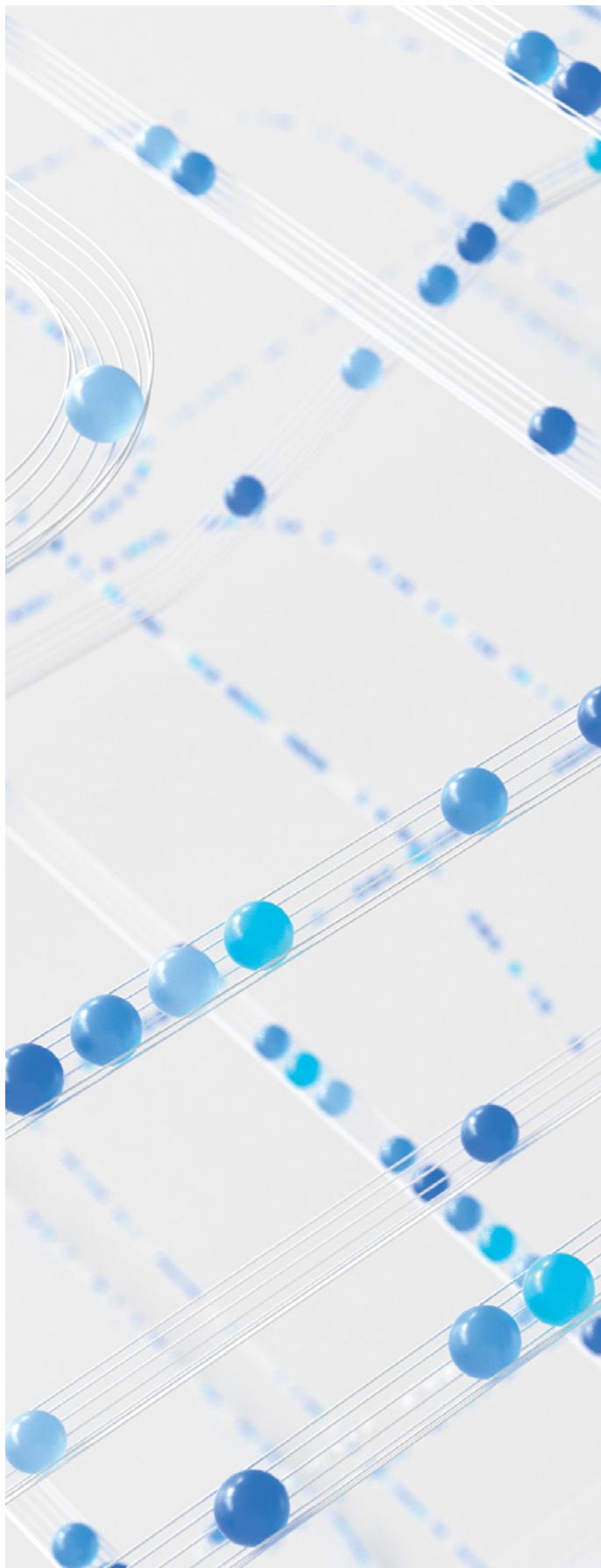
Innovative Technology

Hybrid cloud is a potential \$1.2 trillion market, with IBM already in the lead. As businesses construct and connect multiple clouds, IBM offers customers the ability to build applications once and run them anywhere. Whether for public cloud, private cloud or on-premises systems, IBM's hybrid approach enables clients to unleash any cloud's full potential.

Our acquisition of Red Hat has been a game changer. Red Hat OpenShift is the platform of choice for hybrid cloud.

\$21.2
billion
cloud revenue
in 2019

2,000+
clients using Red Hat
and IBM's hybrid
cloud platform



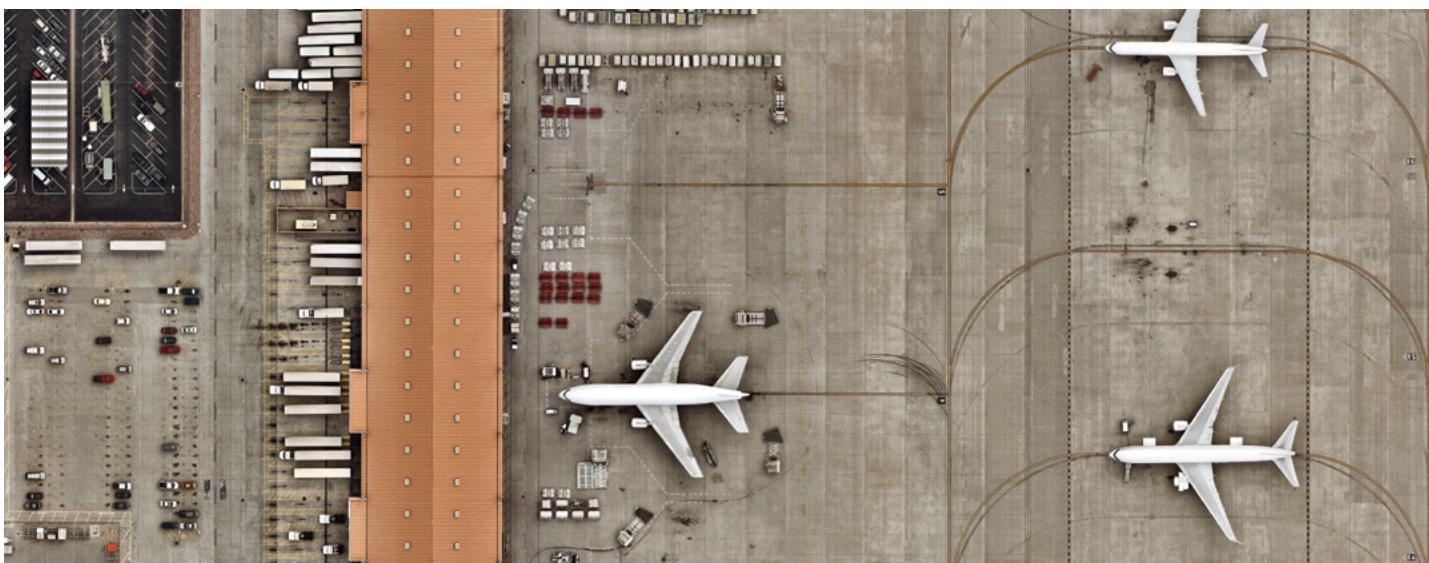
Banks are accelerating their transformations

Banks were pioneers in building consumer-facing apps, but deeper digital reinvention in the finance industry has been slower, limited by concerns that include data security and privacy. Today, many institutions are working with IBM to reinvent their infrastructure—and create new technology models for finance, such as the world's first financial services-ready cloud.

When the global bank **BNP Paribas** began accelerating its digitization strategy, its goal was to deliver superior services to its customers and corporate clients while ensuring the security and confidentiality of their data. The bank discovered that it could not digitize quickly enough with its existing private cloud. It turned to IBM to co-create a public cloud that would be robust, reliable and secure enough to support its banking applications and its extensive compliance and security requirements. The BNP Paribas dedicated public cloud will combine the security of a private cloud with the speed, scalability and cost savings of a public cloud. The bank will also benefit from IBM Watson AI and other services—enabling it to tap into new technologies, innovate more quickly and, ultimately, deliver a better customer experience.

Consumers expect convenience and security from their banks. The challenge: how to increase convenience without giving up on security. **State Bank of India**, the country's largest bank, partnered with IBM Services to create a secure mobile platform, YONO (You Only Need One), that is transforming how more than 18 million people in India bank, invest, shop, order food and more.

Airlines are building new travel experiences



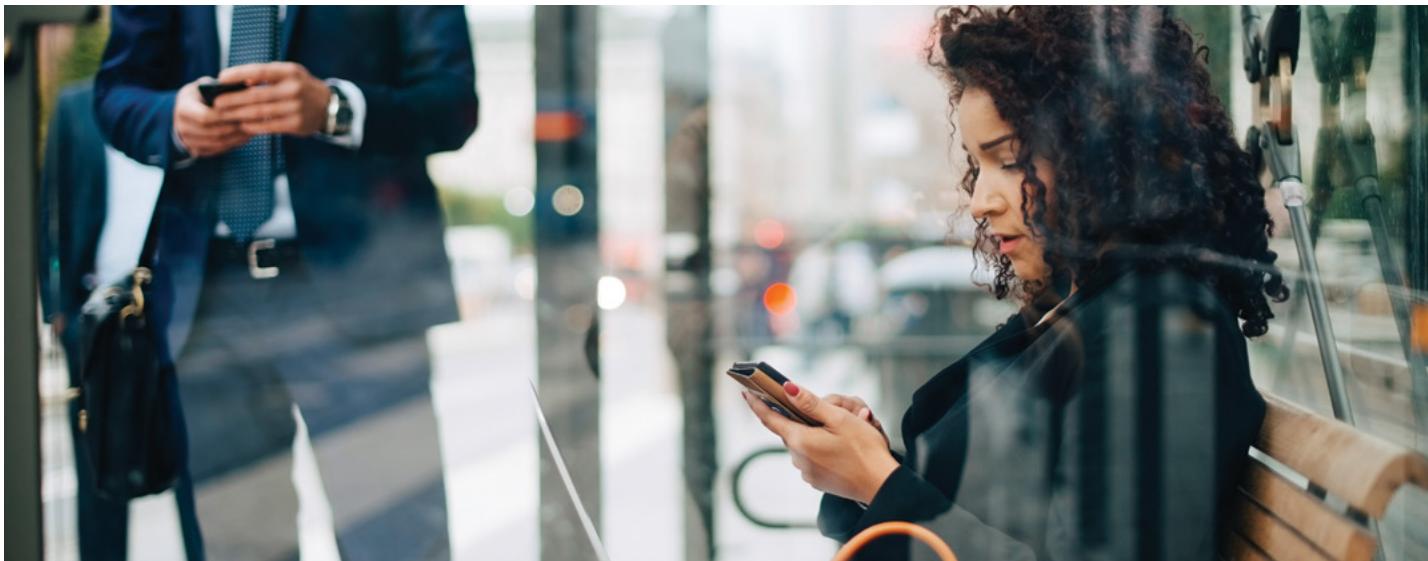
Airlines must deliver superior passenger experiences with every flight. To do that, they are rethinking and reinventing their technology core—and how their employees work.

Carriers are shifting mission-critical workloads to **IBM Cloud** and hybrid cloud environments, taking advantage of the open, scalable architecture and microservices to improve their processes, accommodate growth and offer new digital services such as automatic rebooking. And airlines are using AI to offer personalized pricing and other new services.

The **IBM Travel Platform** offers a range of customized mobile applications that empower airline employees, allowing them to offer higher levels of service, manage boarding more efficiently, deploy maintenance resources, and more. Aloft, The Weather Company's **Total Turbulence** can predict turbulence ahead of time, so plane routes can be optimized.

Across the industry, these shifts are allowing carriers to find new ways to improve the journey.

Telcos are innovating more nimbly



Success in any market requires rapid, agile innovation. In Europe, **Vodafone Business** partnered with IBM to combine Vodafone's leadership in Edge, 5G and IoT with IBM's public and hybrid cloud, industry expertise and professional services. The partnership is enabling companies like **National Express** to deliver digital solutions faster, utilizing a multicloud approach and capitalizing on AI, blockchain and other advanced technologies.

In India, **Vodafone Idea**, a Vodafone Group joint venture, signed an IT outsourcing partnership with IBM to deliver enhanced customer experience to millions of connected customers and yield synergies by consolidating two large pre-merger IT environments. The partnership uses IBM's hybrid cloud, analytics and security capabilities to accelerate Vodafone Idea's progression to an open, agile and secure IT environment.

IBM, with Red Hat, is also helping Vodafone Idea build an open universal hybrid cloud, able to serve all aspects of core network and IT from a common cloud. This will enable continued improvements in customer service, a step change reduction in cost, and the rapid deployment of Edge-based offerings to enterprise clients.

Artificial intelligence is transforming how businesses operate, how people do their jobs and how customers engage. Across industries, IBM clients are rapidly moving from pilots to enterprise-wide AI adoption. With IBM Watson, the pieces are now in place to scale AI with trust and transparency.

And with IBM's allegiance to open source technology, these AI solutions perform with seamless interoperability, whatever the software platform or cloud environment.



Infrastructure can maintain its own safety

The world's civil infrastructure is aging. Catastrophic failures of bridges and roads are a growing threat. A recent study determined that in the U.S. alone, 47,052 bridges were structurally deficient.

Sund & Bælt, which owns and operates some of the largest infrastructure in the world—including the Great Belt Bridge in Denmark—has partnered with IBM to create Maximo for Civil Infrastructure, a solution that uses machine intelligence to monitor the effects of stress, use and age on bridges and tunnels—and to announce when intervention is required.

It will measure the impacts of cracks, rust, corrosion and other potential stressors by integrating and analyzing data from The Weather Company, maintenance records and sensors that are placed on structures, worn by workers and flown by drones. Using predictive and prescriptive maintenance strategies, the system can flag the most serious issues. As a result, maintenance crews will be able to work with maximum efficiency and effectiveness.

#1
market leader
in enterprise AI

30,000+
IBM Watson client
engagements

1,800+
AI patents in 2019



Energy production is embedded with AI

Gaining real value from AI requires moving from experiments to scale—embedding AI into processes throughout an organization.

Woodside Energy takes a forward-looking, technology-based approach to energy. The Australian natural gas company has deployed IBM Watson since 2016 and now estimates that around 80 percent of Woodside employees have used Watson in their work.

Now, Woodside and IBM are collaborating to explore quantum computing and to deploy and scale AI further into operations. New applications could help Woodside save a significant portion of annual maintenance costs and optimize workflows, part of Woodside's vision for an "intelligent plant."

Advertisers are getting closer to their audiences

In advertising, insights allow brands to better understand and engage with their audiences. As the volume of data accelerates, so do the challenges of aggregating and interpreting it.

Wunderman Thompson Data, the data and analytics arm of global creative and technology agency Wunderman Thompson, had data dispersed across many clouds. The company knew that if it could pull together and mine this data, it could build new and expanded customized campaigns for its clients. It partnered with IBM to create an unprecedented machine learning practice using IBM Watson to discover new customer insights and deliver increased ROI for brands. The use of Watson also helped Wunderman Thompson Data amplify its capabilities by being able to leverage the company's entire portfolio of data assets.

To make it happen, it brought in IBM's Data Science Elite team—all experts in helping companies push AI and machine learning models into production—to accelerate and modernize the building of their machine learning practice. This allowed Wunderman Thompson Data to build a proof of concept with IBM; the collaboration resulted in a new machine learning pipeline—in the time span of just several weeks.

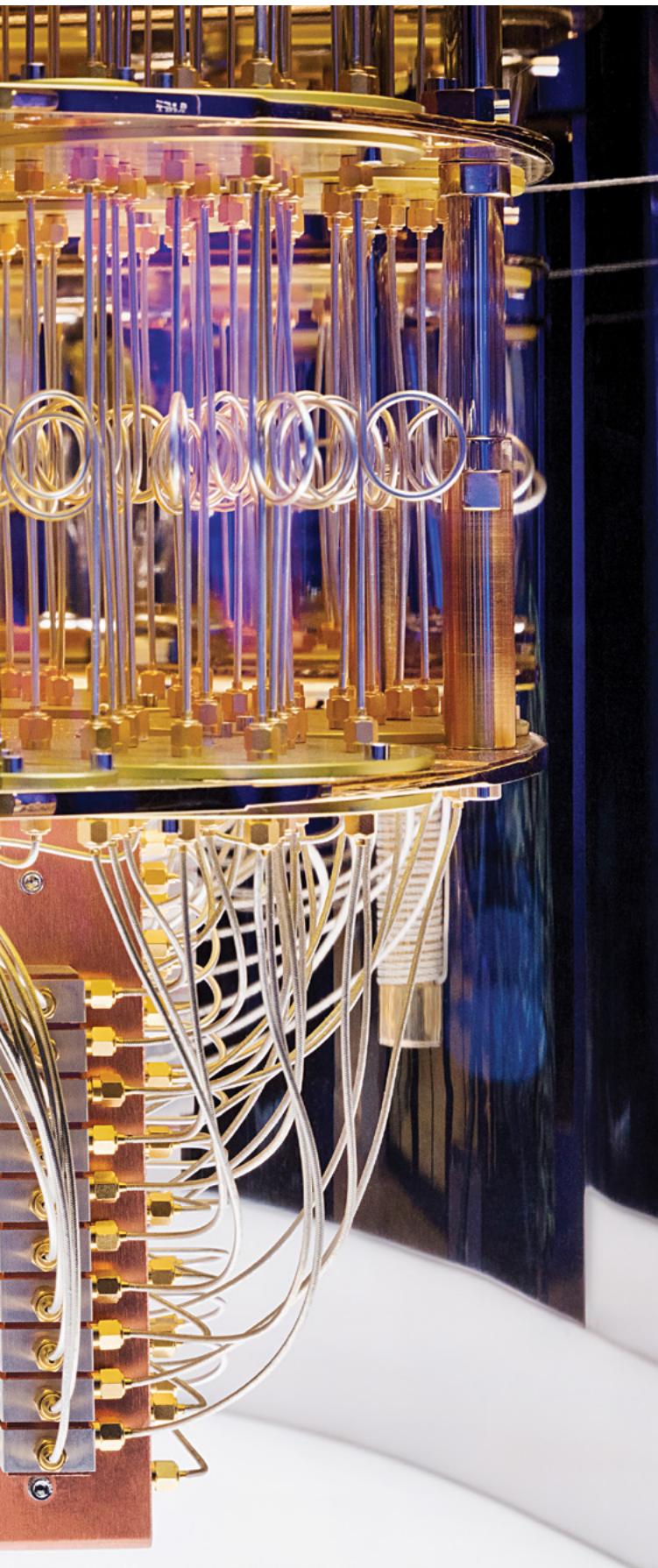
Quantum computing is an entirely new paradigm. Based on the principles of quantum physics, quantum computing has the potential to crack previously unsolvable problems in chemistry, materials science, finance and any other field that has hit the limits of classical computing—and could lead to breakthroughs in areas such as weather forecasting and drug discovery.

For decades, IBM has led the research and development of quantum information science and quantum machines. And IBM was the first to give the world the chance to experience it by putting a quantum computer on the cloud in 2016. Now, quantum computing is moving out of the lab and into the hands of users and commercial clients worldwide.

100+
organizations in
the IBM Q Network

160
billion
executions on IBM's
quantum fleet





Quantum is being applied to our toughest problems

More than 100 companies and institutions have joined the IBM Q Network to explore practical applications of quantum computing. They are using IBM's fleet of 15 of the most advanced quantum computers commercially available.

Daimler AG and IBM are exploring ways the automotive and transportation industry can leverage quantum computing. Daimler's research currently focuses on the development of novel quantum algorithms for chemistry and materials science to support its long-term goal of designing new batteries. New materials may lead to the development of higher performance, longer lasting and less expensive vehicle batteries.

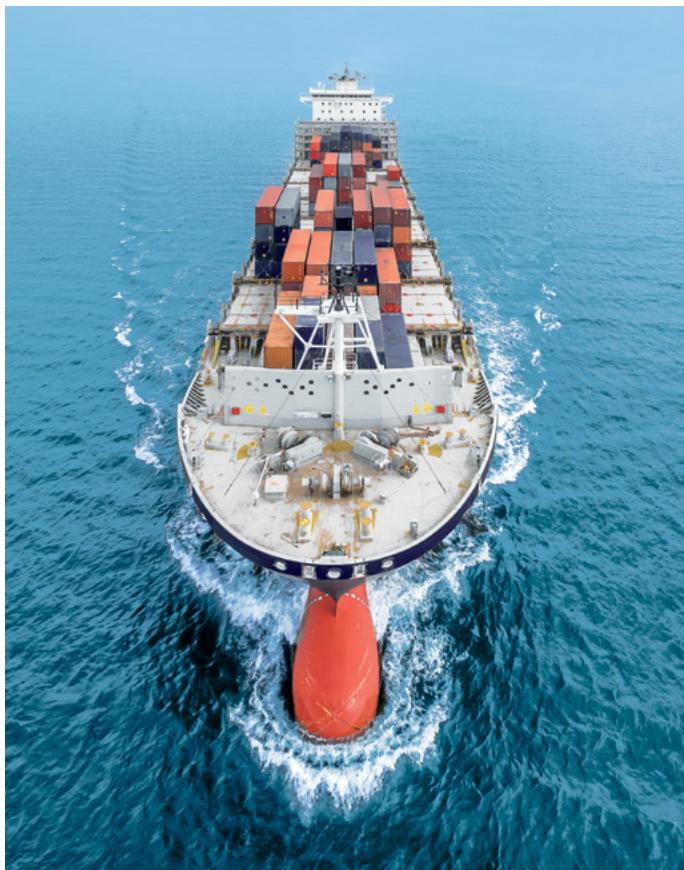
JPMorgan Chase and IBM are researching methodologies for financial modeling and risk management. The joint research has led to the creation of a methodology to price financial derivative contracts, known as options, as well as portfolios of options, which may have future potential to substantially accelerate and enhance business operations. This collaboration recently led to the first experiment modeling a European call option on a real quantum computer.

Industry Expertise

Our industry expertise is a key advantage as we help clients respond to their customers' evolving needs and stay nimble in the face of continuous technological change. “Mission-critical” means more than technology. To fundamentally change the way businesses work and innovate, they need expert guidance. From manufacturing to financial services, to retail and more—our experts possess deep knowledge developed through decades of work with the world’s most complex systems.

~90%
of credit card
transactions run
on IBM systems

83%
of the world’s
largest telcos
are IBM clients

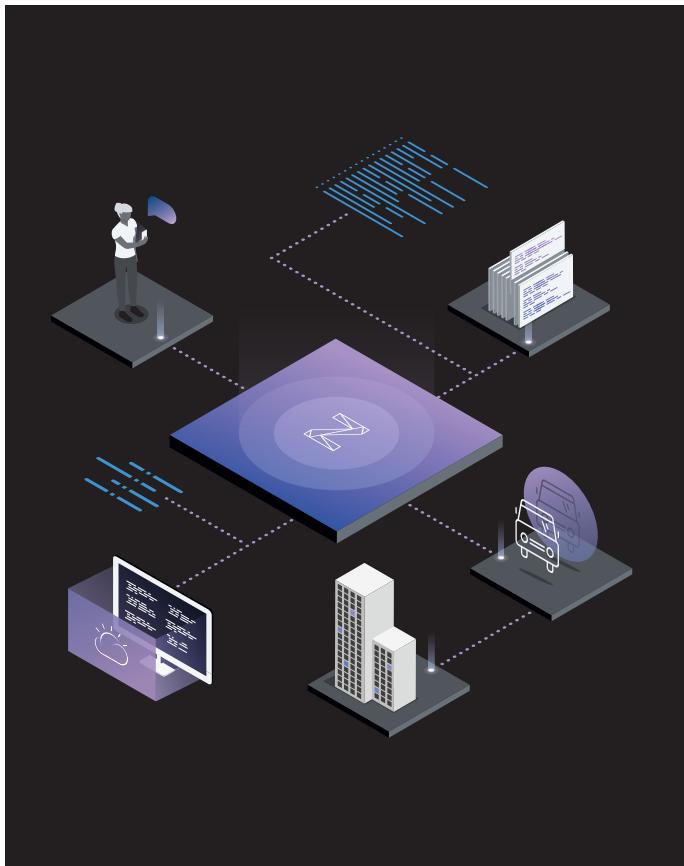


Supply chains are getting more transparent

The worldwide container logistics ecosystem carries 90 percent of the goods we use daily, but only recently moved beyond paper-based processes. Technology that can cut costs, ensure transparency and eliminate inefficiencies has become a necessity.

Enter blockchain, which is the basis for **TradeLens**, the global container logistics digitization platform developed jointly by **A.P. Moller-Maersk** and IBM. In 2019, the major ocean carriers **CMA CGM, MSC Mediterranean Shipping Company, Hapag-Lloyd** and **Ocean Network Express** joined TradeLens.

Today, TradeLens is on pace to trace 12 million documents annually, accounting for data on more than 60 percent of the world's ocean container cargo. The digital ship—secure, transparent and open-standards-based—has come in.



Insurers can deliver world-class customer experience

Consumers' expectations of how they interact with companies are continually rising—regardless of the industry or technology platforms involved.

To meet its customers' evolving needs, **State Farm**, the largest property and casualty insurer in the U.S., wanted to accelerate its development of new digital services. To do that, it needed to adopt a DevOps model in order to unlock cloud-native development across its core systems—something often thought impossible in the industry. For State Farm, this meant transforming most of its mission-critical workloads, run on the IBM Z platform, to a new way of working.

The first step for State Farm in implementing modern DevOps practices on its z/OS systems was using industry-standard tools—a mix of open source, homegrown and proprietary—drawing from its experience in cloud development.

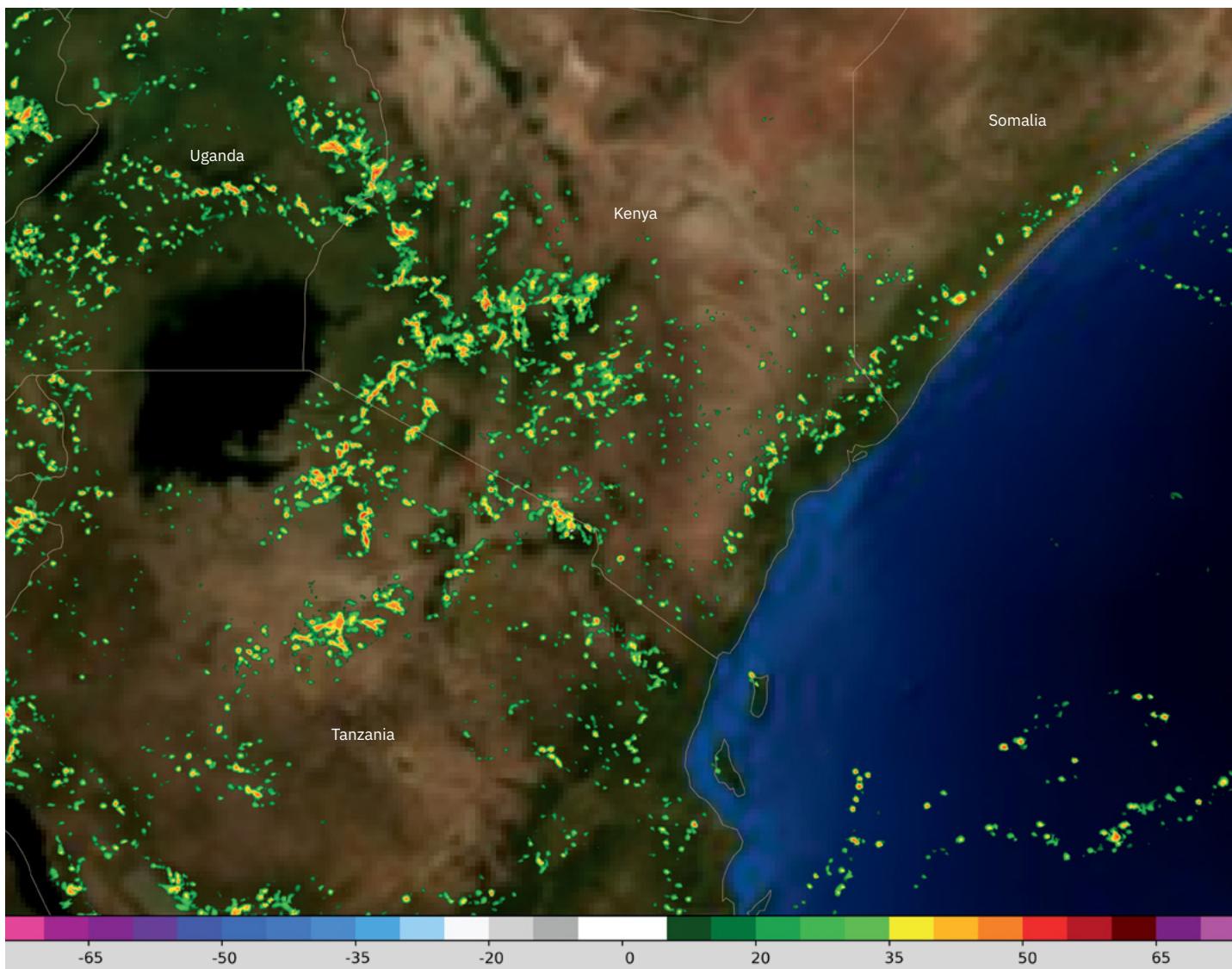
Moving to continuous development and integration cycles accelerated delivery of new functionality—and opened up its enterprise servers to a new generation of developers.

Weather data is becoming democratized

Whether gusty winds that send a delivery drone off-track or a tornado that flattens a town, disruptive weather patterns are affecting the lives of individuals, businesses and institutions around the world.

IBM GRAF, the Global High-Resolution Atmospheric Forecasting system, from The Weather Company, an IBM Business, can now offer the whole world forecasts with 3-kilometer resolution. GRAF is democratizing weather data, promising to improve farming and other industries as well as our everyday lives.

An IBM supercomputer called Dyeus assimilates 108 gigabytes worth of atmospheric observations every second and performs about 12 trillion computations per day on that data. The result: much finer-grained predictions of the atmosphere and forecasts updated up to a dozen times more frequently than conventional global modeling systems, from one of the world's most trusted sources for weather data.



Agriculture is being enriched by data

Yara, a global crop nutrition company based in Norway, is on a mission to responsibly feed and protect the planet by advancing more productive and sustainable agriculture to create a world without hunger.

The company is combining its 115 years of agronomic expertise with IBM technology and agriculture industry experience to bring more knowledge to farmers by building the world's leading digital farming platform. By merging Yara's crop knowledge and modeling capabilities with insights from IBM Watson Studio, IBM PAIRS technology, The Weather Company and other services, the platform will be able to provide hyperlocal weather forecasts in addition to offering real-time recommendations, tailored to the specific needs of individual fields and crops. One example: Yara's FarmWeather app, installed by more than 800,000 small farmers in Asia and Africa, is one of the fastest-growing digital farming tools.



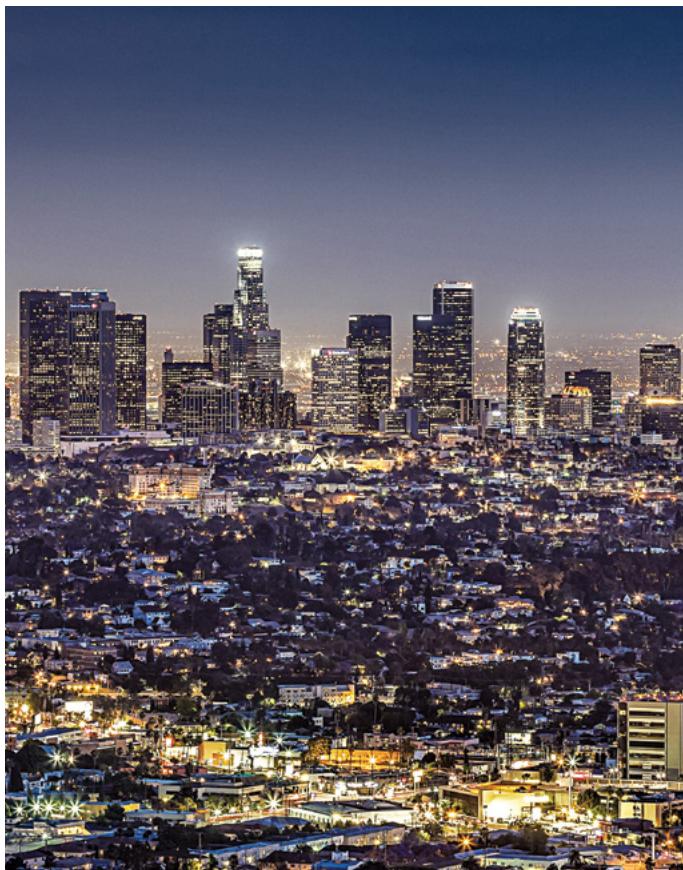
Trust and Security

Trust is becoming the most important competitive differentiator of our time. We know our obligations don't begin and end with the technology itself. That's why many of IBM's investments have been made in building trust, privacy and security into our technology.

For more than a century, IBM has earned the confidence of businesses and society by acting as a steward of our clients' data and insights, and by responsibly ushering powerful new technologies into the world. That includes ensuring that our clients' data is theirs and theirs alone, while helping them secure it from mishap or malfeasance. Our values also guide us to work with purpose and to act as responsible stewards of technology.

70
billion
security events
managed each day

180,000
developers
participated in
Call for Code

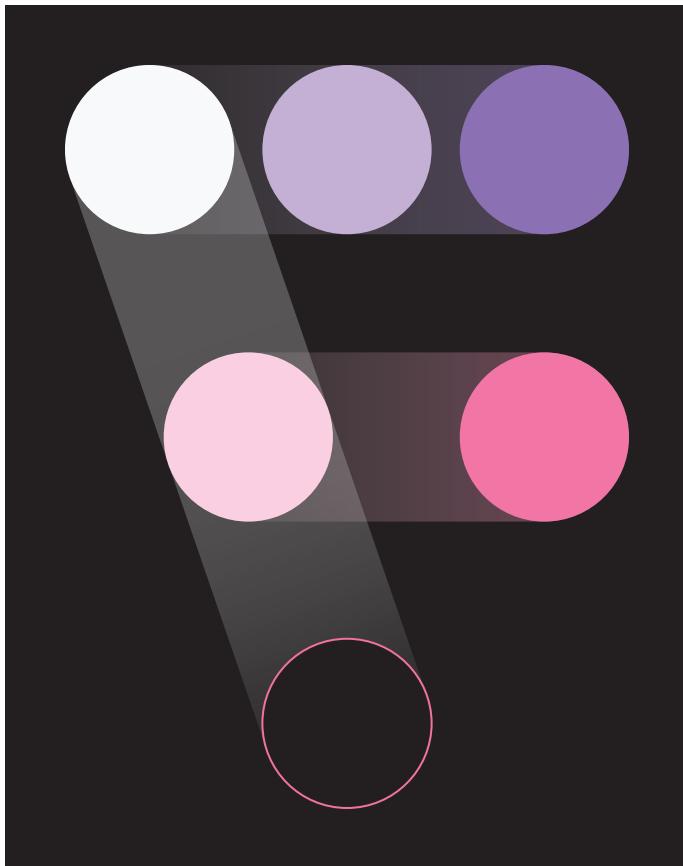


Cities are growing more secure

Ransomware struck more than 170 U.S. cities in 2019, costing millions, disrupting critical services and threatening public safety. And it is often targeted at smaller companies and organizations that don't have the tools to combat it.

In Los Angeles, IBM Security and the **LA Cyber Lab** are helping businesses fight back. Together, they are building the Threat Intelligence Sharing Platform to provide the city's businesses, utilities and local governments with threat data. This helps them detect and identify ransomware and other dangers.

Making enterprise-grade threat intelligence available to these organizations lets them understand and respond to threats with speed and tactics previously available only to large firms. The platform is giving them a fighting chance against ransomware and other cybercrime.



AI can now explain itself

In every industry, key workflows and decisions are benefiting from AI and machine learning.

But a potential drawback is the “black box problem”—the difficulty in understanding why AI has made a decision or recommendation. IBM holds as a core principle that new technology such as AI must always be transparent and explainable. Now that AI is being used in consequential use cases, ensuring “explainability” is essential.

To empower users to understand their AI models, IBM Research released the **AI Explainability 360** toolkit. This comprehensive, open source toolkit uses state-of-the-art algorithms and methods to provide insights into a machine’s decision-making process through a single interface. By adding interpretability and explainability in AI systems, we can help advance the theory and practice of responsible and trustworthy AI.



We are working with purpose and responsibility

IBM pursues the highest standards of responsibility in all we do. Our stewardship is focused on three areas:

Data responsibility. We have an obligation to responsibly handle the data we collect, manage or process. Through this commitment, IBM earns the trust of the world's largest enterprises as a steward of their most valuable data.

Jobs and skills. IBM has invested in building and preparing a workforce for the 21st century, through apprenticeship programs, returnships for women reentering the workforce, veterans programs and skills-building sessions for more than 3.2 million students worldwide.

Diversity and inclusion. Consciously building inclusive teams and encouraging diversity of ideas helps us make the greatest impact for our clients, our colleagues and the world.



Developers are tackling natural disasters

As the Founding Partner of **Call for Code**, a worldwide developer competition, IBM is rallying the developer community to envision innovative solutions to the world's most pressing problems. The effort is supported by **IBM Code and Response**, a multiyear initiative dedicated to building and deploying open source technologies to tackle these challenges.

In Barcelona, a nurse, a firefighter and three developers teamed up to win the 2019 Call for Code Global Challenge with **Prometeo**, a solution that uses IBM's Cloud IoT platform to help monitor the safety of firefighters in real time as they battle blazes. The team received a \$200,000 prize as well as support from IBM and the Linux Foundation. Next up: deployments in Spain.

In 2020, the Call for Code challenge will focus on climate change, inviting developers to create applications that can help smooth the path to sustainability.

150,000 students are learning new collar skills



It began as a challenge almost a decade ago: How could IBM, with educators and business and community leaders, reinvent high school education and help address the global STEM skills shortage?

Since that time, the **P-TECH** education model has grown from one school in Brooklyn, New York, into a global network of 220 schools and 650 companies. More than 150,000 students are in the pipeline in two dozen countries.

The model integrates high school, college and career readiness training with curricula mapped to industry needs. Academically rigorous and economically transformative, P-TECH schools prepare young women and men, many from underserved communities, for 21st-century careers. Students benefit from one-on-one mentoring and paid internships with partners such as IBM, graduate debt-free with a high school diploma and a community college degree, and are first in line for new collar jobs with partner companies.

In 2020, IBM is launching **Open P-TECH** to equip young people and educators with foundational knowledge and professional skills in emerging technologies like cybersecurity, AI and more, all for free.

Financial Highlights

International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

For the year ended December 31:	2019	2018
Revenue	\$ 77,147	\$ 79,591
Net Income	\$ 9,431*	\$ 8,728*
Income from continuing operations	\$ 9,435*	\$ 8,723*
Operating (non-GAAP) earnings**	\$ 11,436	\$ 12,657
 Earnings per share of common stock—continuing operations		
Assuming dilution	\$ 10.57*	\$ 9.51*
Basic	\$ 10.63*	\$ 9.56*
Diluted operating (non-GAAP)**	\$ 12.81	\$ 13.81
 Net cash provided by operating activities		
Capital expenditures, net	\$ 2,370	\$ 3,716
Share repurchases	\$ 1,361	\$ 4,443
Cash dividends paid on common stock	\$ 5,707	\$ 5,666
Per share of common stock	\$ 6.43	\$ 6.21
 At December 31:		
Cash, cash equivalents, restricted cash and marketable securities	\$ 9,009	\$ 12,222
Total assets	\$ 152,186	\$ 123,382
Working capital	\$ 718	\$ 10,918
Total debt	\$ 62,899	\$ 45,812
Total equity	\$ 20,985	\$ 16,929
Common shares outstanding (in millions)	887	892
Stock price per common share	\$ 134.04	\$ 113.67

* Includes charges of \$0.1 billion in 2019 and \$2.0 billion in 2018 associated with U.S. tax reform.

**See page 46 for a reconciliation of net income to operating earnings.

MANAGEMENT DISCUSSION		NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Overview	26	Basis & Policies
Forward-Looking and Cautionary Statements	27	A Significant Accounting Policies 74
Management Discussion Snapshot	27	B Accounting Changes 86
Description of Business	29	Performance & Operations
Year in Review	34	C Revenue Recognition 88
Prior Year in Review	53	D Segments 89
Other Information	56	E Acquisitions & Divestitures 93
Looking Forward	56	F Research, Development & Engineering 96
Liquidity and Capital Resources	57	G Taxes 97
Critical Accounting Estimates	60	H Earnings Per Share 99
Currency Rate Fluctuations	63	Balance Sheet & Liquidity
Market Risk	63	I Financial Assets & Liabilities 100
Cybersecurity	64	J Inventory 101
Employees and Related Workforce	64	K Financing Receivables 101
		L Property, Plant & Equipment 105
Report of Management	65	M Leases 105
Report of Independent Registered Public Accounting Firm	66	N Intangible Assets Including Goodwill 109
		O Investments & Sundry Assets 110
		P Borrowings 110
		Q Other Liabilities 113
		R Commitments & Contingencies 114
		S Equity Activity 116
CONSOLIDATED FINANCIAL STATEMENTS		Risk Management, Compensation/Benefits & Other
Income Statement	68	T Derivative Financial Instruments 120
Comprehensive Income	69	U Stock-Based Compensation 123
Balance Sheet	70	V Retirement-Related Benefits 125
Cash Flows	71	W Subsequent Events 138
Equity	72	
		Five-Year Comparison of Selected Financial Data 139
		Selected Quarterly Data 140
		Performance Graphs 141
		Stockholder Information 142
		Board of Directors and Senior Leadership 143

Management Discussion

International Business Machines Corporation and Subsidiary Companies

OVERVIEW

The financial section of the International Business Machines Corporation (IBM or the company) 2019 Annual Report includes the Management Discussion, the Consolidated Financial Statements and the Notes to Consolidated Financial Statements. This Overview is designed to provide the reader with some perspective regarding the information contained in the financial section.

Organization of Information

- The Management Discussion is designed to provide readers with an overview of the business and a narrative on our financial results and certain factors that may affect our future prospects from the perspective of management. The “Management Discussion Snapshot” presents an overview of the key performance drivers in 2019.
- Beginning with the “Year in Review,” the Management Discussion contains the results of operations for each reportable segment of the business and a discussion of our financial position and cash flows. Other key sections within the Management Discussion include: “Looking Forward” and “Liquidity and Capital Resources,” which includes a description of management’s definition and use of free cash flow.
- The Consolidated Financial Statements provide an overview of income and cash flow performance and financial position.
- The Notes follow the Consolidated Financial Statements. Among other items, the Notes contain our accounting policies, revenue information, acquisitions and divestitures, certain commitments and contingencies and retirement-related plans information.
- On July 9, 2019, IBM acquired 100 percent of the outstanding shares of Red Hat, Inc. (Red Hat). Red Hat is reported within the Cloud & Cognitive Software segment, in Cloud & Data Platforms. The consolidated financial results at and as of the year ended December 31, 2019 reflect the impacts of the acquisition on IBM; including: recognition of goodwill, intangible assets and related amortization and deferred tax liabilities, along with other purchase accounting adjustments including a deferred revenue fair value adjustment. The Consolidated Income Statement for the year ended December 31, 2019 includes impacts from these purchase accounting adjustments, higher interest expense, transaction-related costs and other acquisition-related activities. Refer to note E, “Acquisitions & Divestitures” for additional information.
- Effective the first quarter of 2019, we made a number of changes to our organizational structure and management system. As a result of these changes, we revised our reportable segments. There was no change to the Consolidated Financial Statements. Refer to note D, “Segments” for additional information on our reportable segments. The periods presented in this Annual Report are reported on a comparable basis. We provided recast historical segment information reflecting these changes in a Form 8-K dated April 4, 2019.
- The references to “adjusted for currency” or “at constant currency” in the Management Discussion do not include operational impacts that could result from fluctuations in foreign currency rates. When we refer to growth rates at constant currency or adjust such growth rates for currency,

it is done so that certain financial results can be viewed without the impact of fluctuations in foreign currency exchange rates, thereby facilitating period-to-period comparisons of business performance. Financial results adjusted for currency are calculated by translating current period activity in local currency using the comparable prior-year period’s currency conversion rate. This approach is used for countries where the functional currency is the local currency. Generally, when the dollar either strengthens or weakens against other currencies, the growth at constant currency rates or adjusting for currency will be higher or lower than growth reported at actual exchange rates. See “Currency Rate Fluctuations” for additional information.

- To provide better transparency on the recurring performance of the ongoing business, the company provides revenue growth rates excluding divested businesses and at constant currency. These divested businesses are included in the company’s Other segment.
- Within the financial statements and tables in this Annual Report, certain columns and rows may not add due to the use of rounded numbers for disclosure purposes. Percentages reported are calculated from the underlying whole-dollar numbers.

Operating (non-GAAP) Earnings

In an effort to provide better transparency into the operational results of the business, supplementally, management separates business results into operating and non-operating categories. Operating earnings from continuing operations is a non-GAAP measure that excludes the effects of certain acquisition-related charges, intangible asset amortization, expense resulting from basis differences on equity method investments, retirement-related costs and discontinued operations and their related tax impacts. Due to the unique, non-recurring nature of the enactment of the U.S. Tax Cuts and Jobs Act (U.S. tax reform), management characterizes the one-time provisional charge recorded in the fourth quarter of 2017 and adjustments to that charge as non-operating. Adjustments, among others, include true-ups, accounting elections, any changes to regulations, laws and audit adjustments that affect the recorded one-time charge. For acquisitions, operating (non-GAAP) earnings exclude the amortization of purchased intangible assets and acquisition-related charges such as in-process research and development, transaction costs, applicable retention, restructuring and related expenses, tax charges related to acquisition integration and pre-closing charges, such as financing costs. These charges are excluded as they may be inconsistent in amount and timing from period to period and are significantly impacted by the size, type and frequency of the company’s acquisitions. All other spending for acquired companies is included in both earnings from continuing operations and in operating (non-GAAP) earnings. Throughout the Management Discussion, the impact of acquisitions over the prior 12-month period may be a driver of higher expense year to year. For retirement-related costs, management characterizes certain items as operating and others as non-operating, consistent with GAAP. We include defined benefit plan and nonpension postretirement benefit plan service costs, multi-employer plan costs and the cost of defined contribution plans in operating earnings. Non-operating retirement-related costs include defined benefit plan and nonpension postretirement benefit plan amortization of prior service costs, interest cost, expected return on plan assets, amortized actuarial gains/losses, the impacts of any

plan curtailments/settlements and pension insolvency costs and other costs. Non-operating retirement-related costs are primarily related to changes in pension plan assets and liabilities which are tied to financial market performance, and the company considers these costs to be outside of the operational performance of the business.

Overall, management believes that supplementally providing investors with a view of operating earnings as described above provides increased transparency and clarity into both the operational results of the business and the performance of the company's pension plans; improves visibility to management decisions and their impacts on operational performance; enables better comparison to peer companies; and allows the company to provide a long-term strategic view of the business going forward. Our reportable segment financial results reflect pre-tax operating earnings from continuing operations, consistent with our management and measurement system. In addition, these non-GAAP measures provide a perspective consistent with areas of interest we routinely receive from investors and analysts.

FORWARD-LOOKING AND CAUTIONARY STATEMENTS

Certain statements contained in this Annual Report may constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any forward-looking statement in this Annual Report speaks only as of the date on which it is made; IBM assumes no obligation to update or revise any such statements except as required by law. Forward-looking statements are based on IBM's current assumptions regarding future business and financial performance; these statements, by their nature, address matters that are uncertain to different degrees. Forward-looking statements involve a number of risks, uncertainties and other factors that could cause actual results to be materially different, as discussed more fully elsewhere in this Annual Report and in the company's filings with the Securities and Exchange Commission (SEC), including IBM's 2019 Form 10-K filed on February 25, 2020.

MANAGEMENT DISCUSSION SNAPSHOT

(\$ and shares in millions except per share amounts)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent/Margin Change**
Revenue	\$ 77,147	\$ 79,591	(3.1)%*
Gross profit margin	47.3%	46.4%	0.9 pts.
Total expense and other (income)	\$ 26,322	\$ 25,594	2.8%
Income from continuing operations before income taxes	\$ 10,166	\$ 11,342	(10.4)%
Provision for income taxes from continuing operations	\$ 731	\$ 2,619 ⁺	(72.1)%
Income from continuing operations	\$ 9,435	\$ 8,723 ⁺	8.2%
Income from continuing operations margin	12.2%	11.0%	1.3 pts.
Net income	\$ 9,431	\$ 8,728 ⁺	8.1%
Earnings per share from continuing operations—assuming dilution	\$ 10.57	\$ 9.51 ⁺	11.1%
Weighted-average shares outstanding—assuming dilution	892.8	916.3	(2.6)%
Assets ⁺⁺	\$152,186	\$123,382	23.3%
Liabilities ⁺⁺	\$131,202	\$106,452	23.2%
Equity ⁺⁺	\$ 20,985	\$ 16,929	24.0%

* (1.0) percent adjusted for currency; 0.2 percent excluding divested businesses and adjusted for currency.

** 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

⁺ Includes charges of \$2.0 billion or \$2.23 of diluted earnings per share in 2018 associated with U.S. tax reform.

⁺⁺At December 31

The following table provides the company's operating (non-GAAP) earnings for 2019 and 2018. See page 46 for additional information.

(\$ in millions except per share amounts)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change*
Net income as reported	\$ 9,431	\$ 8,728 ^{**}	8.1%
Income/(loss) from discontinued operations, net of tax	(4)	5	NM
Income from continuing operations	\$ 9,435	\$ 8,723 ^{**}	8.2%
Non-operating adjustments (net of tax)			
Acquisition-related charges	1,343	649	107.0
Non-operating retirement-related costs/(income)	512	1,248	(58.9)
U.S. tax reform charge	146	2,037	(92.8)
Operating (non-GAAP) earnings	\$11,436	\$12,657	(9.6)%
Diluted operating (non-GAAP) earnings per share	\$ 12.81	\$ 13.81	(7.2)%

* 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

**Includes charges of \$2.0 billion in 2018 associated with U.S. tax reform.

NM—Not meaningful

Management Discussion

International Business Machines Corporation and Subsidiary Companies

In 2019, we reported \$77.1 billion in revenue, \$9.4 billion in income from continuing operations and operating (non-GAAP) earnings of \$11.4 billion, resulting in diluted earnings per share from continuing operations of \$10.57 as reported and \$12.81 on an operating (non-GAAP) basis. We also generated \$14.8 billion in cash from operations, \$11.9 billion in free cash flow and delivered shareholder returns of \$7.1 billion in dividends and gross common stock repurchases. These results reflect solid performance in key high-value areas as we continued to strengthen our foundation for the next chapter of our clients' digital reinventions. During 2019, we completed the acquisition of Red Hat and have started to benefit from the synergies of IBM and Red Hat together. We continued to bring new innovations to the market, launching the new z15, delivering new high-end storage and modernizing and containerizing our software portfolio. We have expanded our services offerings and skills for the cloud journey and the reach of our Watson/AI offerings. We also divested select businesses as we continue to prioritize our investments and optimize our portfolio for this next chapter in cloud.

Total consolidated revenue decreased 3.1 percent as reported and 1 percent adjusted for currency compared to the prior year. Excluding divested businesses, revenue increased 0.2 percent adjusted for currency. Cloud & Cognitive Software increased 4.5 percent as reported and 6 percent adjusted for currency, with strong results from the contribution of Red Hat beginning in the third quarter. Cloud & Data Platforms, which includes Red Hat, grew 10.4 percent as reported (12 percent adjusted for currency), Cognitive Applications increased 2.3 percent as reported (4 percent adjusted for currency), while Transaction Processing Platforms declined 0.5 percent as reported but grew 1 percent adjusted for currency. Global Business Services (GBS) grew 0.2 percent as reported and 2 percent adjusted for currency led by Consulting which grew 3.7 percent (6 percent adjusted for currency) with year-to-year improvement in each quarter of 2019. Global Technology Services (GTS) decreased 6.1 percent as reported and 4 percent adjusted for currency with declines in Infrastructure & Cloud Services and Technology Support Services. Performance in Infrastructure & Cloud Services was impacted by lower in-period revenue from client business volumes, while the decline in Technology Support Services was primarily due to transitions in the hardware product cycle. As we continued to take actions to accelerate the shift to the higher value segments of the market opportunity, there was solid growth in the cloud offerings within GTS. Systems decreased 5.3 percent year to year as reported and 4 percent adjusted for currency. IBM Z decreased 1.1 percent (flat adjusted for currency) reflecting product cycle dynamics. There was a year-to-year decline through the first three quarters of the year at the end of the z14 product cycle, but strong growth in the fourth quarter after shipment of the new z15 mainframe began in the last week of September. Storage Systems declined 8.9 percent as reported (8 percent adjusted for currency) with improved year-to-year performance in the second half of the year and growth in the fourth quarter led by high-end products. Power Systems declined 13.5 percent (12 percent adjusted for currency) compared with strong performance in the prior year. Across the segments, total IBM cloud revenue of \$21.2 billion in 2019 grew 11 percent as reported and 13 percent adjusted for currency and represented 27 percent of our total 2019 revenue.

From a geographic perspective, Americas revenue declined 1.9 percent year to year as reported (1 percent adjusted for currency), but grew 1 percent excluding divested businesses and adjusted for currency. Europe/Middle East/Africa (EMEA) decreased 4.1 percent (flat adjusted for currency), but grew 1 percent excluding divested businesses and adjusted for currency. Asia Pacific declined 4.0 percent year to year as reported (3 percent adjusted for currency) and 2 percent excluding divested businesses and adjusted for currency.

The consolidated gross margin of 47.3 percent increased 0.9 points year to year, and the operating (non-GAAP) gross margin of 48.0 percent increased 1.1 points versus the prior year. The improved margins in 2019 reflect the actions we have taken to focus on higher value and portfolio optimization while also driving productivity and operational efficiency.

Total expense and other (income) increased 2.8 percent in 2019 compared to the prior year. The year-to-year performance was driven by higher spending including investment to deliver new innovations, Red Hat operational spending and interest expense from debt issuances to fund the acquisition (8 points), amortization of acquired intangible assets and other non-operating activity related to the Red Hat acquisition (3 points) and a decrease in intellectual property (IP) income (1 point), partially offset by lower non-operating retirement-related costs (4 points), gains from divestitures (3 points) and the impact of currency (3 points). Total operating (non-GAAP) expense and other (income) increased 4.1 percent year to year, driven primarily by the same factors excluding the non-operating retirement-related costs and the amortization of acquired intangible assets and other non-operating activity related to the Red Hat acquisition.

Pre-tax income from continuing operations of \$10.2 billion decreased 10.4 percent and the pre-tax margin was 13.2 percent, a decrease of 1.1 points versus 2018. The second half of 2019 was impacted by the deferred revenue purchase accounting adjustment and Red Hat acquisition-related activity. The continuing operations effective tax rate for 2019 was 7.2 percent, a decrease of 15.9 points compared to 2018. The year-to-year change was primarily driven by a charge of \$2.0 billion in 2018 for U.S. tax reform. Net income from continuing operations of \$9.4 billion increased 8.2 percent and the net income from continuing operations margin was 12.2 percent, up 1.3 points year to year primarily due to the 2018 \$2.0 billion charge for U.S. tax reform. Operating (non-GAAP) pre-tax income from continuing operations of \$12.5 billion decreased 9.0 percent year to year and the operating (non-GAAP) pre-tax margin from continuing operations decreased 1.1 points to 16.2 percent. The operating (non-GAAP) tax rate for 2019 was 8.5 percent, an increase of 0.7 points compared to 2018. Operating (non-GAAP) income from continuing operations of \$11.4 billion decreased 9.6 percent and the operating (non-GAAP) income margin from continuing operations of 14.8 percent was down 1.1 points year to year driven primarily by the Red Hat deferred revenue purchase accounting adjustment and acquisition-related activity.

Diluted earnings per share from continuing operations of \$10.57 in 2019 increased 11.1 percent and operating (non-GAAP) diluted earnings per share of \$12.81 decreased 7.2 percent versus 2018. In 2019, we repurchased 10.0 million shares of common stock at a cost of \$1.3 billion before the share repurchase program was suspended at the time of the Red Hat closing.

At December 31, 2019, we continued to have the financial flexibility to support the business. Cash, restricted cash and marketable securities at year end were \$9.0 billion, a decrease of \$3.2 billion from December 31, 2018 as we had built up our cash position in advance of the closing of the Red Hat acquisition. Goodwill and intangible assets increased \$34.1 billion and total debt increased \$17.1 billion since December 31, 2018, primarily due to the Red Hat acquisition. With strong cash flow from operating activities and free cash flow, and disciplined financial management, we significantly deleveraged in the second half of 2019.

Total assets increased \$28.8 billion (increased \$29.0 billion adjusted for currency) from December 31, 2018 primarily driven by:

- Increases in goodwill of \$22.0 billion and net intangible assets of \$12.1 billion primarily associated with the acquisition of Red Hat; and
- An increase in operating right-of-use assets of \$5.0 billion resulting from the adoption of the new leasing standard on January 1, 2019; partially offset by
- A decrease in financing receivables of \$8.6 billion primarily due to the wind down of OEM IT commercial financing operations.

Total liabilities increased \$24.7 billion (increased \$25.0 billion adjusted for currency) from December 31, 2018 driven by:

- An increase in total debt of \$17.1 billion primarily driven by new issuances to finance the Red Hat acquisition; and
- An increase in operating lease liabilities of \$5.3 billion resulting from the adoption of the new leasing standard.

Total equity of \$21.0 billion increased \$4.1 billion from December 31, 2018 as a result of:

- Increases from net income of \$9.4 billion and retirement related plans of \$1.4 billion; partially offset by
- Decreases from dividends of \$5.7 billion and gross share repurchases of \$1.3 billion.

Cash provided by operating activities was \$14.8 billion in 2019, a decrease of \$0.5 billion compared to 2018, driven primarily by an increase in cash income tax payments (\$0.3 billion), an increase in interest payments on debt (\$0.3 billion) driven by incremental debt used to fund the acquisition of Red Hat, and performance-related declines within net income, including lower operating cash flows due to businesses divested in 2019; partially offset by an increase in cash provided by financing receivables (\$0.8 billion).

Net cash used in investing activities of \$26.9 billion was \$22.0 billion higher than the prior year, primarily driven by an increase in net cash used for acquisitions (\$32.5 billion) driven by the acquisition of Red Hat. This was partially offset by an increase in cash provided by net non-operating finance receivables (\$7.2 billion) primarily driven by the wind down of the OEM IT commercial financing operations, a decrease in cash used for net capital expenditures (\$1.3 billion) and an increase in cash provided by divestitures (\$1.1 billion).

Financing activities were a net source of cash of \$9.0 billion in 2019 compared to a net use of cash of \$10.5 billion in 2018. The year-to-year increase in cash flow of \$19.5 billion was driven by an increase in net cash sourced from debt transactions (\$16.6 billion) primarily driven by net issuances to fund the Red Hat acquisition and a decrease in cash used for gross common stock repurchases (\$3.1 billion).

In January 2020, the company disclosed that it is expecting GAAP earnings per share from continuing operations of at least \$10.57 and operating (non-GAAP) earnings of at least \$13.35 per diluted share for 2020. The company expects free cash flow to be approximately \$12.5 billion in 2020. Refer to the Looking Forward section for additional information on the company's expectations.

DESCRIPTION OF BUSINESS

Please refer to IBM's Annual Report on Form 10-K filed with the SEC on February 25, 2020, for Item 1A, entitled "Risk Factors."

We create value for clients by providing integrated solutions and products that leverage: data, information technology, deep expertise in industries and business processes, with trust and security and a broad ecosystem of partners and alliances. IBM solutions typically create value by enabling new capabilities for clients that transform their businesses and help them engage with their customers and employees in new ways. These solutions draw from an industry-leading portfolio of consulting and IT implementation services, cloud, digital and cognitive offerings, and enterprise systems and software which are all bolstered by one of the world's leading research organizations.

IBM Strategy

IBM's strategy begins with our clients. IBM is distinguished as being first and foremost an Enterprise company, serving the world's leaders in their industries.

Serving enterprises requires a distinct set of skills as our clients entrust us with building, integrating and running the world's mission-critical systems. These are systems that cannot fail, systems that require the highest levels of privacy and security. They are built with our software and on our systems, designed and managed by IBM services. For example, we manage approximately ninety percent of the credit card transactions and half of the world's wireless connections. We do this with an unparalleled commitment to our clients' data security.

We are unique in bringing innovative technology and industry expertise on a foundation of trust and security as an *integrated proposition* to our clients. This integrated proposition allows us to deliver business impact that matters to our clients, impact that requires bringing together technologies such as hybrid cloud, data and AI insight with workflow and advanced industry skills. This integrated proposition helps our clients transform themselves from traditional businesses to what we call Cognitive Enterprises.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Furthermore, as technology becomes more central for business, as well as in our personal lives, trust matters more than ever. For decades we have followed core principles grounded in commitments to trust and transparency that guide our responsible development and deployment of new technologies. These values ground our business decisions, inspire our employees, and sustain our client relationships. We have not only followed guidelines around the responsible handling of data and the stewardship of new technology, but created them, published them and invited others to adopt similar commitments. Our focus is not just on our direct client work, but extends to society at large, as we have been very active in areas such as education, sustainability and security. This is reinforced through a culture of inclusion and diversity. All of IBM treats this “responsible stewardship” as core to our mission.

A New Chapter in Technology

2019 ushered in Chapter 2 of our clients' digital journeys in which the two predominant technology forces of our day—hybrid cloud and data/AI—are moving from “start-up” to “production at scale”. These two forces work *together* to help companies become what we call Cognitive Enterprises—companies that are powered by innovation, agility and data-driven intelligent decision making.

We describe below how IBM is leading the way in Chapter 2.

Hybrid Cloud

Chapter 1 marked the early stages of cloud with the rise of public cloud. This stage was focused on new end-user applications, including applications that have allowed consumers to check their bank balances, access social media, make online purchases and receive online support. While movement to public cloud has been strong, only twenty percent of workloads have been addressed in Chapter 1. Clients are merely at the beginning of a multi-stage journey.

Chapter 2 is about clients modernizing the remaining eighty percent of workloads, moving mission-critical workloads to the cloud and infusing AI deep into the decision-making of their businesses. These mission-critical workloads include core financial transaction systems, customer databases and Enterprise Resource Planning systems. Some of these workloads will gravitate to the public cloud in Chapter 2, while others will move to a private cloud or remain in traditional IT environments for security, compliance and/or performance reasons.

Wherever clients' workloads reside, these environments must work together seamlessly to communicate, share data and share capacity. With enterprises having accumulated as many as fifteen public clouds, each with its own means of management, harmonizing these different clouds has become a necessity. Bringing these multiple public clouds, private cloud and traditional IT together is what we call hybrid cloud. Hybrid cloud defines the mission for Chapter 2 in IT.

We are a leader in hybrid cloud, and our mission in Chapter 2 is to bring our expertise and experience in building and managing mission-critical systems to lead our enterprise clients along this multi-stage journey.

Our public cloud is built on a foundation of open source software and enterprise grade infrastructure. It is the most open and secure public cloud, and it is built for the enterprise with Cloud Pak—enterprise-ready, containerized software solutions for applications, automation, data, integration and multi-cloud management.

To accelerate our clients' success, we acquired Red Hat in 2019, further strengthening our leadership in hybrid cloud. Red Hat is the world's leader in open source technology, including Enterprise Linux, the operating system of the cloud, as well as containers and OpenShift, technology platforms that create seamless integration between traditional and cloud environments. As the leader in open source, Red Hat brings capability that enables applications to be “written once and run anywhere”, in turn helping companies avoid lock-in to a single cloud provider, thereby taking advantage of the entire industry's innovation. These technologies are central to the next era of computing.

Our systems and services play a large role in these hybrid cloud offerings as well. We have introduced new versions of our systems that work securely and seamlessly in the hybrid cloud, bringing mission-critical workloads into our clients' digital journeys. Through our services, we play a large role in helping our clients map out their digital journeys, and then helping them build, manage and run the technology and the workflows.

This integrated value proposition of innovative technology and industry expertise built on trust and security, and now together with Red Hat, is helping our clients realize the full potential and competitive advantage of the hybrid cloud.

Data and AI

A new era of business reinvention is emerging as leading companies are moving from merely improving their processes to creating truly “intelligent workflows,” processes that are not only *efficient* at what they do, but intrinsically *smart*: capable of finding, connecting and analyzing data to uncover deep insights that can inform intelligent decisions. Data and AI, in concert with hybrid cloud, are making intelligent workflows possible.

We have been a pioneer of technologies and services that help clients collect, organize, and analyze their vast data stores and then operationalize AI across their business. Our long-running innovation in automation, data science, and natural language processing is helping clients manage their data as a strategic resource and deploy AI for greater insight and more accurate, trusted predictions.

Our data offerings help clients organize, collect, analyze and embed their data into their workflow. IBM software spans areas ranging from data management and discovery to reporting, governance, compliance and risk management. Our systems process our clients' data with unparalleled speed, accuracy and security and our services help clients capture and embed the value of their data into their business.

Our IBM Watson AI system has been named by industry analysts as the worldwide market leader in AI for three consecutive years. Watson is not only a leading AI technology, but a leader in enterprise deployments in production and at scale. In addition to extracting deep insight from data, IBM Watson allows clients to trace the origins of the data that their AI models use, explain what is behind their recommendations and ensure that bias has not crept into results. Furthermore, IBM Watson is the only system that is built for the hybrid cloud, able to work on numerous public and private clouds. These innovations are making AI more consumable by everyday users, not just data scientists.

Creating intelligent workflows relies on our integrated proposition of technology, services and industry expertise, built on a foundation of trust and security. The way in which we bring these together is through an interactive process with our clients that we call the IBM Garage, a process of deep collaboration, co-creation and innovation.

* * * *

We are in an era when our clients are embedding technology into their businesses in ways they have never done before. Technology is no longer merely a “tool”, it is at the center of their businesses, the source of their competitive advantage and the force behind their emerging business models.

In Chapter 2, IBM is bringing hybrid cloud and data/AI together to help our clients reinvent themselves as Cognitive Enterprises. The most challenging and complex work still lies ahead. With our strong commitment to responsible stewardship and our integrated value proposition, this makes us unique in helping our clients on their transformative digital journeys.

Business Model

Our business model is built to provide long-term value to stakeholders. We bring together innovative technology, industry expertise and a commitment to trust and transparency to help enterprise clients move from one era to the next. We provide integrated solutions and platforms, leveraging global capabilities that include services, software, systems, related financings and fundamental research. The business model has been developed over time through strategic investments in capabilities and technologies that have long-term growth and profitability prospects based on the value they deliver to clients.

The business model is dynamic, adapting to the continuously changing industry and economic environment, including our shift to cloud delivery models. We continue to strengthen our position through strategic organic investments and acquisitions in higher-value areas, broadening our industry expertise and integrating AI into more of what we offer. In addition, we are transforming into a more agile enterprise to drive innovation and speed, as well as helping to drive productivity, which supports investments for participation in markets with significant long-term opportunity. We also regularly evaluate our portfolio and investments, proactively bringing products to end of life, engaging in IP partnerships and executing divestitures to optimize our portfolio.

This business model, supported by our financial model, has enabled IBM to deliver strong earnings, cash flows and returns to shareholders over the long term.

Business Segments and Capabilities

Our major operations consist of five business segments: Cloud & Cognitive Software, Global Business Services, Global Technology Services, Systems and Global Financing.

Cloud & Cognitive Software brings together IBM's software platforms and solutions, enabling us to deliver integrated and secure cloud, data and AI solutions to our clients. It includes all software, except operating system software reported in the Systems segment.

Cloud & Cognitive Software comprises three business areas—Cognitive Applications, Cloud & Data Platforms, and Transaction Processing Platforms.

Cloud & Cognitive Software Capabilities

Cognitive Applications: includes software that address vertical and domain-specific solutions, increasingly infused with AI, enabled by IBM's Watson technology. Application areas such as health, financial services, Internet of Things (IoT) solutions, weather, and security software and services are among the offerings.

Cloud & Data Platforms: includes the company's distributed middleware and data platform software, including Red Hat, which enables the operation of clients' hybrid multi-cloud environments, whether on-premise or in public and private clouds. It also includes product areas such as Cloud Paks, WebSphere distributed, analytics platform software such as DB2 distributed, information integration, and enterprise content management, as well as IoT, Blockchain and AI/Watson platforms.

As clients increasingly move more of their mission-critical workloads to the cloud, their multi-cloud environments will be based on a foundation of Linux, with Kubernetes open-source software to deploy, manage and scale container-based applications. Red Hat, which provides the leading Linux operating system—Red Hat Enterprise Linux—and the leading hybrid cloud platform—Red Hat OpenShift—is at the center of this transformational shift among clients.

Transaction Processing Platforms: the software that supports client mission critical on-premise workloads in industries such as banking, airlines and retail. This includes transaction processing software such as Customer Information Control System and storage software, as well as the analytics and integration software running on IBM operating systems (e.g., DB2 and WebSphere running on z/OS).

Global Business Services provides clients with consulting, business process and application management services. These professional services deliver value and innovation to clients through solutions which leverage industry, technology and business strategy and process expertise. GBS is the digital reinvention partner for IBM clients, combining industry knowledge, functional expertise, and applications with the power

of business design and cognitive and cloud technologies. The full portfolio of GBS services is backed by its globally integrated delivery network and integration with technologies, solutions and services across IBM including IBM Research and Global Technology Services.

GBS assists clients on their journeys to becoming Cognitive Enterprises, helping them build business platform strategies and experiences, transform processes to intelligent workflows using AI and other exponential technologies, and build hybrid, open cloud infrastructures.

GBS Capabilities

Consulting: provides business consulting services focused on bringing to market solutions that help clients shape their digital blueprints and customer experiences, define their cognitive operating models, unlock the potential in all data to improve decision-making, set their next-generation talent strategies and create new technology architectures in a cloud-centric world.

Application Management: delivers system integration, application management, maintenance and support services for packaged software, as well as custom and traditional applications. Value is delivered through advanced capabilities in areas such as security and privacy, application testing and modernization, cloud application migration and automation.

Global Process Services (GPS): delivers finance, procurement, talent and engagement, and industry-specific business process outsourcing services. These services deliver improved business results to clients through a consult-to-operate model which includes the strategic change and/or operation of the client's processes, applications and infrastructure. GBS is redefining process services for both growth and efficiency through the application of the power of cognitive technologies like Watson, as well as the IoT, blockchain and deep analytics.

Global Technology Services provides comprehensive IT infrastructure and platform services that create business value for clients. Clients gain access to leading-edge, high-quality services, and realize greater flexibility and economic value. This is enabled through insights drawn from IBM's decades of experience across thousands of engagements, the skills of practitioners, advanced technologies, applied innovation from IBM Research and global scale.

GTS Capabilities

Infrastructure & Cloud Services: delivers a portfolio of project, managed, outsourcing and cloud-delivered services focused on clients' enterprise IT infrastructure environments to enable digital transformation with improved quality, flexibility and economic value. The portfolio contains the IBM Cloud and a comprehensive set of hybrid cloud services and solutions that include resiliency, network and security capabilities to assist enterprise clients

in building and running contemporary, software-defined IT environments. These offerings integrate long-standing expertise in service management and emerging technologies, drawn from across IBM's businesses and ecosystem partners. The portfolio is built leveraging platforms, such as the IBM Services Platform with Watson, which augment human intelligence with cognitive technologies and address complex, hybrid cloud environments. IBM's services capabilities integrate IBM Cloud, cognitive computing and multi-cloud management to provide clients with high-performance, end-to-end innovation and an improved ability to achieve business objectives.

Technology Support Services: delivers comprehensive support services to maintain and improve the availability of clients' IT infrastructures. These offerings include maintenance for IBM products and other technology platforms, as well as open-source and cross-vendor software and solution support, drawing on innovative technologies and leveraging IBM Services Platform with Watson capabilities.

Systems provides clients with innovative infrastructure platforms to help meet the new requirements of hybrid multi-cloud and enterprise AI workloads. IBM Systems also designs advanced semiconductor and systems technology in collaboration with IBM Research, primarily for use in our systems.

Systems Capabilities

Systems Hardware: includes IBM's servers and Storage Systems.

Servers: a range of high-performance systems designed to address computing capacity, security and performance needs of businesses, hyperscale cloud service providers and scientific computing organizations. The portfolio includes IBM Z and LinuxONE, trusted enterprise platforms for integrating data, transactions and insight; and Power Systems, a system designed from the ground up for big data and enterprise AI, optimized for hybrid cloud and Linux.

Storage Systems: data storage products and solutions that allow clients to retain and manage rapidly growing, complex volumes of digital information and to fuel data-centric cognitive applications. These solutions address critical client requirements for information retention and archiving, security, compliance and storage optimization, including data deduplication, availability and virtualization. The portfolio consists of a broad range of flash storage, disk and tape storage solutions.

Operating Systems Software: IBM Z operating system environments include z/OS, a security-rich, high-performance enterprise operating system, as well as Linux. Power Systems offers a choice of AIX, IBM i or Linux operating systems. These operating systems leverage POWER architecture to deliver secure, reliable and high performing enterprise-class workloads across a breadth of server offerings.

Global Financing encompasses two primary businesses: financing, primarily conducted through IBM Credit LLC (IBM Credit), and remanufacturing and remarketing. IBM Credit is a wholly owned subsidiary of IBM that accesses the capital markets directly. IBM Credit, through its financing solutions, facilitates IBM clients' acquisition of information technology systems, software and services in the areas where we have expertise. The financing arrangements are predominantly for products or services that are critical to the end users' business operations. Global Financing conducts a comprehensive credit evaluation of its clients prior to extending financing. As a captive financier, Global Financing has the benefit of both deep knowledge of its client base and a clear insight into the products and services financed. These factors allow the business to effectively manage two of the major risks associated with financing, credit and residual value, while generating strong returns on equity. Global Financing also maintains a long-term partnership with IBM's clients through various stages of the IT asset life cycle—from initial purchase and technology upgrades to asset disposition decisions.

Global Financing Capabilities

Client Financing: lease, installment payment plan and loan financing to end users and internal clients for terms up to seven years. Assets financed are primarily new and used IT hardware, software and services where we have expertise. Internal financing is predominantly in support of Global Technology Services' long-term client service contracts. All internal financing arrangements are at arm's-length rates and are based upon market conditions.

Commercial Financing: short-term working capital financing to suppliers, distributors and resellers of IBM. Beginning in the second quarter of 2019 and continuing throughout the year, we wound down the portion of our commercial financing operations which provides short-term working capital solutions for Original Equipment Manufacturer (OEM) IT suppliers, distributors and resellers. This wind down is consistent with IBM's capital allocation strategy and high-value focus. Commercial Financing also includes internal activity where Global Financing factors a selected portion of IBM's accounts receivable primarily for cash management purposes, at arm's-length rates. This program was suspended in the second quarter of 2019.

Remanufacturing and Remarketing: assets include used equipment returned from lease transactions, or used and surplus equipment acquired internally or externally. These assets may be refurbished or upgraded, and sold or leased to new or existing clients both externally and internally. Externally remarketed equipment revenue represents sales or leases to clients and resellers. Internally remarketed equipment revenue primarily represents used equipment that is sold internally to Global Technology Services. Systems may also sell the equipment that it purchases from Global Financing to external clients.

IBM Worldwide Organizations

The following worldwide organizations play key roles in IBM's delivery of value to its clients:

- Global Markets
- Research, Development and Intellectual Property

Global Markets

IBM operates in more than 175 countries with a broad distribution of revenue. To manage this global footprint, Global Markets leads our dedicated country-based IBM operations in order to serve clients, develop markets, and ultimately, ensure IBM is led through a client lens.

These integrated teams serve our clients locally, complemented by digital capabilities, global talent and resources, and an extensive partner ecosystem. These country teams have client relationship managers at their center, who integrate teams of IBM consultants, solution specialists, delivery professionals and business partners on behalf of clients. Their mission is to provide insights and innovation and co-create with clients to help them address their most pressing business challenges and opportunities.

In this way, we serve as a trusted partner to clients, establishing and maintaining relationships that deliver long-term value based on industry expertise, innovative technologies and an ability to deliver mission critical capabilities to an enterprise at scale.

Research, Development and Intellectual Property

Our research and development (R&D) operations differentiate us from our competitors. In 2019, we invested approximately 8 percent of total revenue for R&D, focusing on high-growth, high-value opportunities. IBM Research works with clients and our business units through global labs on near- and mid-term innovations. It delivers many new technologies to our portfolio every year and helps clients address their most difficult challenges. IBM Research scientists are conducting pioneering work in artificial intelligence, quantum computing, security, cloud, systems and more—applying these technologies across industries including financial services, healthcare, manufacturing and automotive.

In 2019, for the 27th consecutive year, IBM was awarded more U.S. patents than any other company. IBM's 9,262 patents awarded in 2019 represent a diverse range of inventions in strategic growth areas for the company, including more than 4,500 patents related to work in artificial intelligence, cloud, cybersecurity and quantum computing.

We actively continue to seek IP protection for our innovations, while increasing emphasis on other initiatives designed to leverage our IP leadership. Some of our technological breakthroughs are used exclusively in IBM products, while others are licensed and may be used in IBM products and/or the products of the licensee. As part of our business model, we license certain of our IP assets, which constitute high-value technology, but may be applicable in more mature markets. The licensee drives the future development of the IP and ultimately expands the customer base. This generates IP income for IBM both upon licensing, and with any ongoing royalty arrangements between it and the licensee. While our various proprietary IP rights are important to our success, we believe our business as a whole is not materially dependent on any particular patent or license, or any particular group of patents or licenses. IBM owns or is licensed under a number of patents, which vary in duration, relating to its products.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

YEAR IN REVIEW**Results of Continuing Operations****Segment Details**

The following is an analysis of the 2019 versus 2018 reportable segment results. The table below presents each reportable segment's external revenue and gross margin results. Segment pre-tax income includes transactions between segments that are intended to reflect an arm's-length transfer price and excludes certain unallocated corporate items.

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Revenue				
Cloud & Cognitive Software	\$23,200	\$22,209*	4.5%**	6.2%
Gross margin	76.7%	77.6%*	(0.9)pts.**	
Global Business Services	16,634	16,595*	0.2%	2.4%
Gross margin	27.7%	26.8%*	0.9 pts.	
Global Technology Services	27,361	29,146*	(6.1)%	(3.7)%
Gross margin	34.8%	34.4%*	0.3 pts.	
Systems	7,604	8,034	(5.3)%	(4.1)%
Gross margin	53.1%	49.8%	3.2 pts.	
Global Financing	1,400	1,590	(11.9)%	(10.0)%
Gross margin	35.6%	29.1%	6.4 pts.	
Other	948	2,018*	(53.0)%	(51.7)%
Gross margin	4.7%	37.8%*	(33.1) pts.	
Total consolidated revenue	\$77,147	\$79,591	(3.1)%[†]	(1.0)%
Total consolidated gross profit	\$36,488	\$36,936	(1.2)%**	
Total consolidated gross margin	47.3%	46.4%	0.9 pts.	
Non-operating adjustments				
Amortization of acquired intangible assets	534	372	43.8%	
Acquisition-related charges	13	—	NM	
Operating (non-GAAP) gross profit	\$37,035	\$37,307	(0.7)%**	
Operating (non-GAAP) gross margin	48.0%	46.9%	1.1 pts.	

* Recast to reflect segment changes.

**2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

+ 0.2 percent excluding divested businesses and adjusted for currency.

NM—Not meaningful

Cloud & Cognitive Software

(\$ in millions)

For the year ended December 31:	2019	2018*	Yr.-to-Yr. Percent Change **	Yr.-to-Yr. Percent Change Adjusted for Currency**
Cloud & Cognitive Software external revenue	\$23,200	\$22,209	4.5%	6.2%
Cognitive Applications	\$ 5,765	\$ 5,633	2.3%	3.9%
Cloud & Data Platforms	9,499	8,603	10.4	12.3
Transaction Processing Platforms	7,936	7,974	(0.5)	1.4

* Recast to reflect segment changes.

**2019 results were impacted by Red Hat purchase accounting.

Cloud & Cognitive Software revenue of \$23,200 million increased 4.5 percent as reported (6 percent adjusted for currency) in 2019 compared to the prior year. There was strong growth in Cloud & Data Platforms, as reported and at constant currency, driven primarily by the acquisition of Red Hat in the third quarter of 2019. Red Hat had continued strong performance since the acquisition, in Red Hat Enterprise Linux (RHEL), application development and emerging technologies, led by OpenShift and Ansible. Red Hat

and IBM are driving synergies with strong adoption of Cloud Paks since their introduction, expansion of our combined client base and more than 2,000 clients using our hybrid cloud platform. Cognitive Applications also grew as reported and at constant currency. Transaction Processing Platforms declined year to year as reported, but grew 1 percent adjusted for currency driven by strong fourth-quarter performance.

Cognitive Applications revenue of \$5,765 million grew 2.3 percent as reported (4 percent adjusted for currency) compared to the prior year, driven by double-digit growth as reported and adjusted for currency in Security, and growth in industry verticals such as IoT. The Security performance included continued strong results in threat management software and services offerings. Within IoT, we had good revenue performance across the portfolio as we continued to invest in new offerings and industry-specific solutions.

Cloud & Data Platforms revenue of \$9,499 million increased 10.4 percent as reported (12 percent adjusted for currency) compared to the prior year. Performance was driven by the addition of RHEL and OpenShift and the continued execution of the combined Red Hat and IBM hybrid strategy.

Transaction Processing Platforms revenue of \$7,936 million decreased 0.5 percent as reported, but grew 1 percent adjusted for currency in 2019, compared to the prior year. Revenue performance reflects the ongoing investment in IBM platforms, and the timing of larger transactions that are tied to client business volumes and buying cycles.

Within Cloud & Cognitive Software, cloud revenue of \$4.2 billion grew 40 percent as reported and 42 percent adjusted for currency year to year, reflecting the acquisition of Red Hat and client adoption of our hybrid cloud offerings.

Global Business Services

(\$ in millions)

For the year ended December 31:	2019	2018	Yr-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Global Business Services external revenue	\$16,634	\$16,595*	0.2%	2.4%
Consulting	\$ 7,993	\$ 7,705	3.7%	5.6%
Application Management	7,646	7,852	(2.6)	(0.3)
Global Process Services	995	1,037*	(4.1)	(1.3)

* Recast to reflect segment changes.

GBS revenue of \$16,634 million increased 0.2 percent as reported and 2 percent adjusted for currency in 2019 compared to the prior year. The strong growth in Consulting reflected GBS' ability to bring together our industry specific expertise and innovative technology portfolio to help clients with their digital reinventions. Our performance reflects continued investment in offerings and capabilities to help advise clients and move their applications to hybrid multi-cloud environments. In the second half, we saw an acceleration in new Red Hat engagements.

Consulting revenue of \$7,993 million increased 3.7 percent as reported and 6 percent adjusted for currency compared to the prior year. This strong performance was driven primarily by growth in offerings that enable each phase of our clients' digital journey. These offerings include cognitive technology and data platform services, application modernization and next-generation enterprise applications and offerings that use AI to help clients unlock new opportunities and realize productivity improvements.

For the year ended December 31:	2019	2018*	Yr.-to-Yr. Percent/ Margin Change**
Cloud & Cognitive Software			
External gross profit	\$17,790	\$17,224	3.3%
External gross profit margin	76.7%	77.6%	(0.9)pts.
Pre-tax income	\$ 7,952	\$ 8,882	(10.5)%
Pre-tax margin	30.6%	35.0%	(4.4)pts.

* Recast to reflect segment changes.

**2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

The Cloud & Cognitive Software gross profit margin decreased 0.9 points to 76.7 percent in 2019 compared to the prior year. The gross profit margin decline was driven by the purchase price accounting impacts from the Red Hat acquisition.

Pre-tax income of \$7,952 million decreased 10.5 percent compared to the prior year with a pre-tax margin decline of 4.4 points to 30.6 percent which reflects the acquisition of Red Hat, ongoing investments in key strategic areas and lower income from IP partnership agreements.

Application Management revenue of \$7,646 million decreased 2.6 percent as reported, but was flat adjusted for currency. We had growth in offerings that help clients develop and manage cloud applications and modernize and automate their application portfolio, offset by continued decline in the more traditional application management engagements. With the acquisition of Red Hat, we continued to integrate OpenShift as clients' preferred cloud-native application development platform.

Global Process Services revenue of \$995 million decreased 4.1 percent as reported (1 percent adjusted for currency) as demand has been shifting away from traditional Business Process Outsourcing (BPO) offerings to new business platforms around intelligent workflows.

Within GBS, cloud revenue of \$5.2 billion grew 10 percent as reported and 13 percent adjusted for currency, reflecting the growth in cloud consulting engagements and cloud application development.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

For the year ended December 31:	2019	2018*	Yr-to-Yr. Percent/ Margin Change
Global Business Services			
External gross profit	\$4,606	\$4,448	3.5%
External gross profit margin	27.7%	26.8%	0.9 pts.
Pre-tax income	\$1,666	\$1,629	2.2%
Pre-tax margin	9.9%	9.6%	0.2 pts.

* Recast to reflect segment changes.

Global Technology Services

(\$ in millions)

For the year ended December 31:	2019	2018	Yr-to-Yr. Percent Change Adjusted for Currency
Global Technology Services external revenue			
Infrastructure & Cloud Services	\$27,361	\$29,146*	(6.1)% (3.7)%
Technology Support Services	\$20,736	\$22,185*	(6.5)% (4.1)%
	6,625	6,961	(4.8) (2.2)

* Recast to reflect segment changes.

GTS revenue of \$27,361 million decreased 6.1 percent as reported (4 percent adjusted for currency) in 2019 compared to the prior year. We had continued growth in cloud services that help clients move and manage workloads. However, performance reflected lower client business volumes in more traditional labor-based managed services. We continue to take actions to accelerate the shift to higher-value segments of the market and are introducing new managed services offerings for public and private cloud, in areas like cybersecurity, data management and hybrid orchestration. We are investing in joint services offerings integrating GTS and GBS, and deploying joint go-to-market capabilities, as clients demand solutions that merge applications and infrastructure. Although lower business volumes impacted full-year revenue and profit in 2019, we ended the year with growth in cloud signings and a solid pipeline of future deals that will deliver productivity to our clients.

Infrastructure & Cloud Services revenue of \$20,736 million decreased 6.5 percent as reported (4 percent adjusted for currency) compared to the prior year. Revenue was impacted by our customers' own business volumes which were lower year to year in certain offerings. Clients are modernizing their core infrastructures to hybrid multi-cloud infrastructures. GTS is continuing to invest in cloud capabilities, introduce new managed services offerings and build out its cloud data center footprint to capture this opportunity. Growth in cloud signings reflects our re-alignment of GTS offerings to help our clients on their journey to cloud, infusing offerings with IP and leveraging Red Hat's capabilities.

The GBS profit margin increased 0.9 points to 27.7 percent and pre-tax income of \$1,666 million increased 2.2 percent year to year. The pre-tax margin of 9.9 percent increased slightly year to year. The year-to-year improvements in margins and pre-tax income were driven by the continued mix shift to higher-value offerings, the yield from delivery productivity improvements and a currency benefit from leveraging the global delivery resource model. We continued to invest in our services offerings and skills necessary to assist our clients on their cloud journey.

Technology Support Services (TSS) revenue of \$6,625 million decreased 4.8 percent as reported (2 percent adjusted for currency) in 2019, partially driven by dynamics in the hardware product cycles.

Within GTS, cloud revenue of \$8.6 billion grew 8 percent as reported and 10 percent adjusted for currency.

(\$ in millions)

For the year ended December 31:	2019	2018*	Yr-to-Yr. Percent/ Margin Change
Global Technology Services			
External total gross profit	\$9,515	\$10,035	(5.2)%
External total gross profit margin	34.8%	34.4%	0.3 pts.
Pre-tax income	\$1,645	\$ 1,781	(7.6)%
Pre-tax margin	5.8%	5.9%	(0.2)pts.

* Recast to reflect segment changes.

The GTS gross profit margin increased 0.3 points year to year to 34.8 percent, due to the benefits of workforce actions and the continued scale out of our public cloud. We continued to take structural actions to improve our cost competitiveness and are accelerating the use of AI and automation in delivery operations, including leveraging Red Hat's Ansible platform. Pre-tax income of \$1,645 million decreased 7.6 percent, driven primarily by the decline in revenue and gross profit, and a higher level of workforce rebalancing charges in the current year. Pre-tax margin of 5.8 percent was essentially flat year to year, with the 2019 pre-tax margin reflecting benefits from structural and workforce actions.

Services Backlog and Signings

(\$ in billions)

At December 31:	2019	2018	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total backlog	\$112.4	\$116.1	(3.1)%	(2.7)%

The estimated total services backlog at December 31, 2019 was \$112 billion, a decrease of 3.1 percent as reported (3 percent adjusted for currency).

Total services backlog includes Infrastructure & Cloud Services, Security Services, Consulting, Global Process Services, Application Management and TSS. Total backlog is intended to be a statement of overall work under contract which is either noncancelable, or which historically has very low likelihood of termination, given the criticality of certain services to the company's clients. Total backlog does not include as-a-Service arrangements that allow for termination under contractual commitment terms. Backlog estimates are subject to change and are affected by several factors, including terminations, changes in the scope of contracts, periodic revalidations, adjustments for revenue not materialized and adjustments for currency.

Services signings are management's initial estimate of the value of a client's commitment under a services contract. There are no third-party standards or requirements governing the

calculation of signings. The calculation used by management involves estimates and judgments to gauge the extent of a client's commitment, including the type and duration of the agreement, and the presence of termination charges or wind-down costs.

Signings include Infrastructure & Cloud Services, Security Services, Consulting, Global Process Services and Application Management contracts. Contract extensions and increases in scope are treated as signings only to the extent of the incremental new value. TSS is generally not included in signings as the maintenance contracts tend to be more steady state, where revenues equal renewals. Certain longer-term TSS contracts that have characteristics similar to outsourcing contracts are included in signings.

Contract portfolios purchased in an acquisition are treated as positive backlog adjustments provided those contracts meet the company's requirements for initial signings. A new signing will be recognized if a new services agreement is signed incidental or coincidental to an acquisition or divestiture.

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total signings	\$40,741	\$44,700	(8.9)%	(6.9)%

Systems

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Systems external revenue	\$7,604	\$8,034	(5.3)%	(4.1)%
Systems Hardware	\$5,918	\$6,363	(7.0)%	(5.9)%
IBM Z			(1.1)	(0.3)
Power Systems			(13.5)	(12.1)
Storage Systems			(8.9)	(7.6)
Operating Systems Software	1,686	1,671	0.9	2.6

Systems revenue of \$7,604 million decreased 5.3 percent year to year as reported (4 percent adjusted for currency). Systems Hardware revenue of \$5,918 million declined 7.0 percent as reported (6 percent adjusted for currency), driven primarily by declines in Power Systems and Storage Systems. Operating Systems Software revenue of \$1,686 million grew 0.9 percent as reported (3 percent adjusted for currency) compared to the prior year.

Within Systems Hardware, IBM Z revenue decreased 1.1 percent as reported but was essentially flat adjusted for currency, reflecting the mainframe product cycles. Revenue declined through the first three quarters due to the end of the z14 product cycle, but there was strong growth in the fourth quarter driven by z15 shipments. The z15's strong performance demonstrates client demand for technology that offers improved data privacy and resiliency in the hybrid cloud environment. The z15

Management Discussion

International Business Machines Corporation and Subsidiary Companies

mainframe's capabilities extend the platform's differentiation with encryption everywhere, cloud-native development and instant recovery. In October, we announced OpenShift for IBM Z, bringing together the industry's most comprehensive enterprise container and Kubernetes platform with the enterprise server platforms of IBM Z and LinuxONE. IBM Z continues to deliver a high-value, secure and scalable platform for our clients.

Power Systems revenue decreased 13.5 percent as reported (12 percent adjusted for currency) year to year, due to the strong performance during the second half of 2018 driven by Linux and the introduction of the POWER9-based architecture in our mid-range and high-end products.

Storage Systems revenue decreased 8.9 percent as reported (8 percent adjusted for currency) year to year, with improvements in year-to-year performance in the fourth quarter of 2019, driven primarily by the launch of the next generation high-end storage system DS8900 in November.

Within Systems, cloud revenue of \$2.9 billion declined 4 percent as reported and 3 percent adjusted for currency.

(\$ in millions)

			Yr.-to-Yr. Percent/ Margin Change
For the year ended December 31:	2019	2018	
Systems			
External Systems			
Hardware gross profit	\$2,622	\$2,590	1.2%
External Systems			
Hardware gross profit margin	44.3%	40.7%	3.6 pts.
External Operating Systems			
Software gross profit	\$1,412	\$1,412	0.0%
External Operating Systems			
Software gross profit margin	83.8%	84.5%	(0.7)pts.
External total gross profit	\$4,034	\$4,002	0.8%
External total gross profit margin	53.1%	49.8%	3.2 pts.
Pre-tax income	\$ 701	\$ 904	(22.4)%
Pre-tax margin	8.4%	10.2%	(1.8)pts.

The Systems gross profit margin increased 3.2 points to 53.1 percent in 2019 compared to the prior year. The increase was driven by actions taken in 2018 to better position the cost structure over the longer term, a mix to IBM Z hardware and operating systems and margin improvement in Storage Systems.

Pre-tax income of \$701 million declined 22.4 percent and pre-tax margin of 8.4 percent decreased 1.8 points year to year driven by the declines in Power Systems and Storage Systems revenue and the continued investment in innovation across the Systems portfolio, mitigated by the benefit from the new hardware launches in the second-half 2019.

Global Financing

Global Financing is a reportable segment that is measured as a stand-alone entity. Global Financing facilitates IBM clients' acquisition of information technology systems, software and services by providing financing solutions in the areas where the company has expertise, while generating strong returns on equity. Global Financing also optimizes the recovery of residual values by selling assets sourced from end of lease, leasing used equipment to new clients, or extending lease arrangements with current clients. Sales of equipment include equipment returned at the end of a lease, surplus internal equipment and used equipment purchased externally. Residual value is a risk unique to the financing business and management of this risk is dependent upon the ability to accurately project future equipment values at lease inception. Global Financing has insight into product plans and cycles for both the IBM and OEM IT products under lease. Based upon this product information, Global Financing continually monitors projections of future equipment values and compares them with the residual values reflected in the portfolio.

Results of Operations

			Yr.-to-Yr. Percent Change
For the year ended December 31:	2019	2018	
Results of Operations			
(\$ in millions)			
External revenue	\$1,400	\$1,590	(11.9)%
Internal revenue	1,232	1,610	(23.5)
Total revenue	\$2,632	\$3,200	(17.8)%
Pre-tax income	\$1,055	\$1,361	(22.5)%

In 2019, Global Financing delivered external revenue of \$1,400 million and total revenue of \$2,632 million, with a decrease in gross margin of 2.7 points to 58.8 percent. Total pre-tax income of \$1,055 million decreased 22.5 percent compared to 2018 and return on equity decreased 5.0 points to 25.8 percent.

Global Financing total revenue decreased 17.8 percent compared to the prior year. This was due to a decrease in internal revenue of 23.5 percent, driven by decreases in internal used equipment sales (down 27.4 percent to \$862 million) and internal financing (down 12.6 percent to \$370 million). External revenue declined 11.9 percent due to decreases in external financing (down 8.5 percent to \$1,120 million) and external used equipment sales (down 23.4 percent to \$281 million).

Management Discussion

International Business Machines Corporation and Subsidiary Companies

The decrease in internal financing revenue was due to lower average asset balances, partially offset by higher asset yields. The decrease in external financing revenue reflects the wind down of the OEM IT commercial financing operations.

Sales of used equipment represented 43.4 percent and 48.5 percent of Global Financing's revenue for the years ended December 31, 2019 and 2018, respectively. The decrease in 2019 was due to a lower volume of internal used equipment sales. The gross profit margin on used sales was 52.2 percent and 54.2 percent for the years ended December 31, 2019 and 2018, respectively. The decrease in the gross profit margin was driven by lower margins on internal used equipment sales.

Geographic Revenue

In addition to the revenue presentation by reportable segment, we also measure revenue performance on a geographic basis.

(\$ in millions)

	2019	2018	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency	Yr.-to-Yr. Percent Change Excluding Divested Businesses And Adjusted for Currency
For the year ended December 31:					
Total revenue	\$77,147	\$79,591	(3.1)%	(1.0)%	0.2%
Americas	\$36,274	\$36,994	(1.9)%	(1.1)%	0.8%
Europe/Middle East/Africa	24,443	25,491	(4.1)	0.4	1.3
Asia Pacific	16,430	17,106	(4.0)	(3.0)	(2.5)

Total revenue of \$77,147 million in 2019 decreased 3.1 percent year to year as reported (1 percent adjusted for currency), but increased 0.2 percent excluding divested businesses and adjusted for currency.

Americas revenue decreased 1.9 percent as reported (1 percent adjusted for currency), but grew 1 percent excluding divested businesses and adjusted for currency. Within North America, the U.S. decreased 2.4 percent and Canada increased 4.0 percent as reported (6 percent adjusted for currency). Latin America declined as reported but grew adjusted for currency. Within Latin America, Brazil declined 4.8 percent as reported, but was flat adjusted for currency.

EMEA revenue decreased 4.1 percent as reported, but was essentially flat adjusted for currency and increased 1 percent excluding divested businesses and adjusted for currency. As reported, the U.K., France and Italy decreased 2.9 percent, 4.1 percent and 1.3 percent, respectively, but grew 1 percent, 1 percent and 4 percent, respectively, adjusted for currency. Germany decreased 7.9 percent as reported and 3 percent adjusted for currency. The Middle East and Africa region decreased 3.5 percent as reported and 2 percent adjusted for currency.

Asia Pacific revenue decreased 4.0 percent as reported (3 percent adjusted for currency) and 2 percent excluding divested businesses and adjusted for currency. Japan increased 2.3 percent as reported and 1 percent adjusted for currency. Australia decreased 17.3 percent as reported and 11 percent adjusted for currency. China decreased 13.4 percent as reported and 11 percent adjusted for currency and India decreased 8.1 percent as reported and 5 percent adjusted for currency.

Global Financing pre-tax income decreased 22.5 percent year to year primarily driven by a decrease in gross profit (\$422 million), partially offset by a decrease in total expense (\$115 million), which was mainly driven by a decline in IBM shared expenses in line with the segment's performance, a lower provision for credit losses and a gain from the sale of certain commercial financing capabilities in the first quarter of 2019.

The decrease in return on equity from 2018 to 2019 was primarily due to lower net income. Refer to page 45 for the details of the after-tax income and return on equity calculations.

Total Expense and Other (Income)

(\$ in millions)

	2019	2018	Yr.-to-Yr. Percent/ Margin Change*
For the year ended December 31:			
Total consolidated expense and other (income)	\$26,322	\$25,594	2.8%
Non-operating adjustments			
Amortization of acquired intangible assets	(764)	(437)	74.8
Acquisition-related charges	(409)	(16)	NM
Non-operating retirement-related (costs)/income	(615)	(1,572)	(60.9)
Operating (non-GAAP) expense and other (income)	\$24,533	\$23,569	4.1%
Total consolidated expense-to-revenue ratio	34.1%	32.2%	2.0 pts.
Operating (non-GAAP) expense-to-revenue ratio	31.8%	29.6%	2.2 pts.

* 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

NM—Not meaningful

The following Red Hat-related expenses were included in 2019 total consolidated expense and other (income), with no corresponding expense in the prior-year: Red Hat operational spending, interest expense from debt issuances to fund the acquisition and other acquisition-related activity, including: amortization of acquired intangible assets, retention and legal and advisory fees associated with the transaction.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Total expense and other (income) increased 2.8 percent in 2019 versus the prior year primarily driven by higher spending including Red Hat operational spending and investments in software and systems innovation, higher interest expense, non-operating acquisition-related activity associated with the Red Hat transaction and lower IP income, partially offset by lower non-operating retirement-related costs, divestiture-related activity (gains on divestitures and lower spending) and the effects of currency. Total operating (non-GAAP) expense and other (income) increased 4.1 percent year to year, driven primarily by the factors above excluding the higher non-operating acquisition related activity and lower non-operating retirement-related costs described above.

For additional information regarding total expense and other (income) for both expense presentations, see the following analyses by category.

Selling, General and Administrative Expense

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change
Selling, general and administrative expense			
Selling, general and administrative—other	\$17,099	\$16,438	4.0%
Advertising and promotional expense	1,647	1,466	12.3
Workforce rebalancing charges	555	598	(7.2)
Amortization of acquired intangible assets	762	435	74.9
Stock-based compensation	453	361	25.2
Bad debt expense	89	67	32.5
Total consolidated selling, general and administrative expense	\$20,604	\$19,366	6.4%
Non-operating adjustments			
Amortization of acquired intangible assets	(762)	(435)	74.9
Acquisition-related charges	(282)	(15)	NM
Operating (non-GAAP) selling, general and administrative expense	\$19,560	\$18,915	3.4%

NM—Not meaningful

Total selling, general and administrative (SG&A) expense increased 6.4 percent in 2019 versus 2018, driven primarily by the following factors:

- Higher spending (5 points) driven by Red Hat spending (5 points); and
- Higher acquisition-related charges and amortization of acquired intangible assets associated with the Red Hat acquisition (3 points); partially offset by
- The effects of currency (2 points).

Operating (non-GAAP) expense increased 3.4 percent year to year primarily driven by the same factors excluding the acquisition-related charges and amortization of acquired intangible assets associated with the Red Hat transaction.

Bad debt expense increased \$22 million in 2019 compared to 2018. The receivables provision coverage was 1.7 percent at December 31, 2019, an increase of 10 basis points from December 31, 2018.

Research, Development and Engineering Expense

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change
Total consolidated research, development and engineering			
Non-operating adjustment	(53)	—	NM
Operating (non-GAAP) research, development and engineering	\$5,936	\$5,379	10.4%

NM—Not meaningful

Research, development and engineering (RD&E) expense was 7.8 percent of revenue in 2019 and 6.8 percent of revenue in 2018.

RD&E expense increased 11.3 percent in 2019 versus 2018 primarily driven by:

- Higher spending (11 points) including investment in the z15 and Red Hat spending in the second half of 2019 (8 points); and
- Higher acquisition-related charges associated with the Red Hat transaction (1 point); partially offset by
- The effects of currency (1 point).

Operating (non-GAAP) expense increased 10.4 percent year to year primarily driven by the same factors excluding the acquisition-related charges associated with the Red Hat transaction.

Intellectual Property and Custom Development Income

(\$ in millions)

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change
Licensing of intellectual property including royalty-based fees			
Custom development income	246	275	(10.5)
Sales/other transfers of intellectual property	34	28	22.6
Total	\$648	\$1,026	(36.9)%

Licensing of intellectual property including royalty-based fees decreased 49.2 percent in 2019 compared to 2018. This was primarily due to a decline in new partnership agreements compared to the prior year. The timing and amount of licensing, sales or other transfers of IP may vary significantly from period to period depending upon the timing of licensing agreements, economic conditions, industry consolidation and the timing of new patents and know-how development.

Other (Income) and Expense

(*\$* in millions)

	2019	2018	Yr.-to-Yr. Percent Change
For the year ended December 31:			
Other (income) and expense			
Foreign currency transaction losses/(gains)	<i>\$</i> (279)	<i>\$</i> (427)	(34.6)%
(Gains)/losses on derivative instruments	15	434	(96.6)
Interest income	(349)	(264)	32.2
Net (gains)/losses from securities and investment assets	(32)	(101)	(67.9)
Retirement-related costs/(income)	615	1,572	(60.9)
Other	(937)	(63)	NM
Total consolidated other (income) and expense	<i>\$</i> (968)	<i>\$</i> 1,152	NM
Non-operating adjustments			
Amortization of acquired intangible assets	(2)	(2)	50.0%
Acquisition-related charges	154	0	NM
Non-operating retirement-related costs/(income)	(615)	(1,572)	(60.9)%
Operating (non-GAAP) other (income) and expense	<i>\$</i> (1,431)	<i>\$</i> (422)	239.4%

NM—Not meaningful

Total consolidated other (income) and expense was income of \$968 million in 2019 compared to expense of \$1,152 million in 2018. The year-to-year change was primarily driven by:

- Lower non-operating retirement-related costs (\$957 million). Refer to “Retirement-Related Plans” for additional information.
- Higher gains from divestitures (\$833 million) reflected in Other; and
- Higher net exchange gains (including derivative instruments) (\$272 million). The company’s hedging programs help mitigate currency impacts in the Consolidated Income Statement.

Operating (non-GAAP) other (income) and expense was \$1,431 million of income in 2019 and increased \$1,010 million compared to the prior-year period. The year-to-year change was primarily driven by the same factors excluding lower non-operating retirement-related costs.

Interest Expense

(*\$* in millions)

	2019	2018	Yr.-to-Yr. Percent Change
For the year ended December 31:			
Interest expense			
Interest expense	\$1,344	\$723	85.9%
Non-operating adjustment			
Acquisition-related charges	(228)	—	NM
Operating (non-GAAP) interest expense	<i>\$</i> 1,116	<i>\$</i> 723	54.4%

NM—Not meaningful

Interest expense increased \$621 million compared to 2018. Interest expense is presented in cost of financing in the Consolidated Income Statement only if the related external borrowings are to support the Global Financing external business. Overall interest expense (excluding capitalized interest) in 2019 was \$1,952 million, an increase of \$473 million year to year, driven by a higher average debt balance and higher interest rates as we issued debt to finance the Red Hat acquisition.

Operating (non-GAAP) interest expense increased \$393 million compared to the prior-year period. It excludes the Red Hat pre-closing debt financing costs.

Stock-Based Compensation

Pre-tax stock-based compensation cost of \$679 million increased \$169 million compared to 2018. This was primarily due to increases related to the issuances and conversions of stock-based compensation for Red Hat (\$150 million) and issuance of restricted stock units (\$27 million). Stock-based compensation cost, and the year-to-year change, was reflected in the following categories: Cost: \$100 million, up \$18 million; SG&A expense: \$453 million, up \$91 million; and RD&E expense: \$126 million, up \$60 million.

Retirement-Related Plans

The following table provides the total pre-tax cost for all retirement-related plans. Total operating costs/(income) are included in the Consolidated Income Statement within the caption (e.g., Cost, SG&A, RD&E) relating to the job function of the plan participants.

	2019	2018	Yr.-to-Yr. Percent Change
Retirement-related plans—cost			
Service cost	\$ 385	\$ 431	(10.7)%
Multi-employer plans	32	38	(16.9)
Cost of defined contribution plans	1,040	1,024	1.5
Total operating costs/(income)	<i>\$</i> 1,457	<i>\$</i> 1,494	(2.5)%
Interest cost	\$ 2,929	\$ 2,726	7.4%
Expected return on plan assets	(4,192)	(4,049)	3.5
Recognized actuarial losses	1,819	2,941	(38.2)
Amortization of prior service costs/(credits)	(9)	(73)	(87.6)
Curtailments/settlements	41	11	262.2
Other costs	28	16	76.2
Total non-operating costs/(income)	<i>\$</i> 615	<i>\$</i> 1,572	(60.9)%
Total retirement-related plans—cost	<i>\$</i> 2,072	<i>\$</i> 3,066	(32.4)%

Total pre-tax retirement-related plan cost decreased by \$994 million compared to 2018, primarily driven by a decrease in recognized actuarial losses (\$1,123 million), primarily due to the change in the amortization period in the U.S. Qualified Personal Pension Plan and higher expected return on plan assets (\$143 million), partially offset by higher interest costs (\$203 million).

Management Discussion

International Business Machines Corporation and Subsidiary Companies

As discussed in the “Operating (non-GAAP) Earnings” section, we characterize certain retirement-related costs as operating and others as non-operating. Utilizing this characterization, operating retirement-related costs in 2019 were \$1,457 million, a decrease of \$37 million compared to 2018. Non-operating costs of \$615 million in 2019 decreased \$957 million year to year, driven primarily by the same factors as above.

Income Taxes

The continuing operations effective tax rate for 2019 was 7.2 percent, a decrease of 15.9 points versus the prior year. The decrease in the effective tax rate was primarily driven by the following factors:

- A lower charge year to year of 16.5 points from the impacts of U.S. tax reform;
- A charge in 2018 from intercompany payments of 3.4 points; partially offset by
- A lower benefit year to year from audit settlements of 4.4 points.

The operating (non-GAAP) tax rate was 8.5 percent in 2019, an increase of 0.7 points versus 2018, principally driven by the same factors described above, excluding the impacts of U.S. tax reform.

For more information, see note G, “Taxes.”

Earnings Per Share

Basic earnings per share is computed on the basis of the weighted-average number of shares of common stock outstanding during the period. Diluted earnings per share is computed on the basis of the weighted-average number of shares of common stock outstanding plus the effect of dilutive potential common shares outstanding during the period using the treasury stock method. Dilutive potential common shares include outstanding stock options and stock awards.

For the year ended December 31:	2019	2018	Yr.-to-Yr. Percent Change
Earnings per share of common stock from continuing operations			
Assuming dilution	\$10.57	\$ 9.51*	11.1%
Basic	\$10.63	\$ 9.56*	11.2%
Diluted operating (non-GAAP)	\$12.81	\$13.81	(7.2)%
Weighted-average shares outstanding (in millions)			
Assuming dilution	892.8	916.3	(2.6)%
Basic	887.2	912.0	(2.7)%

* Includes a charge of \$2.0 billion or \$2.23 of basic and diluted earnings per share in 2018 associated with U.S. tax reform.

Actual shares outstanding at December 31, 2019 and 2018 were 887.1 million and 892.5 million, respectively. The year-to-year decrease was primarily the result of the common stock repurchase program. The average number of common shares outstanding assuming dilution was 23.5 million shares lower in 2019 versus 2018.

Financial Position

Dynamics

At December 31, 2019, we continued to have the financial flexibility to support the business over the long term. Cash, restricted cash and marketable securities at year end were \$9,009 million. We continued to manage the investment portfolio to meet our capital preservation and liquidity objectives.

Total assets increased \$28,805 million since December 31, 2018. This was primarily due to an increase in goodwill and net intangible assets of \$34,104 million, driven by the Red Hat acquisition and an increase of \$4,996 million in right-of-use assets recorded as a result of the adoption of the new leasing standard in 2019. This was partially offset by a decline in net receivables of \$7,312 million since year-end 2018 levels, primarily due to the wind down of OEM IT commercial financing operations which we announced in February 2019.

Total debt of \$62,899 million increased \$17,087 million from prior year-end levels primarily to fund the Red Hat acquisition. The commercial paper balance at December 31, 2019 was \$304 million, a decrease of \$2,691 million from the prior year end. Within total debt, \$24,727 million is in support of the Global Financing business which is leveraged at a 9 to 1 ratio. During 2019, we completed bond issuances totaling \$25,712 million, with terms ranging from 2 to 30 years, and interest rates ranging from 0.375 to 4.25 percent depending on maturity. We have reduced total debt \$10,140 million since the end of the second quarter of 2019. We have consistently generated strong cash flow from operations and continue to have access to additional sources of liquidity through the capital markets and our credit facilities.

Consistent with accounting standards, the company remeasured the funded status of our retirement and postretirement plans at December 31. At December 31, 2019, the overall net underfunded position was \$11,090 million, an improvement of \$2,043 million from December 31, 2018 driven by higher returns on assets partially offset by lower discount rates and interest costs. At year end, our qualified defined benefit plans were well funded and the required contributions related to these plans and multi-employer plans are expected to be approximately \$300 million in both 2020 and 2021. In 2019, the return on the U.S. Personal Pension Plan assets was 14.9 percent and the plan was 107 percent funded at December 31, 2019. Overall, global asset returns were 13.6 percent and the qualified defined benefit plans worldwide were 102 percent funded at December 31, 2019.

During 2019, we generated \$14,770 million in cash from operations, a decrease of \$477 million compared to 2018. Our free cash flow for 2019 was \$11,909 million, an increase of \$33 million versus the prior year. See pages 58 and 59 for additional information on free cash flow. We returned \$7,068 million to shareholders in 2019, with \$5,707 million in dividends and \$1,361 million in gross share repurchases. In 2019, we

repurchased 10.0 million shares and had \$2.0 billion remaining in share repurchase authorization at year end. We suspended our share repurchase program at the time of the Red Hat closing to focus on debt repayment. Our cash generation permits us to invest and deploy capital to areas with the most attractive long-term opportunities.

Global Financing Financial Position Key Metrics

(\$ in millions)

At December 31:	2019	2018
Cash and cash equivalents	\$ 1,697	\$ 1,833
Net investment in sales-type and direct financing leases ⁽¹⁾	6,224	6,924
Equipment under operating leases—external clients ⁽²⁾	238	444
Client loans	12,884	12,802
Total client financing assets	19,346	20,170
Commercial financing receivables	3,820	11,838
Intercompany financing receivables ⁽³⁾⁽⁴⁾	3,870	4,873
Total assets	\$29,568	\$41,320
Debt	24,727	31,227
Total equity	\$ 2,749	\$ 3,470

⁽¹⁾ Includes deferred initial direct costs which are eliminated in IBM's consolidated results.

⁽²⁾ Includes intercompany mark-up, priced on an arm's-length basis, on products purchased from the company's product divisions which is eliminated in IBM's consolidated results.

⁽³⁾ Entire amount eliminated for purposes of IBM's consolidated results and therefore does not appear in the Consolidated Balance Sheet.

⁽⁴⁾ These assets, along with all other financing assets in this table, are leveraged at the value in the table using Global Financing debt.

At December 31, 2019, substantially all financing assets were IT-related assets, and approximately 62 percent of the total external portfolio was with investment-grade clients with no direct exposure to consumers, an increase of 7 points year to year. This investment-grade percentage is based on the credit ratings of the companies in the portfolio.

We have a long-standing practice of taking mitigation actions, in certain circumstances, to transfer credit risk to third parties, including credit insurance, financial guarantees, nonrecourse borrowings, transfers of receivables recorded as true sales in accordance with accounting guidance or sales of equipment under operating lease. Adjusting for the mitigation actions, the investment-grade content would increase to 67 percent, a decrease of 3 points year to year.

IBM Working Capital

(\$ in millions)

At December 31:	2019	2018
Current assets	\$38,420	\$49,146
Current liabilities	37,701	38,227
Working capital	\$ 718	\$10,918
Current ratio	1.02:1	1.29:1

Working capital decreased \$10,200 million from the year-end 2018 position. The key changes are described below:

Current assets decreased \$10,726 million (\$10,477 million adjusted for currency) due to:

- A decline in receivables of \$6,769 million (\$6,695 million adjusted for currency) driven by a decline in financing receivables of \$8,197 million primarily due to the wind down of OEM IT commercial financing operations; partially offset by an increase in other receivables of \$989 million primarily related to divestitures; and
- A decrease of \$3,213 million (\$3,052 million adjusted for currency) in cash and cash equivalents, restricted cash, and marketable securities primarily due to retirement of debt.

Current liabilities decreased \$526 million (\$449 million adjusted for currency) as a result of:

- A decrease in accounts payable of \$1,662 million primarily due to the wind down of OEM IT commercial financing operations; and
- A decrease in short-term debt of \$1,410 million due to maturities of \$12,649 million and a decrease in commercial paper of \$2,691 million; partially offset by reclassifications of \$7,592 million from long-term debt to reflect upcoming maturities and issuances of \$6,334 million; offset by
- An increase in operating lease liabilities of \$1,380 million as a result of the adoption of the new leasing standard on January 1, 2019; and
- An increase in deferred income of \$861 million (\$890 million adjusted for currency).

Receivables and Allowances

Roll Forward of Total IBM Receivables Allowance for Credit Losses

(\$ in millions)

January 1, 2019	Additions*	Write-offs**	Other†	December 31, 2019
\$639	\$89	\$(178)	\$4	\$554

* Additions for Allowance for Credit Losses are charged to expense.

**Refer to note A, "Significant Accounting Policies," for additional information regarding Allowance for Credit Loss write-offs.

† Primarily represents translation adjustments.

The total IBM receivables provision coverage was 1.7 percent at December 31, 2019, an increase of 10 basis points compared to December 31, 2018. The increase was primarily driven by the overall decline in gross financing receivables. The majority of the write-offs during the year related to receivables which had been previously reserved.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Global Financing Receivables and Allowances

The following table presents external Global Financing receivables excluding residual values, the allowance for credit losses and immaterial miscellaneous receivables:

(\$ in millions)	2019	2018
At December 31:	2019	2018
Recorded investment⁽¹⁾	\$22,446	\$31,182
Specific allowance for credit losses	177	220
Unallocated allowance for credit losses	45	72
Total allowance for credit losses	221	292
Net financing receivables	\$22,224	\$30,890
Allowance for credit losses coverage	1.0%	0.9%

⁽¹⁾ Includes deferred initial direct costs which are eliminated in IBM's consolidated results.

The percentage of Global Financing receivables reserved was 1.0 percent at December 31, 2019, compared to 0.9 percent at December 31, 2018. The decline in the allowance for credit losses was driven by write-offs of \$64 million, primarily of receivables previously reserved, and net releases of \$7 million as a result of lower average asset balances in client and commercial financing. See note K, "Financing Receivables," for additional information.

Roll Forward of Global Financing Receivables Allowance for Credit Losses (included in Total IBM)

(\$ in millions)	January 1, 2019	Additions/ (Releases)*	Write-offs**	Other ⁺	December 31, 2019
\$292	\$ (7)	\$(64)	\$ 0		\$221

* Additions for Allowance for Credit Losses are charged to expense.

**Refer to note A, "Significant Accounting Policies," for additional information regarding Allowance for Credit Loss write-offs.

+ Primarily represents translation adjustments.

Global Financing's bad debt expense was a release of \$7 million in 2019, compared to an addition of \$14 million in 2018, due to lower specific reserves and a higher unallocated reserve release in 2019.

Noncurrent Assets and Liabilities

(\$ in millions)	At December 31:	2019	2018
Noncurrent assets	\$113,767	\$74,236	
Long-term debt	\$ 54,102	\$35,605	
Noncurrent liabilities (excluding debt)	\$ 39,398	\$32,621	

The increase in noncurrent assets of \$39,531 million (\$39,470 million adjusted for currency) was driven by:

- A net increase in goodwill and net intangible assets of \$34,104 million (\$34,058 million adjusted for currency) due to the acquisition of Red Hat; and
- An increase in operating right-of-use assets of \$4,996 million (\$5,010 million adjusted for currency) as a result of the adoption of the new leasing standard on January 1, 2019; and

- An increase in prepaid pension assets of \$2,199 million (\$2,152 million adjusted for currency) driven by higher returns on plan assets and plan remeasurements; partially offset by
- A decrease in net property, plant and equipment of \$782 million (\$785 million adjusted for currency).

Long-term debt increased \$18,497 million (\$18,550 million adjusted for currency) primarily driven by:

- Issuances of \$26,081 million; partially offset by
- Reclassifications to short-term debt of \$7,592 million to reflect upcoming maturities.

Noncurrent liabilities (excluding debt) increased \$6,778 million (\$6,911 million adjusted for currency) primarily driven by:

- An increase in long-term operating lease liabilities of \$3,879 million (\$3,893 million adjusted for currency) as a result of the adoption of the new leasing standard on January 1, 2019; and
- An increase in other liabilities of \$2,352 million (\$2,320 million adjusted for currency), primarily driven by increases in deferred tax liabilities of \$1,534 million and income tax reserves of \$923 million.

Debt

Our funding requirements are continually monitored and we execute our strategies to manage the overall asset and liability profile. Additionally, we maintain sufficient flexibility to access global funding sources as needed.

(\$ in millions)	At December 31:	2019	2018
Total company debt	\$62,899	\$45,812	
Total Global Financing segment debt	\$24,727	\$31,227	
Debt to support external clients	21,487	27,536	
Debt to support internal clients	3,239	3,690	
Non-Global Financing debt	38,173	14,585	

Total debt of \$62,899 million increased \$17,087 million from December 31, 2018, driven by issuances of \$32,415 million; partially offset by debt maturities of \$12,673 million and a decrease in commercial paper of \$2,691 million.

Non-Global Financing debt of \$38,173 million increased \$23,587 million from prior year-end levels primarily driven by issuances to fund the Red Hat acquisition.

Global Financing debt of \$24,727 million decreased \$6,500 million from December 31, 2018, primarily due to the wind down of OEM IT commercial financing operations.

Global Financing provides financing predominantly for IBM's external client assets, as well as for assets under contract by other IBM units. These assets, primarily for GTS, generate long-term, stable revenue streams similar to the Global Financing asset portfolio. Based on their attributes, these GTS assets are leveraged with the balance of the Global Financing asset base.

The debt used to fund Global Financing assets is composed of intercompany loans and external debt. Total debt changes generally correspond with the level of client and commercial financing receivables, the level of cash and cash equivalents, the change in intercompany and external payables and the change in intercompany investment from IBM. The terms of the intercompany loans are set by the company to substantially match the term, currency and interest rate variability underlying the financing receivable and are based on arm's-length pricing. The Global Financing debt-to-equity ratio remained at 9 to 1 at December 31, 2019.

As previously stated, we measure Global Financing as a stand-alone entity, and accordingly, interest expense relating to debt supporting Global Financing's external client and internal business is included in the "Global Financing Results of Operations" and in note D, "Segments." In the Consolidated Income Statement, the external debt-related interest expense supporting Global Financing's internal financing to IBM is reclassified from cost of financing to interest expense.

Equity

Total equity increased by \$4,055 million from December 31, 2018 as a result of net income of \$9,431 million, a decline in accumulated other comprehensive losses of \$893 million primarily due to retirement-related benefits plans, and an increase in common stock of \$745 million; partially offset by decreases from dividends of \$5,707 million, and an increase in treasury stock of \$1,342 million mainly due to share repurchases.

Cash Flow

Our cash flows from operating, investing and financing activities, as reflected in the Consolidated Statement of Cash Flows on page 71 are summarized in the table below. These amounts include the cash flows associated with the Global Financing business.

(\$ in millions)	2019	2018
For the year ended December 31:		
Net cash provided by/(used in) continuing operations		
Operating activities	\$ 14,770	\$ 15,247
Investing activities	(26,936)	(4,913)
Financing activities	9,042	(10,469)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(167)	(495)
Net change in cash, cash equivalents and restricted cash	\$ (3,290)	\$ (630)

Net cash provided by operating activities decreased \$477 million in 2019 driven by the following key factors:

- An increase in cash income tax payments of \$346 million;
- An increase in interest payments on debt of approximately \$300 million, driven by incremental debt used to fund the acquisition of Red Hat; and
- Performance-related declines within net income, including lower operating cash flows due to businesses divested in 2019; partially offset by
- An increase of \$836 million in cash provided by financing receivables.

Net cash used in investing activities increased \$22,023 million driven by:

- An increase in net cash used for acquisitions of \$32,491 million, primarily driven by the acquisition of Red Hat; offset by
- An increase of \$7,223 million in cash provided by net non-operating finance receivables primarily driven by the wind down of OEM IT commercial financing operations;
- A decrease in cash used for net capital expenditures of \$1,346 million; and
- An increase in cash provided by divestitures of \$1,076 million.

Financing activities were a net source of cash of \$9,042 million in 2019 compared to a net use of cash of \$10,469 million in 2018. The year-to-year increase in cash flow of \$19,512 million was driven by:

- An increase in net cash sourced from debt transactions of \$16,584 million primarily driven by net issuances to fund the Red Hat acquisition; and
- A decrease in cash used for gross common share repurchases of \$3,082 million.

Global Financing Return on Equity Calculation

(\$ in millions)	2019	2018
At December 31:		
Numerator		
Global Financing after-tax income ^{(1)*}	\$ 765	\$1,065
Denominator		
Average Global Financing equity ^{(2)**}	\$2,968	\$3,460
Global Financing return on equity^{(1)/(2)}	25.8%	30.8%

* Calculated based upon an estimated tax rate principally based on Global Financing's geographic mix of earnings as IBM's provision for income taxes is determined on a consolidated basis.

**Average of the ending equity for Global Financing for the last five quarters.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

GAAP Reconciliation

The tables below provide a reconciliation of the company's income statement results as reported under GAAP to its operating earnings presentation which is a non-GAAP measure. The company's calculation of operating (non-GAAP) earnings, as presented, may differ from similarly titled measures reported by other companies. Please refer to the "Operating (non-GAAP) Earnings" section for management's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the year ended December 31, 2019:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	U.S. Tax Reform Charges	Operating (non-GAAP)
Gross profit	\$36,488	\$ 547	\$ —	\$ —	\$37,035
Gross profit margin	47.3%	0.7 pts.	— pts.	— pts.	48.0%
SG&A	\$20,604	\$(1,044)	\$ —	\$ —	\$19,560
RD&E	5,989	(53)	—	—	5,936
Other (income) and expense	(968)	152	(615)	—	(1,431)
Interest expense	1,344	(228)	—	—	1,116
Total expense and other (income)	26,322	(1,173)	(615)	—	24,533
Pre-tax income from continuing operations	10,166	1,721	615	—	12,503
Pre-tax margin from continuing operations	13.2%	2.2 pts.	0.8 pts.	— pts.	16.2%
Provision for income taxes*	\$ 731	\$ 378	\$ 103	\$(146)	\$ 1,067
Effective tax rate	7.2%	2.0 pts.	0.5 pts.	(1.2) pts.	8.5%
Income from continuing operations	\$ 9,435	\$ 1,343	\$ 512	\$ 146	\$11,436
Income margin from continuing operations	12.2%	1.7 pts.	0.7 pts.	0.2 pts.	14.8%
Diluted earnings per share from continuing operations	\$ 10.57	\$ 1.50	\$ 0.58	\$ 0.16	\$ 12.81

* The tax impact on operating (non-GAAP) pre-tax income is calculated under the same accounting principles applied to the GAAP pre-tax income which employs an annual effective tax rate method to the results.

(\$ in millions except per share amounts)

For the year ended December 31, 2018 :	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	U.S. Tax Reform Charges	Operating (non-GAAP)
Gross profit	\$36,936	\$ 372	\$ —	\$ —	\$37,307
Gross profit margin	46.4%	0.5 pts.	— pts.	— pts.	46.9%
SG&A	\$19,366	\$(451)	\$ —	\$ —	\$18,915
RD&E	5,379	—	—	—	5,379
Other (income) and expense	1,152	(2)	(1,572)	—	(422)
Interest expense	723	—	—	—	723
Total expense and other (income)	25,594	(453)	(1,572)	—	23,569
Pre-tax income from continuing operations	11,342	824	1,572	—	13,739
Pre-tax margin from continuing operations	14.3%	1.0 pts.	2.0 pts.	— pts.	17.3%
Provision for income taxes*	\$ 2,619	\$ 176	\$ 324	\$(2,037)	\$ 1,082
Effective tax rate	23.1%	(0.1) pts.	(0.3) pts.	(14.8) pts.	7.9%
Income from continuing operations	\$ 8,723	\$ 649	\$ 1,248	\$ 2,037	\$12,657
Income margin from continuing operations	11.0%	0.8 pts.	1.6 pts.	2.6 pts.	15.9%
Diluted earnings per share from continuing operations	\$ 9.51	\$ 0.71	\$ 1.36	\$ 2.23	\$ 13.81

* The tax impact on operating (non-GAAP) pre-tax income is calculated under the same accounting principles applied to the GAAP pre-tax income which employs an annual effective tax rate method to the results.

Consolidated Fourth-Quarter Results

(\$ and shares in millions except per share amounts)

For the fourth quarter:	2019	2018	Yr.-to-Yr. Percent/ Margin Change*
Revenue	\$21,777	\$21,760	0.1%**
Gross profit margin	51.0%	49.1%	1.9 pts.
Total expense and other (income)	\$ 7,107	\$ 6,253	13.7%
Income from continuing operations before income taxes	\$ 3,993	\$ 4,434	(10.0)%
Provision for income taxes from continuing operations	\$ 324	\$ 2,481+	(87.0)%
Income from continuing operations	\$ 3,669	\$ 1,954+	87.8%
Income from continuing operations margin	16.8%	9.0%	7.9 pts.
Net income	\$ 3,670	\$ 1,951+	88.1%
Earnings per share from continuing operations—assuming dilution	\$ 4.11	\$ 2.15+	91.2%
Weighted-average shares outstanding—assuming dilution	893.7	905.2	(1.3)%

* 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

**0.7 percent adjusted for currency; 2.8 percent excluding divested businesses and adjusted for currency.

+ Includes a charge of \$1.9 billion or \$2.15 of diluted earnings per share in 2018 associated with U.S. tax reform.

The following table provides operating (non-GAAP) earnings for the fourth quarter of 2019 and 2018. See page 52 for additional information.

(\$ in millions except per share amounts)

For the fourth quarter:	2019	2018	Yr.-to-Yr. Percent Change*
Net income/(loss) as reported	\$3,670	\$1,951**	88.1%
Loss from discontinued operations, net of tax	0	(2)	NM
Income/(loss) from continuing operations	\$3,669	\$1,954**	87.8%
Non-operating adjustments (net of tax)			
Acquisition-related charges	376	171	119.7
Non-operating retirement-related costs/(income)	175	348	(49.8)
U.S. tax reform charge	(14)	1,944	NM
Operating (non-GAAP) earnings	\$4,206	\$4,417	(4.8)%
Diluted operating (non-GAAP) earnings per share	\$ 4.71	\$ 4.87	(3.3)%

* 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

**Includes a charge of \$1.9 billion in 2018 associated with U.S. tax reform.

NM—Not meaningful

Snapshot

In the fourth quarter of 2019, we reported \$21.8 billion in revenue, \$3.7 billion in income from continuing operations and operating (non-GAAP) earnings of \$4.2 billion, resulting in diluted earnings per share from continuing operations of \$4.11 as reported and \$4.71 on an operating (non-GAAP) basis. We also generated \$3.5 billion in cash from operations, \$6.0 billion in free cash flow and delivered shareholder returns of \$1.4 billion in dividends. We had solid transactional performance across our high-value software and systems. In addition, benefits from the synergies of IBM and Red Hat drove growth in our services to migrate, build and manage hybrid cloud environments. Overall, performance resulted in revenue growth, margin expansion and strong free cash flow generation in the quarter.

Total consolidated revenue increased 0.1 percent as reported and 1 percent adjusted for currency compared to the prior year. Excluding divested businesses, revenue was up 2.2 percent as reported and 3 percent adjusted for currency. Cloud & Cognitive Software increased 8.7 percent as reported and 9 percent adjusted for currency with growth across all three lines of business. Cloud & Data Platforms, which includes Red Hat, grew 19.0 percent (20 percent adjusted for currency), Cognitive Applications grew 0.6 percent (1 percent adjusted for currency) and Transaction Processing Platforms increased 2.9 percent (4 percent adjusted for currency). GBS decreased 0.6 percent as reported and was flat adjusted for currency. There was continued growth in Consulting which grew 3.5 percent (4 percent adjusted for currency) driven by services that enable each phase of our clients' digital journeys. GTS decreased 4.8 percent as reported and 4 percent adjusted for currency, with declines in Infrastructure & Cloud Services and Technology Support Services. While there was continued year-to-year growth in our cloud offerings within GTS, there were declines in client-based volumes, in some of the more traditional labor-based managed services. Systems increased 16.0 percent as reported and 16 percent adjusted for currency with growth in IBM Z and Storage Systems, partially offset by a decline in Power Systems. IBM Z had strong growth of 62.3 percent (63 percent adjusted for currency) in the first full quarter of z15 shipments. Storage Systems increased 2.8 percent (3 percent adjusted for currency) year to year led by growth in the high end, while Power Systems declined 23.7 percent (23 percent adjusted for currency) compared with strong performance in the prior year. Across the segments, total IBM cloud revenue of \$6.8 billion in the fourth quarter of 2019 grew 21 percent as reported and adjusted for currency.

From a geographic perspective, Americas revenue increased 2.3 percent year to year as reported (3 percent adjusted for currency) and 6 percent excluding divested businesses and adjusted for currency. EMEA increased 0.1 percent (2 percent adjusted for currency) and 4 percent excluding divested businesses and adjusted for currency. Asia Pacific declined 5.2 percent year to year as reported (7 percent adjusted for currency) and 6 percent excluding divested businesses and adjusted for currency.

The consolidated gross margin of 51.0 percent increased 1.9 points year to year reflecting contribution from our high-value software and systems, partially offset by impacts related to Red Hat (deferred revenue adjustment and amortization of intangibles). The operating (non-GAAP) gross margin of 51.8 percent increased 2.3 points versus the prior year, primarily driven by the same factors, excluding the amortization of intangibles.

Total expense and other (income) increased 13.7 percent in the fourth quarter of 2019 versus the prior year primarily driven by higher spending including Red Hat operational spending, higher interest expense from debt issuances to fund the acquisition, continued investment in innovation and go-to-market capabilities, higher acquisition-related charges and higher amortization of acquired intangibles. These increases were partially offset by divestiture-related gains and lower non-operating retirement-related costs. Total operating (non-GAAP) expense and other (income) increased 14.7 percent year to year, driven primarily by the higher spending and investment, partially offset by the divestiture-related gains described above.

Pre-tax income from continuing operations of \$4.0 billion, decreased 10.0 percent and the pre-tax margin was 18.3 percent, a decrease of 2.0 points versus the prior-year period reflecting the purchase accounting deferred revenue adjustment for Red Hat (lower revenue without an equivalent adjustment to cost and expense) and acquisition-related activity. The continuing operations effective tax rate for the fourth quarter of 2019 was 8.1 percent and net income from continuing operations was \$3.7 billion. This is compared with net income from continuing operations of \$2.0 billion in the fourth quarter of 2018, which included a \$1.9 billion charge for tax reform. Our net income margin from continuing operations was 16.8 percent, an increase of 7.9 points year to year.

Operating (non-GAAP) pre-tax income from continuing operations of \$4.7 billion decreased 6.6 percent year to year and the operating (non-GAAP) pre-tax margin from continuing operations decreased 1.5 points to 21.6 percent. The operating (non-GAAP) effective tax rate from continuing operations in the fourth quarter of 2019 was 10.5 percent versus 12.2 percent in the prior year. Operating (non-GAAP) income from continuing operations of \$4.2 billion decreased 4.8 percent with an operating (non-GAAP) income margin from continuing operations of 19.3 percent, down 1.0 points year to year.

Diluted earnings per share from continuing operations of \$4.11 in the fourth quarter of 2019 increased 91.2 percent, primarily due to the prior-year tax reform charge. Operating (non-GAAP) diluted earnings per share of \$4.71 decreased 3.3 percent versus the fourth quarter of 2018.

Segment Details

The following is an analysis of the fourth quarter of 2019 versus the fourth quarter of 2018 reportable segment external revenue and gross margin results. Segment pre-tax income includes transactions between the segments that are intended to reflect an arm's-length transfer price and excludes certain unallocated corporate items.

(\$ in millions)	2019	2018	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
For the fourth quarter:				
Revenue				
Cloud & Cognitive Software	\$ 7,238	\$ 6,661*	8.7%	9.4%
Gross margin	79.2%	79.4%*	(0.2)pts.**	
Global Business Services	4,243	4,269*	(0.6)%	(0.3)%
Gross margin	27.5%	27.8%*	(0.3) pts.	
Global Technology Services	6,949	7,299*	(4.8)%	(4.0)%
Gross margin	35.2%	34.9%*	0.2 pts.	
Systems	3,042	2,621	16.0%	16.5%
Gross margin	56.0%	50.8%	5.2 pts.	
Global Financing	301	402	(25.3)%	(24.9)%
Gross margin	35.6%	29.1%	6.5 pts.	
Other	4	507*	(99.2)%	(99.1)%
Gross margin	NM	42.0%*	NM	
Total consolidated revenue	\$21,777	\$21,760	0.1%*	0.7%
Total consolidated gross profit	\$11,100	\$10,687	3.9%**	
Total consolidated gross margin	51.0%	49.1%	1.9 pts.	
Non-operating adjustments				
Amortization of acquired intangible assets	189	89	112.2%	
Operating (non-GAAP) gross profit	\$11,289	\$10,776	4.8%**	
Operating (non-GAAP) gross margin	51.8%	49.5%	2.3 pts.	

* Recast to reflect segment changes.

**2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

+ 2.8 percent excluding divested businesses and adjusted for currency.

NM—Not meaningful

Cloud & Cognitive Software

Cloud & Cognitive Software revenue of \$7,238 million grew 8.7 percent as reported and 9 percent adjusted for currency in the fourth quarter of 2019 compared to the prior year. We had growth as reported and adjusted for currency in all three lines of business: Cognitive Applications, Cloud & Data Platforms and Transaction Processing Platforms. Growth in Cloud & Data Platforms and total cloud revenue in the segment reflected the acquisition of Red Hat and clients' continued adoption of our hybrid cloud solutions.

In the fourth quarter, Cognitive Applications revenue of \$1,619 million increased 0.6 percent as reported and 1 percent adjusted for currency, reflecting the strength of our AI-led software solutions including Security and IoT. We continue to drive new innovations in these areas, and in November 2019, we launched Cloud Pak for Security which allows clients to leverage their investments in cybersecurity by integrating their security tools with existing data sources to more quickly resolve security incidents. In IoT, we extended our Maximo suite of offerings with the announcement of Maximo Asset Monitor, an AI-powered monitoring solution designed to help clients better maintain and improve performance of their high-value physical assets.

Cloud & Data Platforms revenue of \$3,101 million increased 19.0 percent as reported and 20 percent adjusted for currency compared to the prior year reflecting the acquisition of Red Hat in 2019. Demand for our cloud capabilities continued to ramp and we began to realize synergies across IBM and Red Hat. We had strong performance in the quarter in Red Hat's RHEL and OpenShift, and broad-based traction across the suite of Cloud Paks that addresses workloads across automation, data and integration. Clients are realizing the benefits of hybrid cloud with our containerized middleware and data platform software portfolio, including faster deployment and improved automation.

Transaction Processing Platforms revenue of \$2,517 million increased 2.9 percent as reported (4 percent adjusted for currency) reflecting the value we provided clients by managing their critical workloads, and providing for predictability in IT spend.

Within Cloud & Cognitive Software, total cloud revenue of \$1.6 billion grew 78 percent as reported and adjusted for currency, which reflects the acquisition of Red Hat.

Cloud & Cognitive Software gross profit margin of 79.2 percent decreased 0.2 points during the fourth quarter of 2019 compared to the prior year. Pre-tax income of \$2,901 million decreased 7.1 percent compared to the prior year and pre-tax margin decreased 6.0 points to 36.6 percent, driven primarily by the purchase accounting impacts from the Red Hat acquisition.

Global Business Services

GBS revenue of \$4,243 million decreased 0.6 percent as reported, but was flat adjusted for currency in the fourth quarter of 2019 compared to the prior year. We had growth in Consulting, offset by declines in Application Management and Global Process Services. We have been investing in offerings and capabilities to help advise our clients and move their applications to a hybrid multi-cloud environment.

Consulting revenue of \$2,078 million increased 3.5 percent as reported (4 percent adjusted for currency). The growth in Consulting was driven by services that enable each phase of our clients' digital journey. We had continued growth in application modernization and development, next-generation enterprise applications such as S/4 Hana and Salesforce, and in offerings that use AI to help clients unlock opportunities and realize productivity improvements.

Application Management revenue of \$1,922 million decreased 3.3 percent as reported (3 percent adjusted for currency). We had continued growth across our offerings that build and manage cloud applications, offset by declines in traditional enterprise application management. This was primarily driven by strong performance in the fourth-quarter 2018 as a result of significant milestone achievements across a few accounts.

Global Process Services revenue of \$243 million decreased 10.8 percent as reported (10 percent adjusted for currency), as demand shifted from traditional Business Process Optimization offerings to our new business platforms around intelligent workflows.

Within GBS, cloud revenue of \$1.5 billion grew 3 percent as reported (4 percent adjusted for currency) year to year.

GBS fourth-quarter gross profit margin of 27.5 percent decreased 0.3 points year to year. Pre-tax income of \$478 million decreased 15.6 percent year to year. The pre-tax margin decreased 1.9 points to 11.1 percent. In the quarter, we had margin contribution from the yield on our contract delivery improvements, a mix shift to higher-value content and a currency benefit from leveraging our global delivery resource footprint. These benefits were offset by investments we made in capacity and offerings to capture market opportunity.

Global Technology Services

GTS revenue of \$6,949 million decreased 4.8 percent as reported (4 percent adjusted for currency), primarily due to lower client business volumes which impacted some of the more traditional labor-based managed services. We continued to have solid growth in our cloud offerings as clients turn to IBM to enable their transition to cloud. GTS' knowledge of our clients' industries, business and regulatory requirements is a differentiator as clients accelerate their shift of mission-critical workloads to the cloud.

Infrastructure & Cloud Services revenue of \$5,282 million declined 5.3 percent as reported (5 percent adjusted for currency). Revenue was impacted by lower client business volumes. We are taking actions to accelerate the shift to higher-value segments of the market opportunity, such as introducing new managed services offerings for public and private cloud in the areas of cybersecurity, data management and hybrid orchestration. We are also expanding our cloud data center footprint and deploying a more asset-based delivery model.

Technology Support Services revenue of \$1,667 million decreased 3.2 percent as reported (2 percent adjusted for currency) primarily due to hardware product cycle dynamics.

Within GTS, cloud revenue of \$2.4 billion grew 12 percent year to year as reported (13 percent adjusted for currency).

GTS gross profit margin of 35.2 percent expanded 0.2 points in the fourth-quarter 2019 compared to the prior-year period. This improvement was driven by our continued scale-out of our public cloud, a mix within the portfolio and productivity actions. Pre-tax income of \$645 million decreased 1.7 percent and the pre-tax margin increased 0.3 points to 8.9 percent year to year, reflecting a significant sequential improvement in pre-tax margin.

Systems

Systems revenue of \$3,042 million grew 16.0 percent year to year as reported (16 percent adjusted for currency) in the fourth quarter of 2019. Systems Hardware revenue of \$2,560 million increased 17.7 percent as reported (18 percent adjusted for currency). This growth was driven primarily by IBM Z and Storage Systems, partially offset by a decline in Power Systems. The strong performance in IBM Z reflects our first full quarter of shipments of the new z15 mainframe. Storage Systems growth was led by the high-end systems, which includes the next generation high-end storage system DS8900 that is tightly integrated with the z15 mainframe.

Within Systems Hardware, IBM Z revenue grew 62.3 percent as reported (63 percent adjusted for currency) year to year, reflecting the broad adoption of the new z15 mainframe across many industries and countries, and demonstrates our clients' demand for technology that addresses data privacy and resiliency, across hybrid cloud. We shipped the highest volume of MIPs in the program's history in the fourth-quarter 2019, driven by growth in new workloads, and in October 2019, we announced Red Hat OpenShift for IBM Z, integrating the industry's most comprehensive enterprise container and Kubernetes platform with the enterprise server platforms of IBM Z and LinuxONE.

Power Systems revenue declined 23.7 percent as reported (23 percent adjusted for currency) year to year, as a result of strong performance in the fourth-quarter 2018 with the introduction of our next generation high-end POWER9 processors and the completion of the roll-out of supercomputers to the U.S. Department of Energy.

Storage Systems revenue increased 2.8 percent as reported (3 percent adjusted for currency), reflecting growth in the high-end systems with the launch in November 2019 of the new DS8900 which offers industry-leading response times, availability and pervasive end-to-end encryption.

In the fourth quarter, Operating Systems Software revenue of \$482 million increased 7.9 percent as reported (8 percent adjusted for currency) driven primarily by growth in IBM Z operating systems.

Within Systems, cloud revenue of \$1.4 billion increased 21 percent year to year as reported and adjusted for currency.

The Systems gross profit margin increased 5.2 points to 56.0 percent in the fourth quarter of 2019 compared to the prior year. Pre-tax income of \$802 million increased 45.6 percent and pre-tax margin increased 5.5 points year to year to 24.8 percent. The Systems profit and margin expansion reflects the benefits from the new z15 mainframe and DS8900 high-end storage system launched in 2019.

Global Financing

Global Financing revenue of \$301 million decreased 25.3 percent year to year, which reflects the company's wind down of the OEM IT commercial financing operations. Global Financing fourth-quarter pre-tax income decreased 20.9 percent to \$252 million and the pre-tax margin of 38.9 percent decreased 2.4 points year to year. The decrease in pre-tax income was driven by a decrease in gross profit, partially offset by a decrease in SG&A expense.

Geographic Revenue

Total revenue of \$21,777 million increased 0.1 percent as reported (1 percent adjusted for currency) and 3 percent excluding divested businesses and adjusted for currency in the fourth quarter compared to the prior year. Americas revenue of \$10,461 million increased 2.3 percent as reported (3 percent adjusted for currency) and 6 percent excluding divested businesses and adjusted for currency. EMEA revenue of \$7,090 million increased 0.1 percent as reported (2 percent adjusted for currency) and 4 percent excluding divested businesses and adjusted for currency. Asia Pacific revenue of \$4,226 million declined 5.2 percent as reported (7 percent adjusted for currency) and 6 percent excluding divested businesses and adjusted for currency.

Within Americas, revenue in the U.S. increased 2.9 percent year to year, driven primarily by the strong performance of the new z15. Canada increased 4.1 percent as reported and 4 percent adjusted for currency. Latin America decreased 1.4 percent as reported, but increased 3 percent adjusted for currency. Within

Latin America, Brazil increased 7.3 percent as reported and 11 percent adjusted for currency, reflecting the strong acceptance of the new z15 in the financial sector.

In EMEA, France increased 9.5 percent as reported and 13 percent adjusted for currency and Italy increased 2.5 percent as reported and 5 percent adjusted for currency. Germany declined 3.7 percent as reported and 1 percent adjusted for currency and the U.K. decreased 2.4 percent as reported and 3 percent adjusted for currency. The Middle East and Africa region increased 1 percent as reported and 2 percent adjusted for currency.

Within Asia Pacific, Japan decreased 0.9 percent as reported and 4 percent adjusted for currency. China declined 11.4 percent as reported and 10 percent adjusted for currency. Australia decreased 22.0 percent as reported and 18 percent adjusted for currency. India decreased 5.2 percent as reported and 6 percent adjusted for currency.

Total Expense and Other (Income)

	(\$ in millions)		Yr.-to-Yr. Percent/ Margin Change*
For the fourth quarter:	2019	2018	
Total consolidated expense and other (income)	\$7,107	\$6,253	13.7%
Non-operating adjustments			
Amortization of acquired intangible assets	(294)	(106)	176.0
Acquisition-related charges	(27)	(13)	104.7
Non-operating retirement-related (costs)/income	(196)	(387)	(49.4)
Operating (non-GAAP) expense and other (income)	\$6,591	\$5,746	14.7%
Total consolidated expense-to-revenue ratio	32.6%	28.7%	3.9 pts.
Operating (non-GAAP) expense-to-revenue ratio	30.3%	26.4%	3.9 pts.

* 2019 results were impacted by Red Hat purchase accounting and acquisition-related activity.

Total expense and other (income) increased 13.7 percent in the fourth quarter with an expense-to-revenue ratio of 32.6 percent compared to 28.7 percent in the fourth quarter of 2018. The year-to-year increase was a result of higher spending (15 points) driven by Red Hat (15 points) and higher acquisition-related charges and amortization of acquired intangible assets associated with the Red Hat transaction (4 points), partially offset by higher divestiture gains (3 points) and lower non-operating retirement-related costs (3 points).

Total operating (non-GAAP) expense and other income increased 14.7 percent year to year primarily driven by the higher spending, partially offset by the divestiture gains, as described above.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Cash Flow

We generated \$3.5 billion in cash flow from operating activities in the fourth quarter of 2019, a decrease of \$0.7 billion compared to the fourth quarter of 2018, primarily due to higher interest and income tax payments. Net cash sourced from investing activities of \$0.1 billion was \$0.3 billion lower than the prior year, primarily driven by a decrease in cash from net proceeds from disposition of marketable securities and other investments (\$2.2 billion), partially offset by an increase in cash provided by net non-operating finance receivables (\$1.5 billion) and lower net capital expenditures (\$0.2 billion). Net cash used in financing activities of \$5.7 billion increased \$1.1 billion compared to the prior year, primarily due to lower debt issuances (\$3.0 billion), partially offset by lower gross common stock repurchases (\$2.0 billion).

GAAP Reconciliation

The tables below provide a reconciliation of our income statement results as reported under GAAP to our operating earnings presentation which is a non-GAAP measure. Management's calculation of operating (non-GAAP) earnings, as presented, may differ from similarly titled measures reported by other companies. Refer to the "Operating (non-GAAP) Earnings" section for management's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the fourth quarter 2019:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	U.S. Tax Reform Charges	Operating (non-GAAP)
Gross profit	\$11,100	\$ 189	\$ —	\$ —	\$11,289
Gross profit margin	51.0%	0.9 pts.	— pts.	— pts.	51.8%
SG&A	\$ 5,433	\$(320)	\$ —	\$ —	\$ 5,113
RD&E	1,596	0	—	—	1,596
Other (income) and expense	(117)	(1)	(196)	—	(314)
Interest expense	354	—	—	—	354
Total expense and other (income)	7,107	(320)	(196)	—	6,591
Pre-tax income from continuing operations	3,993	509	196	—	4,698
Pre-tax margin from continuing operations	18.3%	2.3 pts.	0.9 pts.	— pts.	21.6%
Provision for income taxes*	\$ 324	\$ 133	\$ 21	\$ 14	\$ 492
Effective tax rate	8.1%	2.0 pts.	0.1 pts.	0.3 pts.	10.5%
Income from continuing operations	\$ 3,669	\$ 376	\$ 175	\$ (14)	\$ 4,206
Income margin from continuing operations	16.8%	1.7 pts.	0.8 pts.	(0.1) pts.	19.3%
Diluted earnings per share from continuing operations	\$ 4.11	\$ 0.42	\$ 0.20	\$(0.02)	\$ 4.71

* The tax impact on operating (non-GAAP) pre-tax income from continuing operations is calculated under the same accounting principles applied to the GAAP pre-tax income which employs an annual effective tax rate method to the results.

(\$ in millions except per share amounts)

For the fourth quarter 2018:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	U.S. Tax Reform Charges	Operating (non-GAAP)
Gross profit	\$10,687	\$ 89	\$ —	\$ —	\$10,776
Gross profit margin	49.1%	0.4 pts.	— pts.	— pts.	49.5%
SG&A	\$ 4,701	\$(119)	\$ —	\$ —	\$ 4,582
RD&E	1,358	—	—	—	1,358
Other (income) and expense	185	(1)	(387)	—	(203)
Interest expense	193	—	—	—	193
Total expense and other (income)	6,253	(119)	(387)	—	5,746
Pre-tax income from continuing operations	4,434	208	387	—	5,030
Pre-tax margin from continuing operations	20.4%	1.0 pts.	1.8 pts.	— pts.	23.1%
Provision for income taxes*	\$ 2,481	\$ 37	\$ 39	\$(1,944)	\$ 613
Effective tax rate	55.9%	(1.6) pts.	(3.5) pts.	(38.7) pts.	12.2%
Income from continuing operations	\$ 1,954	\$ 171	\$ 348	\$ 1,944	\$ 4,417
Income margin from continuing operations	9.0%	0.8 pts.	1.6 pts.	8.9 pts.	20.3%
Diluted earnings per share from continuing operations	\$ 2.15	\$ 0.19	\$ 0.38	\$ 2.15	\$ 4.87

* The tax impact on operating (non-GAAP) pre-tax income from continuing operations is calculated under the same accounting principles applied to the GAAP pre-tax income which employs an annual effective tax rate method to the results.

PRIOR YEAR IN REVIEW

This section provides a summary of our segment results and year-to-year comparisons between 2018 and 2017. These Segment results have been recast to conform to our segment changes effective first-quarter 2019. There was no change to consolidated results. Refer to "Management Discussion," pages 27 to 41 of the "Year in Review" section of our 2018 Annual Report for all other details of our financial performance in 2018 compared to 2017.

Segment Details

The table below presents each reportable segment's external revenue and gross margin results. Segment pre-tax income includes transactions between segments that are intended to reflect an arm's-length transfer price and excludes certain unallocated corporate items.

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Revenue				
Cloud & Cognitive Software	\$22,209*	\$21,751*	2.1%	1.6%
Gross margin	77.6%*	78.1%*	(0.5) pts.	
Global Business Services	16,595*	16,073*	3.2%	2.3%
Gross margin	26.8%*	25.1%*	1.7 pts.	
Global Technology Services	29,146*	29,213*	(0.2)%	(0.8)%
Gross margin	34.4%*	34.3%*	0.1 pts.	
Systems	8,034	8,194	(2.0)%	(2.3)%
Gross margin	49.8%	53.2%	(3.4) pts.	
Global Financing	1,590	1,696	(6.3)%	(6.5)%
Gross margin	29.1%	29.3%	(0.2) pts.	
Other	2,018*	2,212*	(8.8)%	(9.4)%
Gross margin	37.8%*	47.1%*	(9.3) pts.	
Total consolidated revenue	\$79,591	\$79,139	0.6%	0.0%
Total consolidated gross profit				
Total consolidated gross margin	46.4%	46.7%	(0.3) pts.	
Non-operating adjustment				
Amortization of acquired intangible assets	372	449	(17.2)%	
Operating (non-GAAP) gross profit	\$37,307	\$37,392	(0.2)%	
Operating (non-GAAP) gross margin	46.9%	47.2%	(0.4) pts.	

* Recast to reflect segment changes.

Cloud & Cognitive Software

(\$ in millions)

For the year ended December 31:	2018*	2017*	Yr.-to-Yr. Percent Change	Percent Change Adjusted for Currency
Cloud & Cognitive Software external revenue				
Cloud & Cognitive Software external revenue	\$22,209	\$21,751	2.1%	1.6%
Cognitive Applications	\$ 5,633	\$ 5,533	1.8%	1.4%
Cloud & Data Platforms	8,603	8,381	2.6	2.0
Transaction Processing Platforms	7,974	7,838	1.7	1.2

* Recast to reflect segment changes.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Cloud & Cognitive Software revenue increased in 2018 compared to the prior year with growth in all three lines of business, as reported and adjusted for currency. Within Cognitive Applications, the increase was driven by strong double-digit growth in security services, while growth in Cloud & Data Platforms was led by analytics platforms and integration offerings. Transaction Processing Platforms grew with improved revenue performance sequentially in the fourth-quarter 2018 versus the third-quarter 2018 reflecting clients' commitment to the company's platform for the long term and the value it provides in managing mission-critical workloads. Within Cloud & Cognitive Software, cloud revenue of \$3.0 billion grew 10 percent as reported and adjusted for currency compared to the prior year.

(\$ in millions)			
For the year ended December 31:	2018*	2017*	Yr.-to-Yr. Percent/ Margin Change
Cloud & Cognitive Software			
External gross profit	\$17,224	\$16,986	1.4%
External gross profit margin	77.6%	78.1%	(0.5) pts.
Pre-tax income	\$ 8,882	\$ 8,068	10.1%
Pre-tax margin	35.0%	32.4%	2.6 pts.

* Recast to reflect segment changes.

Gross margin in Cloud & Cognitive Software was impacted by an increased mix toward SaaS, a mix toward security services and increased royalty costs associated with IP licensing agreements compared to the prior year. Pre-tax income improvement year to year was primarily driven by operational efficiencies and mix.

Global Business Services

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change	Percent Change Adjusted for Currency
Global Business Services external revenue	\$16,595*	\$16,073*	3.2%	2.3%
Consulting	\$ 7,705	\$ 7,262	6.1%	5.1%
Application Management	7,852	7,821	0.4	(0.5)
Global Process Services	1,037*	990*	4.8	4.7

* Recast to reflect segment changes.

Global Business Services revenue increased compared to 2017 driven by strong growth in Consulting, led by key offerings in digital and cloud application, where the business has brought together technology and industry expertise to help clients on their digital journey. GPS grew year to year, while Application Management revenue was flat as reported and declined adjusted for currency compared to 2017. While we continued to help clients move to the cloud with offerings such as Cloud Migration Factory and cloud application development, there were continued declines in the more traditional application management engagements. Within GBS, cloud revenue of \$4.7 billion grew 20 percent as reported and 19 percent adjusted for currency compared to the prior year.

(\$ in millions)			
For the year ended December 31:	2018*	2017*	Yr.-to-Yr. Percent/ Margin Change
Global Business Services			
External gross profit	\$4,448	\$4,033	10.3%
External gross profit margin	26.8%	25.1%	1.7 pts.
Pre-tax income	\$1,629	\$1,303	25.0%
Pre-tax margin	9.6%	7.9%	1.7 pts.

* Recast to reflect segment changes.

The year-to-year improvements in margins and pre-tax income in GBS were the result of the shift to higher-value offerings, realignment of resources to key skill areas, increased productivity and utilization as well as a benefit from currency, due to the company's global delivery model.

Global Technology Services

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Global Technology Services external revenue	\$29,146*	\$29,213*	(0.2)%	(0.8)%
Infrastructure & Cloud Services	\$22,185*	\$22,016*	0.8%	0.0%
Technology Support Services	6,961	7,196	(3.3)	(3.5)

* Recast to reflect segment changes.

Global Technology Services revenue decreased 0.2 percent as reported (1 percent adjusted for currency) in 2018 compared to the prior year, with Infrastructure & Cloud Services up 0.8 percent as reported (flat adjusted for currency) offset by a decline in Technology Support Services. In Infrastructure & Cloud Services, the business focused on prioritizing the portfolio to deliver high-value solutions to bring productivity to clients and allow for expanding workloads, while it exited some lower-value offerings. Technology Support Services was impacted by the hardware product cycle dynamics in 2018 but grew its multi-vendor services offerings. Within GTS, cloud revenue of \$8.0 billion grew 22 percent as reported and 21 percent adjusted for currency compared to the prior year.

(\$ in millions)

For the year ended December 31:	2018*	2017*	Yr.-to-Yr. Percent/ Margin Change
Global Technology Services			
External total gross profit	\$10,035	\$10,022	0.1%
External total gross profit margin	34.4%	34.3%	0.1 pts.
Pre-tax income	\$ 1,781	\$ 2,618	(32.0)%
Pre-tax margin	5.9%	8.8%	(2.8) pts.

* Recast to reflect segment changes.

The 2018 GTS gross profit margin was essentially flat year to year and reflected benefits from productivity initiatives, including automation of delivery processes infused with AI and global workforce optimization. Pre-tax income performance reflected continued investment to expand go-to-market capabilities and develop new offerings for the hybrid market.

Systems

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Systems external revenue	\$8,034	\$8,194	(2.0)%	(2.3)%
Systems Hardware	\$6,363	\$6,494	(2.0)%	(2.3)%
IBM Z			(5.4)	(5.6)
Power Systems			8.8	8.7
Storage Systems			(5.5)	(5.9)
Operating Systems Software	1,671	1,701	(1.7)	(2.4)

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Systems revenue of \$8,034 million decreased 2.0 percent year to year as reported (2 percent adjusted for currency) driven by strong IBM Z performance in 2017 and continued price pressures impacting Storage Systems in a competitive environment. Both hardware platforms were down year to year for the full year, as reported and adjusted for currency. This performance was partially offset by strong growth in Power Systems (which grew as reported and adjusted for currency in 2018) with strong performance in POWER9-based systems and Linux throughout the year. Within Systems, cloud revenue of \$3.1 billion decreased 10 percent as reported and adjusted for currency compared to the prior year reflecting IBM Z product cycle dynamics.

(\$ in millions)

			Yr.-to-Yr. Percent/ Margin Change
For the year ended December 31:	2018	2017	
Systems			
External Systems Hardware			
gross profit	\$2,590	\$2,893	(10.5)%
External Systems Hardware gross profit margin	40.7%	44.6%	(3.8)pts.
External Operating Systems			
Software gross profit	\$1,412	\$1,469	(3.9)%
External Operating Systems Software gross profit margin	84.5%	86.4%	(1.9)pts.
External total gross profit margin	49.8%	53.2%	(3.4)pts.
Pre-tax income	\$ 904	\$1,128	(19.9)%
Pre-tax margin	10.2%	12.6%	(2.4)pts.

The Systems gross profit margin decrease year to year was driven by the mix away from IBM Z and margin declines in Power Systems and Storage Systems. The pre-tax income decline was driven by the strong performance in IBM Z in the prior year and the continued investment in innovation across the Systems portfolio.

Global Financing

(\$ in millions)

			Yr.-to-Yr. Percent Change
For the year ended December 31:	2018	2017	
Results of Operations			
External revenue			
External revenue	\$1,590	\$1,696	(6.3)%
Internal revenue	1,610	1,471	9.5
Total revenue	\$3,200	\$3,168	1.0%
Pre-tax income	\$1,361	\$1,278	6.5%

The increase in Global Financing total revenue was driven by an increase in internal revenue, partially offset by a decrease in external revenue. Internal revenue grew 9.5 percent driven by increases in internal financing (up 17.6 percent) and internal used equipment sales (up 6.8 percent). External revenue declined 6.3 percent due to a decrease in external used equipment sales (down 30.8 percent), partially offset by an increase in external financing (up 4.9 percent). The increase in Global Financing pre-tax income was primarily driven by an increase in gross profit and a decrease in total expense.

GAAP Reconciliation

The table below provides a reconciliation of our consolidated gross profit and gross margin as reported under GAAP to our operating earnings presentation which is a non-GAAP measure. Management's calculation of operating (non-GAAP) earnings, as presented, may differ from similarly titled measures reported by other companies. Refer to the "Operating (non-GAAP) Earnings" section for management's rationale for presenting operating earnings information.

	Acquisition- Related Adjustments			Operating (non-GAAP)
For the year ended December 31:	GAAP			
2018				
Gross profit	\$36,936		\$372	\$37,307
Gross profit margin		46.4%	0.5 pts.	46.9%
2017				
Gross profit	\$36,943		\$449	\$37,392
Gross profit margin		46.7%	0.6 pts.	47.2%

OTHER INFORMATION**Looking Forward**

IBM is focused on chapter 2 of clients' digital reinventions, which includes scaling AI and shifting mission-critical workloads to the cloud. To address the cloud opportunity, enterprises need to be able to move and manage data, services and workflows across multiple clouds and on-premises. They also need to be able to address security concerns, data protection and protocols, availability and cloud management. This is best addressed with a hybrid, multi-cloud, open approach, based on a foundation of Linux, with containers and Kubernetes. On July 9, 2019, we closed the acquisition of Red Hat, which significantly changed the cloud landscape and will accelerate our high value business model. Together, IBM and Red Hat offer the leading hybrid, multi-cloud platform built on open source technologies.

The combination of IBM and Red Hat is already off to a strong start. In August, we introduced Cloud Paks, cloud-native software that brings together IBM middleware, AI, management and security and Red Hat's OpenShift platform. As we look forward, the largest hybrid cloud opportunity is in services: advising clients on architectural choices, moving workloads, building new applications and managing those applications. With GBS and GTS expertise in digital reinventions and managing mission-critical workloads, we are well positioned to help our

clients on this journey. We brought additional new innovations to the market in 2019 including: the financial services public cloud, z15 and high-end storage and we have a leadership position in quantum computing. With these innovations, we built momentum for growth in 2020.

At the time of our fourth-quarter earnings report, analysts' estimates of our revenue growth were approximately 3 percent for 2020, which we stated was reasonable. This includes about a 1 point impact from businesses divested in 2019, and January 17, 2020 expectations for currency translation. This also includes an expectation of an improving trend in GTS, predominantly in the second half of 2020. We also expect to expand GAAP and operating (non-GAAP) gross margins and pre-tax income will include impacts from significant structural actions in 2020, primarily in our GTS business as we shift toward a more asset-based model to create a more competitive, flexible structure.

At constant currency, we expect accelerated growth of about 0.5 points from the fourth-quarter 2019 revenue growth rates to first-quarter 2020. At January 17, 2020 spot rates, we expect currency to be a headwind to first-quarter revenue growth of about 1.0 to 1.5 points, as compared to a headwind of 0.6 points in the fourth quarter of 2019.

Consistent with the acquisition of a highly profitable software business, non-cash purchase accounting adjustments resulted in the Red Hat acquisition being dilutive to full-year 2019 earnings per share. In an acquisition, U.S. GAAP requires a company to record all assets acquired and liabilities assumed at the acquisition date fair value. This includes the acquired deferred revenue balance. This resulted in a non-cash adjustment of \$2.2 billion to the acquired deferred revenue balance and resulted in a reduction to reported revenue post-closing. The level of adjustment reflects the high margin profile of Red Hat's subscription-based business. While there will be continued impact in 2020 from the deferred revenue adjustment from the Red Hat purchase accounting, it will largely be in the first half and lessen throughout the year.

Overall, we expect GAAP earnings per share from continuing operations for 2020 to be at least \$10.57. Excluding acquisition-related charges of \$1.70 per share, non-operating retirement-related items of \$1.02 per share and tax reform enactment impacts of \$0.06 per share, operating (non-GAAP) earnings per share is expected to be at least \$13.35. For the first quarter of 2020, we expect GAAP earnings per share from continuing operations to be 12 to 13 percent of the full-year expectation and operating (non-GAAP) earnings per share to be approximately 14 to 15 percent of the respective full-year expectation. This reflects typical seasonality of IBM's operations, and the impact of the Red Hat deferred revenue purchase accounting adjustment.

We expect free cash flow to be approximately \$12.5 billion in 2020. This includes contribution from Red Hat combined with incremental software and services synergy profits and net of incremental interest to finance the transaction and other acquisition-related charges. Free cash flow expectations reflect expected operational profit performance, partially offset by headwinds in capital expenditures and cash tax.

For full-year 2020, we expect the GAAP effective tax rate to be approximately 3 to 6 percent, including an estimate for potential discrete tax events (discretes). We expect the operating (non-GAAP) tax rate for 2020 to be approximately 7 to 9 percent, including an estimate of potential discretes. We expect a discrete tax benefit in the first quarter of 2020. Together with the expected structural actions described above, we anticipate that these two items will be approximately neutral to the first-quarter and full-year 2020 earnings per share. Discretes by their nature are difficult to estimate and the actual impacts will be recorded as the discrete events occur. The rates will change year to year based on discrete tax events, such as the settlement of income tax audits and changes in tax laws, as well as recurring factors including the geographic mix of income before taxes, state and local taxes and the effects of various global income tax strategies. The GAAP effective tax rate could also be affected by adjustments to the previously recorded charges for U.S. tax reform attributable to any changes in law, new regulations and guidance, audit adjustments, among others.

The Red Hat acquisition was funded through a combination of cash and debt, with the incremental debt issued in the first half of 2019. We will continue with a disciplined financial policy and are committed to maintaining strong investment-grade credit ratings. Since the end of the second quarter of 2019, we reduced our debt balance by \$10.1 billion. We are continuing to target a leverage profile consistent with a mid to high single A credit rating within a couple years, while maintaining our solid and growing dividend. We suspended our share repurchase program at the close of the acquisition to direct our free cash flow towards reducing debt levels. The combination of these actions provides us with the flexibility to invest in the business going forward.

Beginning in the second quarter of 2019 and continuing throughout the year, IBM's Global Financing business wound down the portion of its commercial financing operations which provides short-term working capital solutions for OEM information technology suppliers, distributors and resellers. This was consistent with our capital allocation strategy and high-value focus. IBM Global Financing will continue to provide differentiated end-to-end financing solutions, including commercial financing in support of IBM partner relationships.

We expect 2020 pre-tax retirement-related plan cost to be approximately \$2.7 billion, an increase of approximately \$600 million compared to 2019. This estimate reflects current pension plan assumptions at December 31, 2019. Within total retirement-related plan cost, operating retirement-related plan cost is expected to be approximately \$1.5 billion, approximately flat versus 2019. Non-operating retirement-related plan cost is expected to be approximately \$1.2 billion, an increase of approximately \$600 million compared to 2019, primarily driven by lower income from expected return on assets. Contributions for all retirement-related plans are expected to be approximately \$2.3 billion in 2020, an increase of approximately \$100 million compared to 2019.

Liquidity and Capital Resources

The company has consistently generated strong cash flow from operations, providing a source of funds ranging between \$14.8 billion and \$16.7 billion per year over the past three years. The company provides for additional liquidity through several sources: maintaining an adequate cash balance, access to

Management Discussion

International Business Machines Corporation and Subsidiary Companies

global funding sources, committed global credit facilities and other committed and uncommitted lines of credit worldwide. The following table provides a summary of the major sources of liquidity for the years ended December 31, 2017 through 2019.

Cash Flow and Liquidity Trends

(\$ in billions)	2019	2018	2017
Net cash from operating activities	\$14.8	\$15.2	\$16.7
Cash, restricted cash and short-term marketable securities	\$ 9.0	\$12.2	\$12.8
Committed global credit facilities	\$15.3	\$15.3	\$15.3

On July 9, 2019, we closed the acquisition of Red Hat for cash consideration of \$34.8 billion. The transaction was funded through a combination of cash on hand and proceeds from debt issuances. In order to reduce this debt and return to target leverage ratios within a couple of years, we suspended our share repurchase program at the time of the Red Hat acquisition closing. In the second half of 2019, we reduced debt levels by \$10.1 billion. Refer to note P, "Borrowings," for additional details of financing this transaction.

The indenture governing our debt securities and our various credit facilities each contain significant covenants which obligate the company to promptly pay principal and interest, limit the aggregate amount of secured indebtedness and sale and leaseback transactions to 10 percent of IBM's consolidated net tangible assets, and restrict our ability to merge or consolidate unless certain conditions are met. The credit facilities also include a covenant on our consolidated net interest expense ratio, which cannot be less than 2.20 to 1.0, as well as a cross default provision with respect to other defaulted indebtedness of at least \$500 million.

We are in compliance with all of our significant debt covenants and provide periodic certification to our lenders. The failure to comply with debt covenants could constitute an event of default with respect to our debt to which such provisions apply. If certain events of default were to occur, the principal and interest on the debt to which such event of default applied would become immediately due and payable.

We do not have "ratings trigger" provisions in our debt covenants or documentation, which would allow the holders to declare an event of default and seek to accelerate payments thereunder in the event of a change in credit rating. Our contractual agreements governing derivative instruments contain standard market clauses which can trigger the termination of the agreement if IBM's credit rating were to fall below investment grade. At December 31, 2019, the fair value of those instruments that were in a liability position was \$673 million, before any applicable netting, and this position is subject to fluctuations in fair value period to period based on the level of the company's outstanding instruments and market conditions. We have no other contractual arrangements that, in the event of a change in credit rating, would result in a material adverse effect on our financial position or liquidity.

The major ratings agencies ratings on our debt securities at December 31, 2019 were as follows:

IBM and IBM Credit Ratings	Standard and Poor's	Moody's Investors Service
Senior long-term debt	A	A2
Commercial paper	A-1	Prime-1

After closing the Red Hat transaction, Moody's, as expected, downgraded IBM and IBM Credit LLC's long-term debt rating from A1 to A2 and improved its outlook to stable. We deleveraged during the second half of 2019 and remain committed to a target leverage profile consistent with a mid to high single A credit rating within a couple of years.

In July 2017, the UK's Financial Conduct Authority, which regulates the London Interbank Offered Rate (LIBOR), announced that it intends to phase out LIBOR by the end of 2021. Various central bank committees and working groups continue to discuss replacement of benchmark rates, the process for amending existing LIBOR-based contracts, and the potential economic impacts of different alternatives. The Alternative Reference Rates Committee has identified the Secured Overnight Financing Rate (SOFR) as its preferred alternative rate for USD LIBOR. SOFR is a measure of the cost of borrowing cash overnight, collateralized by U.S. Treasury securities, and is based on directly observable U.S. Treasury-backed repurchase transactions. We are evaluating the potential impact of the replacement of the LIBOR benchmark interest rate, including risk management, internal operational readiness and monitoring the FASB standard-setting process to address financial reporting issues that might arise in connection with transition from LIBOR to a new benchmark rate.

We prepare our Consolidated Statement of Cash Flows in accordance with applicable accounting standards for cash flow presentation on page 71 and highlight causes and events underlying sources and uses of cash in that format on page 45. For the purpose of running its business, IBM manages, monitors and analyzes cash flows in a different format.

Management uses free cash flow as a measure to evaluate its operating results, plan share repurchase levels, strategic investments and assess its ability and need to incur and service debt. The entire free cash flow amount is not necessarily available for discretionary expenditures. We define free cash flow as net cash from operating activities less the change in Global Financing receivables and net capital expenditures, including the investment in software. A key objective of the Global Financing business is to generate strong returns on equity, and increasing receivables is the basis for growth. Accordingly, management considers Global Financing receivables as a profit-generating investment, not as working capital that should be minimized for efficiency. Therefore, management includes presentations of both free cash flow and net cash from operating activities that exclude the effect of Global Financing receivables. Free cash flow guidance is derived using an estimate of profit, working capital and operational cash flows. Since we view Global Financing receivables as a profit-generating investment which we seek to maximize, it is not considered when formulating guidance for free cash flow. As a result, we do not estimate a GAAP Net Cash from Operations expectation metric.

From the perspective of how management views cash flow, in 2019, after investing \$2.4 billion in capital investments primarily in support of the services and cloud-based businesses, we generated free cash flow of \$11.9 billion which was essentially flat compared to 2018. Year to year, there were lower capital expenditures, offset by higher cash income tax and interest payments and lower operating cash flows from businesses divested in 2019. In 2019, we continued to return value to shareholders including \$5.7 billion in dividends and \$1.4 billion in gross common stock repurchases.

Over the past three years, we generated over \$36 billion in free cash flow. During that period, we invested over \$33 billion in strategic acquisitions and returned over \$27 billion to

shareholders through dividends and gross share repurchases. The amount of prospective returns to shareholders in the form of dividends and share repurchases will vary based upon several factors including each year's operating results, capital expenditure requirements, research and development investments and acquisitions, as well as the factors discussed below. In order to continue to deleverage, we suspended our share repurchase program at the time of closing the Red Hat acquisition.

IBM's Board of Directors considers the dividend payment on a quarterly basis. In the second quarter of 2019, the Board of Directors increased the company's quarterly common stock dividend from \$1.57 to \$1.62 per share.

The table below represents the way in which management reviews cash flow as described above.

(\$ in billions)	2019	2018	2017
For the year ended December 31:			
Net cash from operating activities per GAAP	\$ 14.8	\$15.2	\$16.7
Less: the change in Global Financing receivables	0.5	(0.3)	0.4
Net cash from operating activities, excluding Global Financing receivables	14.3	15.6	16.3
Capital expenditures, net	(2.4)	(3.7)	(3.3)
Free cash flow (FCF)	11.9	11.9	13.0
Acquisitions	(32.6)	(0.1)	(0.5)
Divestitures	1.1	—	(0.2)
Share repurchase	(1.4)	(4.4)	(4.3)
Common stock repurchases for tax withholdings	(0.3)	(0.2)	(0.2)
Dividends	(5.7)	(5.7)	(5.5)
Non-Global Financing debt	22.8	(0.5)	1.1
Other (includes Global Financing receivables and Global Financing debt)	1.0	(1.6)	0.8
Change in cash, cash equivalents, restricted cash and short-term marketable securities	\$ (3.2)	\$ (0.6)	\$ 4.1
FCF as percent of Income from Continuing Operations	126%	136%*	226%*

* 111% in 2018 excluding charges of \$2.0 billion and 116% in 2017 excluding the charge of \$5.5 billion associated with the enactment of U.S. tax reform.

Events that could temporarily change the historical cash flow dynamics discussed previously include significant changes in operating results, material changes in geographic sources of cash, unexpected adverse impacts from litigation, future pension funding requirements during periods of severe downturn in the capital markets or the timing of tax payments. Whether any litigation has such an adverse impact will depend on a number of variables, which are more completely described in note R, "Commitments & Contingencies." With respect to pension funding, in 2019, we contributed \$274 million to our non-U.S. defined benefit plans compared to \$363 million in 2018. As highlighted in the Contractual Obligations table, we expect to make legally mandated pension plan contributions to certain non-U.S. plans of approximately \$1.5 billion in the next five years. The 2020 contributions are currently expected to be approximately \$300 million. Contributions related to all retirement-related plans are expected to be approximately \$2.3 billion in 2020, an increase

of approximately \$100 million compared to 2019. Financial market performance could increase the legally mandated minimum contributions in certain non-U.S. countries that require more frequent remeasurement of the funded status. We are not quantifying any further impact from pension funding because it is not possible to predict future movements in the capital markets or pension plan funding regulations.

In 2020, we are not legally required to make any contributions to the U.S. defined benefit pension plans.

Our cash flows are sufficient to fund our current operations and obligations, including investing and financing activities such as dividends and debt service. When additional requirements arise, we have several liquidity options available. These options may include the ability to borrow additional funds at reasonable interest rates and utilizing our committed global credit facilities.

Contractual Obligations

(\$ in millions)

	Total Contractual Payment Stream	Payments Due In			
		2020	2021–22	2023–24	After 2024
Long-term debt obligations	\$62,003	\$ 7,474	\$16,910	\$11,648	\$25,971
Interest on long-term debt obligations	16,299	1,703	2,753	2,121	9,722
Finance lease obligations*	204	52	91	32	29
Operating lease obligations*	5,605	1,486	2,126	1,187	806
Purchase obligations	4,952	1,379	1,832	1,530	211
Other long-term liabilities:					
Minimum defined benefit plan pension funding (mandated)**	1,500	300	600	600	
Excess 401(k) Plus Plan	1,734	213	471	531	519
Long-term termination benefits	972	214	138	108	512
Tax reserves ⁺	4,582	236			
Other	951	385	218	72	276
Total	\$98,801	\$13,442	\$25,139	\$17,829	\$38,046

* Finance lease obligations are presented on a discounted cash flow basis, whereas operating lease obligations are presented on an undiscounted cash flow basis.

**As funded status on plans will vary, obligations for mandated minimum pension payments after 2024 could not be reasonably estimated.

+ These amounts represent the liability for unrecognized tax benefits. We estimate that approximately \$236 million of the liability is expected to be settled within the next 12 months. The settlement period for the noncurrent portion of the income tax liability cannot be reasonably estimated as the timing of the payments will depend on the progress of tax examinations with the various tax authorities; however, it is not expected to be due within the next 12 months.

Certain contractual obligations reported in the previous table exclude the effects of time value and therefore, may not equal the amounts reported in the Consolidated Balance Sheet. Certain noncurrent liabilities are excluded from the previous table as their future cash outflows are uncertain. This includes deferred taxes, derivatives, deferred income, disability benefits and other sundry items. Certain obligations related to our divestitures are included.

Purchase obligations include all commitments to purchase goods or services of either a fixed or minimum quantity that meet any of the following criteria: (1) they are noncancelable, (2) we would incur a penalty if the agreement was canceled, or (3) we must make specified minimum payments even if we do not take delivery of the contracted products or services (take-or-pay). If the obligation to purchase goods or services is noncancelable, the entire value of the contract is included in the previous table. If the obligation is cancelable, but we would incur a penalty if canceled, the dollar amount of the penalty is included as a purchase obligation. Contracted minimum amounts specified in take-or-pay contracts are also included in the table as they represent the portion of each contract that is a firm commitment.

In the ordinary course of business, we enter into contracts that specify that we will purchase all or a portion of our requirements of a specific product, commodity or service from a supplier or vendor. These contracts are generally entered into in order to secure pricing or other negotiated terms. They do not specify fixed or minimum quantities to be purchased and, therefore, we do not consider them to be purchase obligations.

Interest on floating-rate debt obligations is calculated using the effective interest rate at December 31, 2019, plus the interest rate spread associated with that debt, if any.

Off-Balance Sheet Arrangements

From time to time, we may enter into off-balance sheet arrangements as defined by SEC Financial Reporting Release 67 (FRR-67), "Disclosure in Management's Discussion and Analysis about Off-Balance Sheet Arrangements and Aggregate Contractual Obligations."

At December 31, 2019, we had no such off-balance sheet arrangements that have, or are reasonably likely to have, a material current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources. See the table above for our contractual obligations, and note R, "Commitments & Contingencies," for detailed information about our guarantees, financial commitments and indemnification arrangements. We do not have retained interests in assets transferred to unconsolidated entities or other material off-balance sheet interests or instruments.

Critical Accounting Estimates

The application of GAAP requires IBM to make estimates and assumptions about certain items and future events that directly affect its reported financial condition. The accounting estimates and assumptions discussed in this section are those that we consider to be the most critical to our financial statements. An accounting estimate is considered critical if both (a) the nature of the estimate or assumption is material due to the levels of subjectivity and judgment involved, and (b) the impact within a reasonable range of outcomes of the estimate and assumption is material to IBM's financial condition. Senior management has discussed the development, selection and disclosure of these estimates with the Audit Committee of IBM's Board of Directors. Our significant accounting policies are described in note A, "Significant Accounting Policies."

A quantitative sensitivity analysis is provided where that information is reasonably available, can be reliably estimated and provides material information to investors. The amounts used to

assess sensitivity (e.g., 1 percent, 10 percent, etc.) are included to allow users of the Annual Report to understand a general direction cause and effect of changes in the estimates and do not represent management's predictions of variability. For all of these estimates, it should be noted that future events rarely develop exactly as forecasted, and estimates require regular review and adjustment.

Pension Assumptions

For our defined benefit pension plans, the measurement of the benefit obligation to plan participants and net periodic pension (income)/cost requires the use of certain assumptions, including, among others, estimates of discount rates and expected return on plan assets.

Changes in the discount rate assumptions would impact the (gain)/loss amortization and interest cost components of the net periodic pension (income)/cost calculation and the projected benefit obligation (PBO). The discount rate assumption for the IBM Personal Pension Plan (PPP), a U.S.-based defined benefit plan, decreased by 100 basis points to 3.10 percent on December 31, 2019. This change will increase pre-tax income recognized in 2020 by an estimated \$31 million. If the discount rate assumption for the PPP had increased by 100 basis points on December 31, 2019, pre-tax income recognized in 2020 would decrease by an estimated \$16 million. Further changes in the discount rate assumptions would impact the PBO which, in turn, may impact our funding decisions if the PBO exceeds plan assets. A 25 basis point increase or decrease in the discount rate would cause a corresponding decrease or increase, respectively, in the PPP's PBO of an estimated \$1.2 billion based upon December 31, 2019 data.

The expected long-term return on plan assets assumption is used in calculating the net periodic pension (income)/cost. Expected returns on plan assets are calculated based on the market-related value of plan assets, which recognizes changes in the fair value of plan assets systematically over a five-year period in the expected return on plan assets line in net periodic pension (income)/cost. The differences between the actual return on plan assets and the expected long-term return on plan assets are recognized over five years in the expected return on plan assets line in net periodic pension (income)/cost and also as a component of actuarial (gains)/losses, which are recognized over the service lives or life expectancy of the participants, depending on the plan, provided such amounts exceed thresholds which are based upon the benefit obligation or the value of plan assets, as provided by accounting standards.

To the extent the outlook for long-term returns changes such that management changes its expected long-term return on plan assets assumption, each 50 basis point increase or decrease in the expected long-term return on PPP plan assets assumption would have an estimated decrease or increase, respectively, of \$241 million on the following year's pre-tax net periodic pension (income)/cost (based upon the PPP's plan assets at December 31, 2019 and assuming no contributions are made in 2020).

We may voluntarily make contributions or be required, by law, to make contributions to our pension plans. Actual results that differ from the estimates may result in more or less future IBM funding into the pension plans than is planned by management. Impacts of these types of changes on our pension plans in other countries worldwide would vary depending upon the status of each respective plan.

In addition to the above, we evaluate other pension assumptions involving demographic factors, such as retirement age and mortality, and update these assumptions to reflect experience and expectations for the future. Actual results in any given year can differ from actuarial assumptions because of economic and other factors.

For additional information on our pension plans and the development of these assumptions, see note V, "Retirement-Related Benefits."

Revenue Recognition

Application of GAAP related to the measurement and recognition of revenue requires us to make judgments and estimates. Specifically, complex arrangements with nonstandard terms and conditions may require significant contract interpretation to determine the appropriate accounting, including whether promised goods and services specified in an arrangement are distinct performance obligations. Other significant judgments include determining whether IBM or a reseller is acting as the principal in a transaction and whether separate contracts should be combined and considered part of one arrangement.

Revenue recognition is also impacted by our ability to determine when a contract is probable of collection and to estimate variable consideration, including, for example, rebates, volume discounts, service-level penalties, and performance bonuses. We consider various factors when making these judgments, including a review of specific transactions, historical experience and market and economic conditions. Evaluations are conducted each quarter to assess the adequacy of the estimates. If the estimates were changed by 10 percent in 2019, the impact on net income would have been immaterial.

Costs to Complete Service Contracts

We enter into numerous service contracts through our services businesses. During the contractual period, revenue, cost and profits may be impacted by estimates of the ultimate profitability of each contract, especially contracts for which we use cost-to-cost measures of progress. If at any time these estimates indicate the contract will be unprofitable, the entire estimated loss for the remainder of the contract is recorded immediately in cost. We perform ongoing profitability analyses of these services contracts in order to determine whether the latest estimates require updating. Key factors reviewed to estimate the future costs to complete each contract are future labor costs and product costs and expected productivity efficiencies. Contract loss provisions recorded as a component of other accrued expenses and liabilities were immaterial at December 31, 2019 and 2018.

Income Taxes

We are subject to income taxes in the U.S. and numerous foreign jurisdictions. Significant judgments are required in determining the consolidated provision for income taxes.

During the ordinary course of business, there are many transactions and calculations for which the ultimate tax determination is uncertain. As a result, we recognize tax liabilities based on estimates of whether additional taxes and interest will be due. These tax liabilities are recognized when, despite our belief that our tax return positions are supportable, we believe that certain positions may not be fully sustained upon review by tax authorities. We believe that our accruals for tax liabilities are

Management Discussion

International Business Machines Corporation and Subsidiary Companies

adequate for all open audit years based on our assessment of many factors, including past experience and interpretations of tax law. This assessment relies on estimates and assumptions and may involve a series of complex judgments about future events. To the extent that new information becomes available which causes us to change our judgment regarding the adequacy of existing tax liabilities, such changes to tax liabilities will impact income tax expense in the period in which such determination is made.

Significant judgment is also required in determining any valuation allowance recorded against deferred tax assets. In assessing the need for a valuation allowance, management considers all available evidence for each jurisdiction including past operating results, estimates of future taxable income and the feasibility of ongoing tax planning strategies/actions. In the event that we change our determination as to the amount of deferred tax assets that can be realized, we will adjust the valuation allowance with a corresponding impact to income tax expense in the period in which such determination is made.

The consolidated provision for income taxes will change period to period based on nonrecurring events, such as the settlement of income tax audits and changes in tax laws, as well as recurring factors including the geographic mix of income before taxes, state and local taxes and the effects of various global income tax strategies.

To the extent that the provision for income taxes increases/decreases by 1 percent of income from continuing operations before income taxes, consolidated net income would have decreased/improved by \$102 million in 2019.

Valuation of Assets

The application of business combination and impairment accounting requires the use of significant estimates and assumptions. The acquisition method of accounting for business combinations requires us to estimate the fair value of assets acquired including separately identifiable intangible assets, liabilities assumed, and any noncontrolling interest in the acquiree to properly allocate purchase price consideration. Impairment testing for assets, other than goodwill, requires the allocation of cash flows to those assets or group of assets and if required, an estimate of fair value for the assets or group of assets. Our estimates are based upon assumptions believed to be reasonable, but which are inherently uncertain and unpredictable. These valuations require the use of management's assumptions, which would not reflect unanticipated events and circumstances that may occur.

Valuation of Goodwill

We review goodwill for impairment annually and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable. In 2019, we assessed the qualitative risk factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount.

We assess qualitative factors in each of our reporting units that carry goodwill including relevant events and circumstances that affect the fair value of reporting units. Examples include, but are

not limited to, macroeconomic, industry and market conditions, as well as other individual factors such as:

- A loss of key personnel;
- A significant adverse shift in the operating environment of the reporting unit such as unanticipated competition;
- A significant pending litigation;
- A more likely than not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of; and
- An adverse action or assessment by a regulator.

We assess these qualitative factors to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. This quantitative test is required only if we conclude that it is more likely than not that a reporting unit's fair value is less than its carrying amount. Given our segment changes and the significant acquisition of Red Hat, we performed the quantitative Step 1 tests of goodwill impairment for all affected reporting units in 2019. After performing the annual goodwill impairment qualitative analysis during the fourth quarter of 2019, only the Systems reporting unit required quantitative review as a result of the qualitative analysis. The qualitative assessment indicated a potential impairment triggering event as a result of the financial performance of the Systems reporting unit. The quantitative analysis resulted in no impairment as the estimated fair value of the Systems reporting unit, which had goodwill of \$2.3 billion as of December 31, 2019, exceeded its carrying amount by approximately 30 percent.

Our quantitative impairment testing did not indicate any goodwill impairment, and all of the other reporting units with goodwill had a fair value that was substantially in excess of its carrying value.

Loss Contingencies

We are currently involved in various claims and legal proceedings. At least quarterly, we review the status of each significant matter and assess our potential financial exposure. If the potential loss from any claim or legal proceeding is considered probable and the amount can be reasonably estimated, we accrue a liability for the estimated loss. Significant judgment is required in both the determination of probability and the determination as to whether an exposure is reasonably estimable. Because of uncertainties related to these matters, accruals are based only on the best information available at the time. As additional information becomes available, we reassess the potential liability related to our pending claims and litigation, and may revise our estimates. These revisions in the estimates of the potential liabilities could have a material impact on our results of operations and financial position.

Global Financing Receivables Allowance for Credit Losses

The Global Financing business reviews its financing receivables portfolio on a regular basis in order to assess collectibility and records adjustments to the allowance for credit losses at least quarterly. A description of the methods used by management to estimate the amount of uncollectible receivables is included in note A, "Significant Accounting Policies." Factors that could result in actual receivable losses that are materially different from the estimated reserve include significant changes in the economy, or a sudden change in the economic health of a significant client that represents a concentration in Global Financing's receivables portfolio.

To the extent that actual collectibility differs from management's estimates currently provided for by 10 percent, Global Financing's segment pre-tax income and our income from continuing operations before income taxes would be higher or lower by an estimated \$22 million depending upon whether the actual collectibility was better or worse, respectively, than the estimates.

Residual Value

Residual value represents the estimated fair value of equipment under lease as of the end of the lease. Residual value estimates can impact the determination of whether a lease is classified as operating, sales-type or direct financing. Global Financing estimates the future fair value of leased equipment by using historical models, analyzing the current market for new and used equipment, and obtaining forward-looking product information such as marketing plans and technological innovations. Residual value estimates are periodically reviewed and "other than temporary" declines in estimated future residual values are recognized upon identification. Anticipated increases in future residual values are not recognized until the equipment is remarketed.

Factors that could cause actual results to materially differ from the estimates include significant changes in the used-equipment market brought on by unforeseen changes in technology innovations and any resulting changes in the useful lives of used equipment.

To the extent that actual residual value recovery is lower than management's estimates by 10 percent, Global Financing's segment pre-tax income and our income from continuing operations before income taxes for 2019 would have been lower by an estimated \$73 million. If the actual residual value recovery is higher than management's estimates, the increase in income will be realized at the end of lease when the equipment is remarketed.

Currency Rate Fluctuations

Changes in the relative values of non-U.S. currencies to the U.S. dollar affect our financial results and financial position. At December 31, 2019, currency changes resulted in assets and liabilities denominated in local currencies being translated into fewer dollars than at year-end 2018. We use financial hedging instruments to limit specific currency risks related to financing transactions and other foreign currency-based transactions.

During periods of sustained movements in currency, the marketplace and competition adjust to the changing rates. For example, when pricing offerings in the marketplace, we may use some of the advantage from a weakening U.S. dollar to improve our position competitively, and price more aggressively to win the business, essentially passing on a portion of the currency advantage to our customers. Competition will frequently take the same action. Consequently, we believe that some of the currency-based changes in cost impact the prices charged to clients. We also maintain currency hedging programs for cash management purposes which may temporarily mitigate, but not eliminate, the volatility of currency impacts on our financial results.

We translate revenue, cost and expense in our non-U.S. operations at current exchange rates in the reported period. References to "adjusted for currency" or "constant currency" reflect adjustments based upon a simple mathematical formula. However, this constant currency methodology that we utilize to disclose this information does not incorporate any operational actions that management could take to mitigate fluctuating currency rates. Currency movements impacted our year-to-year revenue and

earnings per share growth in 2019. Based on the currency rate movements in 2019, total revenue decreased 3.1 percent as reported and 1.0 percent at constant currency versus 2018. On an income from continuing operations before income taxes basis, these translation impacts offset by the net impact of hedging activities resulted in a theoretical maximum (assuming no pricing or sourcing actions) increase of approximately \$300 million in 2019 on an as-reported basis and an increase of approximately \$260 million on an operating (non-GAAP) basis. The same mathematical exercise resulted in an increase of approximately \$300 million in 2018, on both an as-reported basis and operating (non-GAAP) basis. We view these amounts as a theoretical maximum impact to our as-reported financial results. Considering the operational responses mentioned above, movements of exchange rates, and the nature and timing of hedging instruments, it is difficult to predict future currency impacts on any particular period, but we believe it could be substantially less than the theoretical maximum given the competitive pressure in the marketplace.

For non-U.S. subsidiaries and branches that operate in U.S. dollars or whose economic environment is highly inflationary, translation adjustments are reflected in results of operations. Generally, we manage currency risk in these entities by linking prices and contracts to U.S. dollars.

During 2018, the three-year cumulative inflation rates in Argentina, using a combination of monthly indices, exceeded the 100 percent threshold for hyperinflation. As a result, effective July 1, 2018, the company changed the functional currency from local currency to U.S. dollar functional for Argentina with no material impact. In 2019, the Argentinean economy continued to experience high inflation. The ongoing impact is not material given the size of the company's operations in the country (less than 1 percent of total 2019 and 2018 revenue, respectively).

Market Risk

In the normal course of business, our financial position is routinely subject to a variety of risks. In addition to the market risk associated with interest rate and currency movements on outstanding debt and non-U.S. dollar denominated assets and liabilities, other examples of risk include collectibility of accounts receivable and recoverability of residual values on leased assets.

We regularly assess these risks and have established policies and business practices to protect against the adverse effects of these and other potential exposures. As a result, we do not anticipate any material losses from these risks.

Our debt, in support of the Global Financing business and the geographic breadth of our operations, contains an element of market risk from changes in interest and currency rates. We manage this risk, in part, through the use of a variety of financial instruments including derivatives, as described in note T, "Derivative Financial Instruments."

To meet disclosure requirements, we perform a sensitivity analysis to determine the effects that market risk exposures may have on the fair values of our debt and other financial instruments.

The financial instruments that are included in the sensitivity analysis are comprised of our cash and cash equivalents, marketable securities, short-term and long-term loans, commercial financing and installment payment receivables, investments, long-term and short-term debt and derivative financial instruments. Our

Management Discussion

International Business Machines Corporation and Subsidiary Companies

derivative financial instruments generally include interest rate swaps, foreign currency swaps and forward contracts.

To perform the sensitivity analysis, we assess the risk of loss in fair values from the effect of hypothetical changes in interest rates and foreign currency exchange rates on market-sensitive instruments. The market values for interest and foreign currency exchange risk are computed based on the present value of future cash flows as affected by the changes in rates that are attributable to the market risk being measured. The discount rates used for the present value computations were selected based on market interest and foreign currency exchange rates in effect at December 31, 2019 and 2018. The differences in this comparison are the hypothetical gains or losses associated with each type of risk.

Information provided by the sensitivity analysis does not necessarily represent the actual changes in fair value that we would incur under normal market conditions because, due to practical limitations, all variables other than the specific market risk factor are held constant. In addition, the results of the model are constrained by the fact that certain items are specifically excluded from the analysis, while the financial instruments relating to the financing or hedging of those items are included by definition. Excluded items include short-term and long-term receivables from sales-type and direct financing leases, forecasted foreign currency cash flows and the company's net investment in foreign operations. As a consequence, reported changes in the values of some of the financial instruments impacting the results of the sensitivity analysis are not matched with the offsetting changes in the values of the items that those instruments are designed to finance or hedge.

The results of the sensitivity analysis at December 31, 2019 and 2018, are as follows:

Interest Rate Risk

A 10 percent decrease in the levels of interest rates with all other variables held constant would result in a decrease in the fair value of our financial instruments of \$563 million and \$422 million at December 31, 2019 and 2018, respectively. A 10 percent increase in the levels of interest rates with all other variables held constant would result in an increase in the fair value of our financial instruments of \$546 million and \$408 million at December 31, 2019 and 2018, respectively. Changes in the relative sensitivity of the fair value of our financial instrument portfolio for these theoretical changes in the level of interest rates are primarily driven by changes in debt maturities, interest rate profile and amount.

Foreign Currency Exchange Rate Risk

At December 31, 2019, a 10 percent weaker U.S. dollar against foreign currencies, with all other variables held constant, would result in a decrease in the fair value of our financial instruments of \$616 million as compared to an increase of \$697 million at December 31, 2018. At December 31, 2019, a 10 percent stronger U.S. dollar against foreign currencies, with all other variables held constant, would result in an increase in the fair value of our financial instruments of \$616 million as compared to a decrease of \$697 million at December 31, 2018.

Financing Risks

See the "Description of Business" on page 33 for a discussion of the financing risks associated with the Global Financing business and management's actions to mitigate such risks.

Cybersecurity

While cybersecurity risk can never be completely eliminated, our approach draws on the depth and breadth of our global capabilities, both in terms of our offerings to clients and our internal approaches to risk management. We offer commercial security solutions that deliver capabilities in areas such as identity and access management, data security, application security, network security and endpoint security. These solutions include pervasive encryption, threat intelligence, analytics, cognitive and artificial intelligence, and forensic capabilities that analyze client security events, yielding insights about attacks, threats, and vulnerabilities facing the client. We also offer professional consulting and technical services solutions for security from assessment and incident response to deployment and resource augmentation. In addition, we offer managed and outsourced security solutions from multiple security operations centers around the world. Finally, security is embedded in a multitude of our products and offerings through secure engineering and operations, and by critical functions (e.g., encryption, access control) in servers, storage, software, services, and other solutions.

From an enterprise perspective, we implement a multi-faceted risk-management approach based on the National Institute of Standards and Technology Cybersecurity Framework to identify and address cybersecurity risks. In addition, we have established policies and procedures that provide the foundation upon which IBM's infrastructure and data are managed. We regularly assess and adjust our technical controls and methods to identify and mitigate emerging cybersecurity risks. We use a layered approach with overlapping controls to defend against cybersecurity attacks and threats on networks, end-user devices, servers, applications, data and cloud solutions. We draw heavily on our own commercial security solutions and services to mitigate cybersecurity risks. We also have threat intelligence and security monitoring programs, as well as a global incident response process to respond to cybersecurity threats and attacks. In addition, we utilize a combination of online training, educational tools, videos and other awareness initiatives to foster a culture of security awareness and responsibility among our workforce.

Employees and Related Workforce

(In thousands)

For the year ended December 31:	2019
IBM/wholly owned subsidiaries	352.6
Less-than-wholly owned subsidiaries	9.6
Complementary	21.6

As a globally integrated enterprise, IBM operates in more than 175 countries and is continuing to shift our business to the higher value segments of enterprise IT. We continue to remix our skills and people needs to match the best opportunities in the marketplace.

The complementary workforce is an approximation of equivalent full-time employees hired under temporary, part-time and limited-term employment arrangements to meet specific business needs in a flexible and cost-effective manner.

**Management Responsibility
for Financial Information**

Responsibility for the integrity and objectivity of the financial information presented in this Annual Report rests with IBM management. The accompanying financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America, applying certain estimates and judgments as required.

IBM maintains an effective internal control structure. It consists, in part, of organizational arrangements with clearly defined lines of responsibility and delegation of authority, and comprehensive systems and control procedures. An important element of the control environment is an ongoing internal audit program. Our system also contains self-monitoring mechanisms, and actions are taken to correct deficiencies as they are identified.

To assure the effective administration of internal controls, we carefully select and train our employees, develop and disseminate written policies and procedures, provide appropriate communication channels and foster an environment conducive to the effective functioning of controls. We believe that it is essential for the company to conduct its business affairs in accordance with the highest ethical standards, as set forth in the IBM Business Conduct Guidelines. These guidelines, translated into numerous languages, are distributed to employees throughout the world, and reemphasized through internal programs to assure that they are understood and followed.

The Audit Committee of the Board of Directors is composed solely of independent, non-management directors, and is responsible for recommending to the Board the independent registered public accounting firm to be retained for the coming year, subject to stockholder ratification. The Audit Committee meets regularly and privately with the independent registered public accounting firm, with the company's internal auditors, as well as with IBM management, to review accounting, auditing, internal control structure and financial reporting matters.

**Management's Report on Internal Control
Over Financial Reporting**

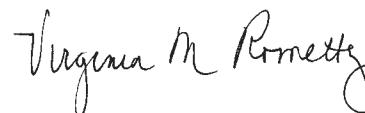
Management is responsible for establishing and maintaining adequate internal control over financial reporting of the company. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

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

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

Management conducted an evaluation of the effectiveness of internal control over financial reporting based on the criteria established in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this evaluation, management concluded that the company's internal control over financial reporting was effective as of December 31, 2019.

PricewaterhouseCoopers LLP, an independent registered public accounting firm, is retained to audit IBM's Consolidated Financial Statements and the effectiveness of the internal control over financial reporting. Its accompanying report is based on audits conducted in accordance with the standards of the Public Company Accounting Oversight Board (United States).



Virginia M. Rometty
Chairman, President and Chief Executive Officer
February 25, 2020



James J. Kavanagh
Senior Vice President and Chief Financial Officer
February 25, 2020

**To the Board of Directors and Stockholders of
 International Business Machines Corporation**

**Opinions on the Financial Statements and Internal Control
 over Financial Reporting**

We have audited the accompanying consolidated balance sheets of International Business Machines Corporation and its subsidiaries (the "Company") as of December 31, 2019 and 2018, and the related consolidated statements of income, of comprehensive income, of equity and of cash flows for each of the three years in the period ended December 31, 2019, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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

Change in Accounting Principle

As discussed in Note B to the consolidated financial statements, the Company changed the manner in which it accounts for leases in 2019.

Basis for Opinions

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

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

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

**Definition and Limitations of Internal Control over
 Financial Reporting**

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

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

Critical Audit Matters

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

Acquisition of Red Hat, Inc.—Valuation of Intangible Assets Acquired

As described in Note E to the consolidated financial statements, the Company completed its acquisition of Red Hat, Inc. for total consideration of \$35.1 billion during 2019, resulting in approximately \$13.5 billion in intangible assets and \$23.1 billion in goodwill being recorded. The intangible assets were comprised of client relationships of \$7.2 billion, completed technology of \$4.6 billion, and trademarks of \$1.7 billion. Management applied judgment in estimating the fair value of the intangible assets using a discounted cash flow model, which involved the use of significant estimates and assumptions with respect to revenue growth rates, the customer attrition rate, and discount rates.

The principal considerations for our determination that performing procedures relating to the valuation of intangible assets acquired in connection with the acquisition of Red Hat, Inc. is a critical audit matter are (i) there was a high degree of auditor judgment and subjectivity in applying procedures relating to the fair value measurement of intangible assets acquired due to the significant amount of judgment by management when developing the estimate; (ii) significant audit effort was required in evaluating the significant assumptions relating to the estimate, such as revenue growth rates, the customer attrition rate, and discount rates; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge to assist in performing these procedures and evaluating the audit evidence obtained from these procedures.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the valuation of intangible assets acquired and controls over the development of the assumptions, including the revenue growth rates, the customer attrition rate, and discount rates. These procedures also included, among others, reading the purchase agreements, and testing management's process for estimating the fair value of intangible assets, using professionals with specialized skill and knowledge to assist in doing so. Testing management's process included evaluating the appropriateness of the discounted cash flow models, testing the completeness and accuracy of data provided by management, and evaluating the reasonableness of significant assumptions, including revenue growth rates, the customer attrition rate, and discount rates. When assessing the assumptions related to revenue growth rates and the customer attrition rate, we evaluated whether the assumptions used were reasonable considering the past performance of the acquiree as well as industry data. The discount rates were evaluated by considering the cost of capital of comparable businesses and other industry factors. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of the Company's discounted cash flow models.

Income Taxes—Uncertain Tax Positions

As described in Notes A and G to the consolidated financial statements, the Company is subject to income taxes in the United States and numerous foreign jurisdictions. As disclosed by management, during the ordinary course of business there are many transactions and calculations for which the ultimate tax determination is uncertain. As a result, the Company recognizes tax liabilities based on estimates of whether additional taxes and interest will be due. As further described by management,

these tax liabilities are recognized when, despite management's belief that the tax return positions are supportable, management believes that certain positions may not be fully sustained upon review by tax authorities. Management bases its assessment of the accruals for tax liabilities on many factors, including past experience and interpretations of tax law. This assessment relies on estimates and assumptions, and may involve a series of complex judgments about future events. As of December 31, 2019, unrecognized tax benefits were \$7.1 billion.

The principal considerations for our determination that performing procedures relating to uncertain tax positions is a critical audit matter are there was significant judgment by management when estimating the tax liabilities for uncertain tax positions, including applying complex tax laws, and a high degree of estimation uncertainty based on potential for significant adjustments as a result of audits by tax authorities or other forms of tax settlement. This in turn led to a high degree of auditor judgment, effort, and subjectivity in performing procedures to evaluate the timely identification and measurement of uncertain tax positions. Also, the evaluation of audit evidence available to support the tax liabilities for uncertain tax positions is complex and required significant auditor judgment as the nature of the evidence is often inherently subjective, and the audit effort involved the use of professionals with specialized skill and knowledge to assist in evaluating the audit evidence obtained.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the identification and recognition of the liability for uncertain tax positions, and controls addressing completeness of the uncertain tax positions, as well as controls over measurement of the liability. These procedures also included, among others, (i) testing the information used in the calculation of the liability for uncertain tax positions, including intercompany agreements, international, federal, and state filing positions, and the related final tax returns; (ii) testing the calculation of the liability for uncertain tax positions by jurisdiction, including management's assessment of the technical merits of tax positions and estimates of the amount of tax benefit expected to be sustained; (iii) testing the completeness of management's assessment of both the identification of uncertain tax positions and possible outcomes of each uncertain tax position; and (iv) evaluating the status and results of income tax audits pending in various tax jurisdictions. Professionals with specialized skill and knowledge were used to assist in the evaluation of the completeness and measurement of the Company's uncertain tax positions, including evaluating the reasonableness of management's assessment of whether tax positions are more-likely-than-not of being sustained and the amount of potential benefit to be realized.



PricewaterhouseCoopers LLP

New York, New York

February 25, 2020

We, or firms that we have ultimately acquired, have served as the Company's auditor since 1923. For the period from 1923 to 1958, the Company was audited by firms that a predecessor firm to PricewaterhouseCoopers LLP ultimately acquired.

Consolidated Income Statement
 International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

For the year ended December 31:	Notes	2019	2018	2017
Revenue				
Services		\$47,493	\$49,257*	\$48,652*
Sales		28,252	28,735*	28,772*
Financing		1,402	1,599	1,715
Total revenue	C	77,147	79,591	79,139
Cost				
Services		32,491	33,687*	33,399*
Sales		7,263	7,835*	7,587*
Financing		904	1,132	1,210
Total cost		40,659	42,655	42,196
Gross profit		36,488	36,936	36,943
Expense and other (income)				
Selling, general and administrative		20,604	19,366	19,680
Research, development and engineering	F	5,989	5,379	5,590
Intellectual property and custom development income		(648)	(1,026)	(1,466)
Other (income) and expense		(968)	1,152	1,125
Interest expense	P&T	1,344	723	615
Total expense and other (income)		26,322	25,594	25,543
Income from continuing operations before income taxes		10,166	11,342	11,400
Provision for income taxes	G	731	2,619	5,642
Income from continuing operations		9,435	8,723	5,758
Income/(loss) from discontinued operations, net of tax		(4)	5	(5)
Net income		\$ 9,431	\$ 8,728	\$ 5,753
Earnings/(loss) per share of common stock				
Assuming dilution				
Continuing operations	H	\$ 10.57	\$ 9.51	\$ 6.14
Discontinued operations	H	(0.01)	0.01	0.00
Total	H	\$ 10.56	\$ 9.52	\$ 6.14
Basic				
Continuing operations	H	\$ 10.63	\$ 9.56	\$ 6.17
Discontinued operations	H	0.00	0.01	0.00
Total	H	\$ 10.63	\$ 9.57	\$ 6.17
Weighted-average number of common shares outstanding				
Assuming dilution		892,813,376	916,315,714	937,385,625
Basic		887,235,105	912,048,072	932,828,295

* Reclassified to conform to 2019 presentation. Refer to "Basis of Presentation" in note A, "Significant Accounting Policies."

Amounts may not add due to rounding.

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

Consolidated Statement of Comprehensive Income
 International Business Machines Corporation and Subsidiary Companies

69

(\$ in millions)	Notes	2019	2018	2017
For the year ended December 31:				
Net income		\$ 9,431	\$8,728	\$5,753
Other comprehensive income/(loss), before tax				
Foreign currency translation adjustments	S	(39)	(730)	152
Net changes related to available-for-sale securities	S			
Unrealized gains/(losses) arising during the period		1	(2)	1
Reclassification of (gains)/losses to net income		—	—	1
Total net changes related to available-for-sale securities	S	1	(2)	2
Unrealized gains/(losses) on cash flow hedges	S			
Unrealized gains/(losses) arising during the period		(689)	(136)	(58)
Reclassification of (gains)/losses to net income		75	449	(363)
Total unrealized gains/(losses) on cash flow hedges	S	(614)	313	(421)
Retirement-related benefit plans	S			
Prior service costs/(credits)		(73)	(182)	0
Net (losses)/gains arising during the period		(120)	(2,517)	682
Curtailments and settlements		41	11	19
Amortization of prior service (credits)/costs		(9)	(73)	(88)
Amortization of net (gains)/losses		1,843	2,966	2,889
Total retirement-related benefit plans	S	1,681	204	3,502
Other comprehensive income/(loss), before tax	S	1,029	(215)	3,235
Income tax (expense)/benefit related to items of other comprehensive income	S	(136)	(262)	(429)
Other comprehensive income/(loss)	S	893	(476)	2,806
Total comprehensive income		\$10,324	\$8,252	\$8,559

Amounts may not add due to rounding.

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

Consolidated Balance Sheet
International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

At December 31:	Notes	2019	2018
Assets			
Current assets			
Cash and cash equivalents		\$ 8,172	\$ 11,379
Restricted cash		141	225
Marketable securities	I	696	618
Notes and accounts receivable—trade (net of allowances of \$299 in 2019 and \$309 in 2018)		7,870	7,432
Short-term financing receivables (net of allowances of \$188 in 2019 and \$244 in 2018)	K	14,192	22,388
Other accounts receivable (net of allowances of \$33 in 2019 and \$38 in 2018)		1,733	743
Inventory	J	1,619	1,682
Deferred costs	C	1,896	2,300
Prepaid expenses and other current assets		2,101	2,378
Total current assets		38,420	49,146
Property, plant and equipment	L	32,028	32,460
Less: Accumulated depreciation	L	22,018	21,668
Property, plant and equipment—net	L	10,010	10,792
Operating right-of-use assets—net*	M	4,996	—
Long-term financing receivables (net of allowances of \$33 in 2019 and \$48 in 2018)	K	8,712	9,148
Prepaid pension assets	V	6,865	4,666
Deferred costs	C	2,472	2,676
Deferred taxes	G	5,182	5,216
Goodwill	N	58,222	36,265
Intangible assets—net	N	15,235	3,087
Investments and sundry assets	O	2,074	2,386
Total assets		\$ 152,186	\$ 123,382
Liabilities and equity			
Current liabilities			
Taxes	G	\$ 2,839	\$ 3,046
Short-term debt	I&P	8,797	10,207
Accounts payable		4,896	6,558
Compensation and benefits		3,406	3,310
Deferred income		12,026	11,165
Operating lease liabilities*	M	1,380	—
Other accrued expenses and liabilities		4,357	3,941
Total current liabilities		37,701	38,227
Long-term debt	I&P	54,102	35,605
Retirement and nonpension postretirement benefit obligations	V	17,142	17,002
Deferred income		3,851	3,445
Operating lease liabilities*	M	3,879	—
Other liabilities	Q	14,526	12,174
Total liabilities		131,202	106,452
Commitments and Contingencies	R		
Equity	S		
IBM stockholders' equity			
Common stock, par value \$.20 per share, and additional paid-in capital		55,895	55,151
Shares authorized: 4,687,500,000			
Shares issued (2019—2,237,996,975; 2018—2,233,427,058)			
Retained earnings		162,954	159,206
Treasury stock, at cost (shares: 2019—1,350,886,521; 2018—1,340,947,648)		(169,413)	(168,071)
Accumulated other comprehensive income/(loss)		(28,597)	(29,490)
Total IBM stockholders' equity		20,841	16,796
Noncontrolling interests	A	144	134
Total equity		20,985	16,929
Total liabilities and equity		\$ 152,186	\$ 123,382

* Reflects the adoption of the FASB guidance on leases.

Amounts may not add due to rounding.

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

Consolidated Statement of Cash Flows
 International Business Machines Corporation and Subsidiary Companies

71

(\$ in millions)	2019	2018	2017
For the year ended December 31:			
Cash flows from operating activities			
Net income	\$ 9,431	\$ 8,728	\$ 5,753
Adjustments to reconcile net income to cash provided by operating activities			
Depreciation	4,209	3,127	3,021
Amortization of intangibles	1,850	1,353	1,520
Stock-based compensation	679	510	534
Deferred taxes	(1,527)	853	(931)
Net (gain)/loss on asset sales and other	(1,096)	123	14
Change in operating assets and liabilities, net of acquisitions/divestitures			
Receivables (including financing receivables)	502	1,006	1,297
Retirement related	301	1,368	1,014
Inventory	67	(127)	18
Other assets/other liabilities	858	(1,819)	4,437
Accounts payable	(503)	126	47
Net cash provided by operating activities	14,770	15,247	16,724
Cash flows from investing activities			
Payments for property, plant and equipment	(2,286)	(3,395)	(3,229)
Proceeds from disposition of property, plant and equipment	537	248	460
Investment in software	(621)	(569)	(544)
Purchases of marketable securities and other investments	(3,693)	(7,041)	(4,949)
Proceeds from disposition of marketable securities and other investments	3,961	6,487	3,910
Non-operating finance receivables—net	6,720	(503)	(2,028)
Acquisition of businesses, net of cash acquired	(32,630)	(139)	(496)
Divestiture of businesses, net of cash transferred	1,076	—	(205)
Net cash provided by/(used in) investing activities	(26,936)	(4,913)	(7,081)
Cash flows from financing activities			
Proceeds from new debt	31,825	6,891	9,643
Payments to settle debt	(12,944)	(8,533)	(6,816)
Short-term borrowings/(repayments) less than 90 days—net	(2,597)	1,341	620
Common stock repurchases	(1,361)	(4,443)	(4,340)
Common stock repurchases for tax withholdings	(272)	(171)	(193)
Financing—other	99	111	175
Cash dividends paid	(5,707)	(5,666)	(5,506)
Net cash provided by/(used in) financing activities	9,042	(10,469)	(6,418)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(167)	(495)	937
Net change in cash, cash equivalents and restricted cash	(3,290)	(630)	4,161
Cash, cash equivalents and restricted cash at January 1	11,604	12,234	8,073
Cash, cash equivalents and restricted cash at December 31	\$ 8,314	\$ 11,604	\$12,234
Supplemental data			
Income taxes paid—net of refunds received	\$ 2,091	\$ 1,745	\$ 1,597
Interest paid on debt	\$ 1,685	\$ 1,423	\$ 1,208

Amounts may not add due to rounding.

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

Consolidated Statement of Equity

International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

	Common Stock and Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income/(Loss)	Total IBM Stockholders' Equity	Non-Controlling Interests	Total Equity
2017							
Equity, January 1, 2017	\$53,935	\$152,759	\$(159,050)	\$(29,398)	\$18,246	\$146	\$18,392
Cumulative effect of change in accounting principle*		102			102		102
Net income plus other comprehensive income/(loss)							
Net income		5,753			5,753		5,753
Other comprehensive income/(loss)				2,806	2,806		2,806
Total comprehensive income/(loss)					\$ 8,559		\$ 8,559
Cash dividends paid—common stock (\$5.90 per share)		(5,506)			(5,506)		(5,506)
Common stock issued under employee plans (4,311,998 shares)	631				631		631
Purchases (1,226,080 shares) and sales (463,083 shares) of treasury stock under employee plans—net		18	(134)		(116)		(116)
Other treasury shares purchased, not retired (27,237,179 shares)			(4,323)		(4,323)		(4,323)
Changes in other equity	0				0		0
Changes in noncontrolling interests						(15)	(15)
Equity, December 31, 2017	\$54,566	\$153,126	\$(163,507)	\$(26,592)	\$17,594	\$131	\$17,725

* Reflects the adoption of the FASB guidance on intra-entity transfers of assets.

Amounts may not add due to rounding.

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

(\$ in millions except per share amounts)

	Common Stock and Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income/(Loss)	Total IBM Stockholders' Equity	Non-Controlling Interests	Total Equity
2018							
Equity, January 1, 2018	\$54,566	\$153,126	\$(163,507)	\$(26,592)	\$17,594	\$131	\$17,725
Cumulative effect of change in accounting principle							
Revenue*		580			580		580
Stranded tax effects/other*		2,422		(2,422)			
Net income plus other comprehensive income/(loss)							
Net income		8,728			8,728		8,728
Other comprehensive income/(loss)				(476)	(476)		(476)
Total comprehensive income/(loss)					\$ 8,252		\$ 8,252
Cash dividends paid—common stock (\$6.21 per share)		(5,666)			(5,666)		(5,666)
Common stock issued under employee plans (3,998,245 shares)	585				585		585
Purchases (1,173,416 shares) and sales (424,589 shares) of treasury stock under employee plans—net		15	(117)		(103)		(103)
Other treasury shares purchased, not retired (32,949,233 shares)			(4,447)		(4,447)		(4,447)
Changes in other equity	0	0			0		0
Changes in noncontrolling interests					3		3
Equity, December 31, 2018	\$55,151	\$159,206	\$(168,071)	\$(29,490)	\$16,796	\$134	\$16,929

* Reflects the adoption of FASB guidance. Refer to note B, "Accounting Changes."

Amounts may not add due to rounding.

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

Consolidated Statement of Equity
 International Business Machines Corporation and Subsidiary Companies

73

(\$ in millions except per share amounts)

	Common Stock and Additional Paid-In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income/(Loss)	Total IBM Stockholders' Equity	Non- Controlling Interests	Total Equity
2019							
Equity, January 1, 2019	\$55,151	\$159,206	\$(168,071)	\$(29,490)	\$16,796	\$134	\$16,929
Net income plus other comprehensive income/(loss)							
Net income		9,431			9,431		9,431
Other comprehensive income/(loss)				893	893		893
Total comprehensive income/(loss)					\$10,324		\$10,324
Cash dividends paid— common stock (\$6.43 per share)		(5,707)			(5,707)		(5,707)
Common stock issued under employee plans (4,569,917 shares)	745				745		745
Purchases (2,000,704 shares) and sales (2,041,347 shares) of treasury stock under employee plans—net		30	(11)		19		19
Other treasury shares purchased, not retired (9,979,516 shares)			(1,331)		(1,331)		(1,331)
Changes in other equity		(5)			(5)		(5)
Changes in noncontrolling interests						10	10
Equity, December 31, 2019	\$55,895	\$162,954	\$(169,413)	\$(28,597)	\$20,841	\$144	\$20,985

Amounts may not add due to rounding.

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

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

NOTE A. SIGNIFICANT ACCOUNTING POLICIES

Basis of Presentation

The accompanying Consolidated Financial Statements and footnotes of the International Business Machines Corporation (IBM or the company) have been prepared in accordance with accounting principles generally accepted in the United States of America (GAAP).

Within the financial statements and tables presented, certain columns and rows may not add due to the use of rounded numbers for disclosure purposes. Percentages presented are calculated from the underlying whole-dollar amounts. Certain prior-year amounts have been reclassified to conform to the current year presentation. Specifically, revenues and related costs for post-contract support (PCS) provided for perpetual (one-time charge) software licenses were reclassified from Services Revenue to Sales Revenue and Services Cost to Sales Cost within the Consolidated Income Statement. The company reclassified \$2.1 billion within revenue and \$0.4 billion within cost for each of the years ended December 31, 2018 and 2017. This reclassification had no impact on total revenue, total cost, net income, financial position or cash flows for any periods presented. Other immaterial reclassifications have been annotated where applicable.

On July 9, 2019, the company completed the acquisition of all the outstanding shares of Red Hat, Inc. (Red Hat). Refer to note E, "Acquisitions & Divestitures," and note N, "Intangible Assets Including Goodwill," for additional information on the impacts to the consolidated financial results at and for the year ended December 31, 2019.

In the first quarter of 2019, the company made a number of changes to its organizational structure and management system. These changes impacted the company's reportable segments, but did not impact the company's Consolidated Financial Statements. Refer to note D, "Segments," for additional information on the company's reportable segments. The periods presented in this Annual Report are reported on a comparable basis.

The impact of the Tax Cuts and Jobs Act (U.S. tax reform) resulted in a charge to tax expense of \$0.1 billion, \$2.0 billion and \$5.5 billion, for the years ended December 31, 2019, 2018 and 2017, respectively. Refer to note G, "Taxes," for additional information.

Noncontrolling interest amounts of \$25 million, \$17 million and \$17 million, net of tax, for the years ended December 31, 2019, 2018 and 2017, respectively, are included as a reduction within other (income) and expense in the Consolidated Income Statement.

Principles of Consolidation

The Consolidated Financial Statements include the accounts of IBM and its controlled subsidiaries, which are primarily majority owned. Any noncontrolling interest in the equity of a subsidiary is reported as a component of total equity in the Consolidated Balance Sheet. Net income and losses attributable to the noncontrolling interest

is reported as described above in the Consolidated Income Statement. The accounts of variable interest entities (VIEs) are included in the Consolidated Financial Statements, if required. Investments in business entities in which the company does not have control but has the ability to exercise significant influence over operating and financial policies, are accounted for using the equity method and the company's proportionate share of income or loss is recorded in other (income) and expense. The accounting policy for other investments in equity securities is described within the "Marketable Securities" section of this note. Equity investments in non-publicly traded entities lacking controlling financial interest or significant influence are primarily measured at cost, net of impairment, if any. All intercompany transactions and accounts have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect amounts that are reported in the Consolidated Financial Statements and accompanying disclosures. Estimates are made for the following, among others: revenue, costs to complete service contracts, income taxes, pension assumptions, valuation of assets including goodwill and intangible assets, loss contingencies, allowance for credit losses and other matters. These estimates are based on management's best knowledge of current events, historical experience, actions that the company may undertake in the future and on various other assumptions that are believed to be reasonable under the circumstances. Actual results may be different from these estimates.

Revenue

Effective January 1, 2018, the company adopted the new accounting standard related to the recognition of revenue in contracts with customers under the modified retrospective transition method. This method was applied to contracts that were not complete as of the date of initial application. The impact related to adopting the new standard was not material. Certain changes resulting from adopting the new standard, such as terminology differences, impacted the company's description of its significant accounting policies compared to 2017. For further information regarding the adoption of the new standard, see note B, "Accounting Changes," and note C, "Revenue Recognition."

The company accounts for a contract with a client when it has written approval, the contract is committed, the rights of the parties, including payment terms, are identified, the contract has commercial substance and consideration is probable of collection.

Revenue is recognized when, or as, control of a promised product or service transfers to a client, in an amount that reflects the consideration to which the company expects to be entitled in exchange for transferring those products or services. If the consideration promised in a contract includes a variable amount, the company estimates the amount to which it expects to be entitled using either the expected value or most likely amount method. The company's contracts may include terms

that could cause variability in the transaction price, including, for example, rebates, volume discounts, service-level penalties, and performance bonuses or other forms of contingent revenue.

The company only includes estimated amounts in the transaction price 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. The company may not be able to reliably estimate contingent revenue in certain long-term arrangements due to uncertainties that are not expected to be resolved for a long period of time or when the company's experience with similar types of contracts is limited. The company's arrangements infrequently include contingent revenue. Changes in estimates of variable consideration are included in note C, "Revenue Recognition."

The company's standard billing terms are that payment is due upon receipt of invoice, payable within 30 days. Invoices are generally issued as control transfers and/or as services are rendered. Additionally, in determining the transaction price, the company adjusts the promised amount of consideration for the effects of the time value of money if the billing terms are not standard and the timing of payments agreed to by the parties to the contract provide the client or the company with a significant benefit of financing, in which case the contract contains a significant financing component. As a practical expedient, the company does not account for significant financing components if the period between when the company transfers the promised product or service to the client and when the client pays for that product or service will be one year or less. Most arrangements that contain a financing component are financed through the company's Global Financing business and include explicit financing terms.

The company may include subcontractor services or third-party vendor equipment or software in certain integrated services arrangements. In these types of arrangements, revenue from sales of third-party vendor products or services is recorded net of costs when the company is acting as an agent between the client and the vendor, and gross when the company is the principal for the transaction. To determine whether the company is an agent or principal, the company considers whether it obtains control of the products or services before they are transferred to the customer. In making this evaluation, several factors are considered, most notably whether the company has primary responsibility for fulfillment to the client, as well as inventory risk and pricing discretion.

The company recognizes revenue on sales to solution providers, resellers and distributors (herein referred to as resellers) when the reseller has economic substance apart from the company and the reseller is considered the principal for the transaction with the end-user client.

The company reports revenue net of any revenue-based taxes assessed by governmental authorities that are imposed on and concurrent with specific revenue-producing transactions.

In addition to the aforementioned general policies, the following are the specific revenue recognition policies for arrangements with multiple performance obligations and for each major category of revenue.

Arrangements with Multiple Performance Obligations

The company's global capabilities as a cognitive solutions and cloud platform company include services, software, hardware and related financing. The company enters into revenue arrangements that may consist of any combination of these products and services based on the needs of its clients.

The company continues to develop new products and offerings and continuously reinvent its platforms and delivery methods, including through the use of cloud and as-a-Service models. These are not separate businesses; they are offerings across the segments that address market opportunities in analytics, data, cloud and security. Revenue from these offerings follows the specific revenue recognition policies for arrangements with multiple performance obligations and for each major category of revenue, depending on the type of offering, which are comprised of services, hardware and/or software.

To the extent that a product or service in multiple performance obligation arrangements is subject to other specific accounting guidance, such as leasing guidance, that product or service is accounted for in accordance with such specific guidance. For all other products or services in these arrangements, the company determines if the products or services are distinct and allocates the consideration to each distinct performance obligation on a relative standalone selling price basis.

When products and services are not distinct, the company determines an appropriate measure of progress based on the nature of its overall promise for the single performance obligation. The revenue policies in the Services, Hardware and/or Software sections below are then applied to each performance obligation, as applicable.

Services

The company's primary services offerings include infrastructure and cloud services, including outsourcing, and other managed services; application management services; global process services (GPS); maintenance and support; and consulting, including the design and development of complex IT systems to a client's specifications (e.g., design and build). Many of these services can be delivered entirely or partially through cloud or as-a-Service delivery models. The company's services are provided on a time-and-material basis, as a fixed-price contract or as a fixed-price per measure of output contract and the contract terms range from less than one year to over 10 years.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

In services arrangements, the company typically satisfies the performance obligation and recognizes revenue over time. In design and build arrangements, the performance obligation is satisfied over time either because the client controls the asset as it is created (e.g., when the asset is built at the customer site) or because the company's performance does not create an asset with an alternative use and the company has an enforceable right to payment plus a reasonable profit for performance completed to date. In most other services arrangements, the performance obligation is satisfied over time because the client simultaneously receives and consumes the benefits provided as the company performs the services.

In outsourcing, other managed services, application management, GPS and other cloud-based services arrangements, the company determines whether the services performed during the initial phases of the arrangement, such as setup activities, are distinct. In most cases, the arrangement is a single performance obligation comprised of a series of distinct services that are substantially the same and that have the same pattern of transfer (i.e., distinct days of service). The company applies a measure of progress (typically time-based) to any fixed consideration and allocates variable consideration to the distinct periods of service based on usage. As a result, revenue is generally recognized over the period the services are provided on a usage basis. This results in revenue recognition that corresponds with the value to the client of the services transferred to date relative to the remaining services promised.

Revenue from time-and-material contracts is recognized on an output basis as labor hours are delivered and/or direct expenses are incurred. Revenue from as-a-Service type contracts, such as Infrastructure-as-a-Service, is recognized either on a straight-line basis or on a usage basis, depending on the terms of the arrangement (such as whether the company is standing ready to perform or whether the contract has usage-based metrics). If an as-a-Service contract includes setup activities, those promises in the arrangement are evaluated to determine if they are distinct.

Revenue related to maintenance and support services and extended warranty is recognized on a straight-line basis over the period of performance because the company is standing ready to provide services.

In design and build contracts, revenue is recognized based on progress toward completion of the performance obligation using a cost-to-cost measure of progress. Revenue is recognized based on the labor costs incurred to date as a percentage of the total estimated labor costs to fulfill the contract. Due to the nature of the work performed in these arrangements, the estimation of cost at completion is complex, subject to many variables and requires significant judgment. Key factors reviewed by the company to estimate costs to complete each contract are future labor and product costs and expected productivity efficiencies. Changes in original estimates are reflected in revenue on a cumulative catch-up basis in the period in which the circumstances that gave

rise to the revision become known by the company. Refer to note C, "Revenue Recognition," for the amount of revenue recognized in the reporting period on a cumulative catch-up basis (i.e., from performance obligations satisfied, or partially satisfied, in previous periods).

The company performs ongoing profitability analyses of its design and build services contracts accounted for using a cost-to-cost measure of progress in order to determine whether the latest estimates of revenues, costs and profits require updating. If at any time these estimates indicate that the contract will be unprofitable, the entire estimated loss for the remainder of the contract is recorded immediately. For other types of services contracts, any losses are recorded as incurred.

In some services contracts, the company bills the client prior to recognizing revenue from performing the services. Deferred income of \$5,106 million and \$5,424 million at December 31, 2019 and 2018, respectively, is included in the Consolidated Balance Sheet. In other services contracts, the company performs the services prior to billing the client. When the company performs services prior to billing the client in design and build contracts, the right to consideration is typically subject to milestone completion or client acceptance and the unbilled accounts receivable is classified as a contract asset. At December 31, 2019 and 2018, contract assets for services contracts of \$424 million and \$421 million, respectively, are included in prepaid expenses and other current assets in the Consolidated Balance Sheet. The remaining amount of unbilled accounts receivable of \$1,071 million and \$1,075 million at December 31, 2019 and 2018, respectively, is included in notes and accounts receivable—trade in the Consolidated Balance Sheet.

Billings usually occur in the month after the company performs the services or in accordance with specific contractual provisions.

Hardware

The company's hardware offerings include the sale or lease of system servers and storage solutions. The capabilities of these products can also be delivered through as-a-Service or cloud delivery models, such as Storage-as-a-Service. The company also offers installation services for its more complex hardware products. Hardware offerings are often sold with distinct maintenance services, described in the Services section above.

Revenue from hardware sales is recognized when control has transferred to the customer which typically occurs when the hardware has been shipped to the client, risk of loss has transferred to the client and the company has a present right to payment for the hardware. In limited circumstances when a hardware sale includes client acceptance provisions, revenue is recognized either when client acceptance has been obtained, client acceptance provisions have lapsed, or the company has objective evidence that the criteria specified in the client acceptance provisions have been satisfied. Revenue from hardware sales-type leases is recognized at the beginning of the lease term. Revenue from rentals and operating leases is recognized on a straight-line basis over the term of the rental or lease.

Revenue from as-a-Service arrangements is recognized either on a straight-line basis or on a usage basis as described in the Services section above. Installation services are accounted for as distinct performance obligations with revenue recognized as the services are performed. Shipping and handling activities that occur after the client has obtained control of a product are accounted for as an activity to fulfill the promise to transfer the product rather than as an additional promised service and, therefore, no revenue is deferred and recognized over the shipping period.

Software

The company's software offerings include cognitive applications, which contains many of the company's strategic areas including analytics, data and security; cloud and data platforms, which contains the company's distributed middleware and data platform software, including Red Hat; transaction processing platforms, which primarily supports mission-critical systems for clients; and, operating systems software, which provides operating systems for IBM Z and Power Systems hardware. These offerings primarily include proprietary software and, in some cases, open source software, and many can be delivered entirely or partially through as-a-Service or cloud delivery models, while others are delivered as on-premise software licenses.

Revenue from proprietary perpetual (one-time charge) license software is recognized at a point in time at the inception of the arrangement when control transfers to the client, if the software license is distinct from the PCS offered by the company. In limited circumstances, when the software requires continuous updates to provide the intended functionality, the software license and PCS are not distinct and revenue for the single performance obligation is recognized over time as the PCS is provided. This is only applicable to certain security software perpetual licenses offered by the company.

Revenue from proprietary term license software is recognized at a point in time for the committed term of the contract (which is typically one month due to client termination rights), unless consideration depends on client usage, in which case revenue is recognized when the usage occurs. Clients may contract to convert their existing IBM term license software into perpetual license software plus PCS. When proprietary term license software is converted to perpetual license software, the consideration becomes fixed with no cancellability and, therefore, revenue for the perpetual license is recognized upon conversion, consistent with the accounting for other perpetual licenses, as described above. PCS revenue is recognized as described below.

The company also has open source software offerings. Since open source software is offered under an open source licensing model and therefore, the license is available for free, the standalone selling price is zero. As such, when the license is sold with PCS or other products and services, no consideration is allocated to the license when it is a distinct performance obligation and therefore no revenue is recognized when control of the license transfers to the client. Revenue is recognized over the PCS period. In certain cases, open source software is bundled with proprietary software and, if the open source software is not considered distinct, the software bundle (e.g., Cloud Pak) is accounted for under a proprietary software model.

Revenue from PCS is recognized over the contract term on a straight-line basis because the company is providing a service of standing ready to provide support, when-and-if needed, and is providing unspecified software upgrades on a when-and-if available basis over the contract term.

Revenue from software hosting or Software-as-a-Service arrangements is recognized either on a straight-line basis or on a usage basis as described in the Services section above. In software hosting arrangements, the rights provided to the client (e.g., ownership of a license, contract termination provisions and the feasibility of the client to operate the software) are considered in determining whether the arrangement includes a license. In arrangements that include a software license, the associated revenue is recognized in accordance with the software license recognition policy above rather than over time as a service.

Financing

Financing income attributable to sales-type leases, direct financing leases and loans is recognized on the accrual basis using the effective interest method. Operating lease income is recognized on a straight-line basis over the term of the lease.

Standalone Selling Price

The company allocates the transaction price to each performance obligation on a relative standalone selling price basis. The standalone selling price (SSP) is the price at which the company would sell a promised product or service separately to a client. In most cases, the company is able to establish SSP based on the observable prices of products or services sold separately in comparable circumstances to similar clients. The company typically establishes SSP ranges for its products and services which are reassessed on a periodic basis or when facts and circumstances change.

In certain instances, the company may not be able to establish a SSP range based on observable prices and the company estimates SSP. The company estimates SSP by considering multiple factors including, but not limited to, overall market conditions, including geographic or regional specific factors, competitive positioning, competitor actions, internal costs, profit objectives and pricing practices. Additionally, in certain circumstances, the company may estimate SSP for a product or service by applying the residual approach. This approach is most commonly used when certain perpetual software licenses are only sold bundled with one year of PCS and a price has not been established for the software. Estimating SSP is a formal process that includes review and approval by the company's management.

Services Costs

Recurring operating costs for services contracts are recognized as incurred. For fixed-price design and build contracts, the costs of external hardware and software accounted for under the cost-to-cost measure of progress are deferred and recognized based on the labor costs incurred to date (i.e., the measure of progress), as a percentage of the total estimated labor costs to fulfill the contract as control transfers over time for these performance obligations. Certain eligible, nonrecurring costs (i.e., setup costs) incurred in the initial phases of outsourcing contracts and other cloud-based services contracts, including Software-as-a-Service arrangements, are capitalized when the costs relate directly to the contract, the costs generate or

enhance resources of the company that will be used in satisfying the performance obligation in the future, and the costs are expected to be recovered. These costs consist of transition and setup costs related to the installation of systems and processes and other deferred fulfillment costs, including, for example, prepaid assets used in services contracts (i.e., prepaid software or prepaid maintenance). Capitalized costs are amortized on a straight-line basis over the expected period of benefit, which includes anticipated contract renewals or extensions, consistent with the transfer to the client of the services to which the asset relates. Additionally, fixed assets associated with these contracts are capitalized and depreciated on a straight-line basis over the expected useful life of the asset. If an asset is contract specific, then the depreciation period is the shorter of the useful life of the asset or the contract term. Amounts paid to clients in excess of the fair value of acquired assets used in outsourcing arrangements are deferred and amortized on a straight-line basis as a reduction of revenue over the expected period of benefit. The company performs periodic reviews to assess the recoverability of deferred contract transition and setup costs. If the carrying amount is deemed not recoverable, an impairment loss is recognized. Refer to note C, "Revenue Recognition," for the amount of deferred costs to fulfill a contract at December 31, 2019 and 2018.

In situations in which an outsourcing contract is terminated, the terms of the contract may require the client to reimburse the company for the recovery of unbilled accounts receivable, unamortized deferred costs incurred to purchase specific assets utilized in the delivery of services and to pay any additional costs incurred by the company to transition the services.

Software Costs

Costs that are related to the conceptual formulation and design of licensed software programs are expensed as incurred to research, development and engineering expense; costs that are incurred to produce the finished product after technological feasibility has been established are capitalized as an intangible asset. Capitalized amounts are amortized on a straight-line basis over periods ranging up to three years and are recorded in software cost within cost of sales. The company performs periodic reviews to ensure that unamortized program costs remain recoverable from future revenue. Costs to support or service licensed programs are charged to software cost within cost of sales as incurred.

The company capitalizes certain costs that are incurred to purchase or develop internal-use software. Internal-use software programs also include software used by the company to deliver Software-as-a-Service when the client does not receive a license to the software and the company has no substantive plans to market the software externally. Capitalized costs are amortized on a straight-line basis over periods ranging up to three years and are recorded in selling, general and administrative expense or cost of sales, depending on whether the software is used by the company in revenue generating transactions. Additionally, the company may capitalize certain types of implementation costs and amortize them over the term of the arrangement when the company is a customer in a cloud-computing arrangement.

Incremental Costs of Obtaining a Contract

Incremental costs of obtaining a contract (e.g., sales commissions) are capitalized and amortized on a straight-line basis over the expected customer relationship period if the company expects to recover those costs. Prior to January 1, 2018, the company expensed these costs as incurred. The expected customer relationship period is determined based on the average customer relationship period, including expected renewals, for each offering type and ranges from three to six years. Expected renewal periods are only included in the expected customer relationship period if commission amounts paid upon renewal are not commensurate with amounts paid on the initial contract. Incremental costs of obtaining a contract include only those costs the company incurs to obtain a contract that it would not have incurred if the contract had not been obtained. The company has determined that certain commissions programs meet the requirements to be capitalized. Some commission programs are not subject to capitalization as the commission expense is paid and recognized as the related revenue is recognized. Additionally, as a practical expedient, the company expenses costs to obtain a contract as incurred if the amortization period would have been a year or less. These costs are included in selling, general and administrative expenses.

Product Warranties

The company offers warranties for its hardware products that generally range up to three years, with the majority being either one or three years. Any cost of standard warranties is accrued when the corresponding revenue is recognized. The company estimates its standard warranty costs to the product based on historical warranty claim experience and estimates of future spending, and applies this estimate to the revenue stream for products under warranty. Estimated future costs for warranties applicable to revenue recognized in the current period are charged to cost of sales. The warranty liability is reviewed quarterly to verify that it properly reflects the remaining obligation based on the anticipated expenditures over the balance of the obligation period. Adjustments are made when actual warranty claim experience differs from estimates. Costs from fixed-price support or maintenance contracts, including extended warranty contracts, are recognized as incurred.

Revenue from extended warranty contracts is initially recorded as deferred income and subsequently recognized on a straight-line basis over the delivery period because the company is providing a service of standing ready to provide services over such term.

Refer to note R, "Commitments & Contingencies," for additional information.

Shipping and Handling

Costs related to shipping and handling are recognized as incurred and included in cost in the Consolidated Income Statement.

Expense and Other Income**Selling, General and Administrative**

Selling, general and administrative (SG&A) expense is charged to income as incurred, except for certain sales commissions, which are capitalized and amortized as of January 1, 2018. For further information regarding capitalizing sales commissions, see "Incremental Costs of Obtaining a Contract" above. Expenses of promoting and selling products and services are classified as selling expense and, in addition to sales commissions, include such items as compensation, advertising and travel. General and administrative expense includes such items as compensation, legal costs, office supplies, non-income taxes, insurance and office rental. In addition, general and administrative expense includes other operating items such as an allowance for credit losses, workforce rebalancing charges for contractually obligated payments to employees terminated in the ongoing course of business, acquisition costs related to business combinations, amortization of certain intangible assets and environmental remediation costs.

Advertising and Promotional Expense

The company expenses advertising and promotional costs as incurred. Cooperative advertising reimbursements from vendors are recorded net of advertising and promotional expense in the period in which the related advertising and promotional expense is incurred. Advertising and promotional expense, which includes media, agency and promotional expense, was \$1,647 million, \$1,466 million and \$1,445 million in 2019, 2018 and 2017, respectively, and is recorded in SG&A expense in the Consolidated Income Statement.

Research, Development and Engineering

Research, development and engineering (RD&E) costs are expensed as incurred. Software costs that are incurred to produce the finished product after technological feasibility has been established are capitalized as an intangible asset.

Intellectual Property and Custom Development Income

The company licenses and sells the rights to certain of its intellectual property (IP) including internally developed patents, trade secrets and technological know-how. Certain IP transactions to third parties are licensing/royalty-based and others are transaction-based sales/other transfers. Income from licensing arrangements is recognized at the inception of the license term if the nature of the company's promise is to provide a right to use the company's intellectual property as it exists at that point in time (i.e., the license is functional intellectual property) and control has transferred to the client. Income is recognized over time if the nature of the company's promise is to provide a right to access the company's intellectual property throughout the license period (i.e., the license is symbolic intellectual property), such as a trademark license. Licensing arrangements include IP partnerships whereby a business partner licenses source code from the company and becomes responsible for developing, maintaining and enhancing the product. The company retains its customers and go-to-market capability and any royalty cost due to the partner is recognized in cost of sales. The IP partner has the rights to market the

product and its derivative works under its own brand and remits royalty to the company on those sales, which are recorded as royalty-based fees. Depending on the nature of the transaction, an IP partnership would be accounted for as a divestiture if the company concludes the transaction meets the definition of a business. Income from royalty-based fee arrangements is recognized at the later of when the subsequent sale or usage occurs or the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied). The company also enters into cross-licensing arrangements of patents, and income from these arrangements is recognized when control transfers to the customer. In addition, the company earns income from certain custom development projects with strategic technology partners and specific clients. The company records the income from these projects over time as the company satisfies the performance obligation if the fee is nonrefundable and is not dependent upon the ultimate success of the project.

Other (Income) and Expense

Other (income) and expense includes interest income (other than from Global Financing external transactions), gains and losses on certain derivative instruments, gains and losses from securities and other investments, gains and losses from certain real estate transactions, foreign currency transaction gains and losses, gains and losses from the sale of businesses, other than reported as discontinued operations, and amounts related to accretion of asset retirement obligations. Other (income) and expense also includes certain components of retirement-related costs, including interest costs, expected return on plan assets, amortization of prior service costs/(credits), curtailments and settlements and other net periodic pension/post-retirement benefit costs.

Business Combinations and**Intangible Assets Including Goodwill**

The company accounts for business combinations using the acquisition method and accordingly, the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquiree are recorded at their acquisition date fair values. Goodwill represents the excess of the purchase price over the fair value of net assets, including the amount assigned to identifiable intangible assets. The primary drivers that generate goodwill are the value of synergies between the acquired entities and the company and the acquired assembled workforce, neither of which qualifies as a separately identifiable intangible asset. Goodwill recorded in an acquisition is assigned to applicable reporting units based on expected revenues or expected cash flows. Identifiable intangible assets with finite lives are amortized over their useful lives. Amortization of completed technology is recorded in cost, and amortization of all other intangible assets is recorded in SG&A expense. Acquisition-related costs, including advisory, legal, accounting, valuation and pre-close and other costs, are typically expensed in the periods in which the costs are incurred and are recorded in SG&A expense. The results of operations of acquired businesses are included in the Consolidated Financial Statements from the acquisition date.

Impairment

Long-lived assets, other than goodwill, are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The impairment test is based on undiscounted cash flows and, if impaired, the asset is written down to fair value based on either discounted cash flows or appraised values. Goodwill is tested for impairment at least annually, in the fourth quarter and whenever changes in circumstances indicate an impairment may exist. The goodwill impairment test is performed at the reporting unit level, which is generally at the level of or one level below an operating segment.

Depreciation and Amortization

Property, plant and equipment are carried at cost and depreciated over their estimated useful lives using the straight-line method. The estimated useful lives of certain depreciable assets are as follows: buildings, 30 to 50 years; building equipment, 10 to 20 years; land improvements, 20 years; production, engineering, office and other equipment, 2 to 20 years; and information technology equipment, 1.5 to 5 years. Leasehold improvements are amortized over the shorter of their estimated useful lives or the related lease term, rarely exceeding 25 years.

As noted within the "Software Costs" section of this note, capitalized software costs are amortized on a straight-line basis over periods ranging up to 3 years. Other intangible assets are amortized over periods between 1 and 20 years.

Environmental

The cost of internal environmental protection programs that are preventative in nature are expensed as incurred. When a cleanup program becomes likely, and it is probable that the company will incur cleanup costs and those costs can be reasonably estimated, the company accrues remediation costs for known environmental liabilities.

Asset Retirement Obligations

Asset retirement obligations (ARO) are legal obligations associated with the retirement of long-lived assets and the liability is initially recorded at fair value. The related asset retirement costs are capitalized by increasing the carrying amount of the related assets by the same amount as the liability. Asset retirement costs are subsequently depreciated over the useful lives of the related assets. Subsequent to initial recognition, the company records period-to-period changes in the ARO liability resulting from the passage of time in interest expense and revisions to either the timing or the amount of the original expected cash flows to the related assets.

Defined Benefit Pension and Nonpension Postretirement Benefit Plans

The funded status of the company's defined benefit pension plans and nonpension postretirement benefit plans (retirement-related benefit plans) is recognized in the Consolidated Balance Sheet. The funded status is measured as the difference between the fair value of plan assets and the benefit obligation at December 31, the measurement date. For defined benefit pension plans, the benefit obligation is the projected benefit obligation (PBO), which represents the actuarial present value of benefits expected to be paid upon retirement based on employee services already rendered and estimated future compensation levels. For the nonpension postretirement benefit plans, the benefit obligation is the accumulated postretirement benefit obligation (APBO), which represents the actuarial present value of postretirement benefits attributed to employee services already rendered. The fair value of plan assets represents the current market value of assets held in an irrevocable trust fund, held for the sole benefit of participants, which are invested by the trust fund. Overfunded plans, with the fair value of plan assets exceeding the benefit obligation, are aggregated and recorded as a prepaid pension asset equal to this excess. Underfunded plans, with the benefit obligation exceeding the fair value of plan assets, are aggregated and recorded as a retirement and nonpension postretirement benefit obligation equal to this excess.

The current portion of the retirement and nonpension postretirement benefit obligations represents the actuarial present value of benefits payable in the next 12 months exceeding the fair value of plan assets, measured on a plan-by-plan basis. This obligation is recorded in compensation and benefits in the Consolidated Balance Sheet.

Net periodic pension and nonpension postretirement benefit cost/(income) is recorded in the Consolidated Income Statement and includes service cost, interest cost, expected return on plan assets, amortization of prior service costs/(credits) and (gains)/losses previously recognized as a component of other comprehensive income/(loss) (OCI) and amortization of the net transition asset remaining in accumulated other comprehensive income/(loss) (AOCI). The service cost component of net benefit cost is recorded in Cost, SG&A and RD&E in the Consolidated Income Statement (unless eligible for capitalization) based on the employees' respective functions. The other components of net benefit cost are presented separately from service cost within other (income) and expense in the Consolidated Income Statement. Refer to note B, "Accounting Changes," for additional information on the presentation change relating to pension costs beginning on January 1, 2018.

(Gains)/losses and prior service costs/(credits) are recognized as a component of OCI in the Consolidated Statement of Comprehensive Income as they arise. Those (gains)/losses and prior service costs/(credits) are subsequently recognized as a component of net periodic cost/(income) pursuant to the recognition and amortization provisions of applicable accounting guidance. (Gains)/losses arise as a result of differences between actual experience and assumptions or as a result of changes in actuarial assumptions. Prior service costs/(credits) represent the cost of benefit changes attributable to prior service granted in plan amendments.

The measurement of benefit obligations and net periodic cost/(income) is based on estimates and assumptions approved by the company's management. These valuations reflect the terms of the plans and use participant-specific information such as compensation, age and years of service, as well as certain assumptions, including estimates of discount rates, expected return on plan assets, rate of compensation increases, interest crediting rates and mortality rates.

Defined Contribution Plans

The company's contribution for defined contribution plans is recorded when the employee renders service to the company. The charge is recorded in Cost, SG&A and RD&E in the Consolidated Income Statement based on the employees' respective functions.

Stock-Based Compensation

Stock-based compensation represents the cost related to stock-based awards granted to employees. The company measures stock-based compensation cost at the grant date, based on the estimated fair value of the award and recognizes the cost on a straight-line basis (net of estimated forfeitures) over the employee requisite service period. The company grants its employees Restricted Stock Units (RSUs), including Retention Restricted Stock Units (RRSUs); Performance Share Units (PSUs); and periodically grants stock options. RSUs are stock awards granted to employees that entitle the holder to shares of common stock as the award vests, typically over a one- to five-year period. PSUs are stock awards where the number of shares ultimately received by the employee depends on the company's performance against specified targets and typically vest over a three-year period. Over the performance period, the number of shares that will be issued is adjusted based upon the probability of achievement of performance targets. The ultimate number of shares issued and the related compensation cost recognized as expense will be based on a comparison of the final performance metrics to the specified targets. Dividend equivalents are not paid on the stock awards described above. The fair value of the awards is determined and fixed on the grant date based on the company's stock price, adjusted for the exclusion of dividend equivalents where applicable and for PSUs assumes that performance targets will be achieved. The company estimates the fair value of stock options using a Black-Scholes valuation model. Stock-based compensation cost is recorded in Cost, SG&A, and RD&E in the Consolidated Income Statement based on the employees' respective functions.

The company records deferred tax assets for awards that result in deductions on the company's income tax returns, based on the amount of compensation cost recognized and the relevant statutory tax rates. The differences between the deferred tax assets recognized for financial reporting purposes and the actual tax deduction reported on the income tax return are recorded as a benefit or expense to the provision for income taxes in the Consolidated Income Statement.

Income Taxes

Income tax expense is based on reported income before income taxes. Deferred income taxes reflect the tax effect of temporary differences between asset and liability amounts that are recognized for financial reporting purposes and the amounts that are recognized for income tax purposes. These deferred taxes are measured by applying currently enacted tax laws. Valuation allowances are recognized to reduce deferred tax assets to the amount that will more likely than not be realized. In assessing the need for a valuation allowance, management considers all available evidence for each jurisdiction including past operating results, estimates of future taxable income and the feasibility of ongoing tax planning strategies/actions. When the company changes its determination as to the amount of deferred tax assets that can be realized, the valuation allowance is adjusted with a corresponding impact to income tax expense in the period in which such determination is made.

The company recognizes additional tax liabilities when the company believes that certain positions may not be fully sustained upon review by tax authorities. Benefits from tax positions are measured at the largest amount of benefit that is greater than 50 percent likely of being realized upon settlement. The noncurrent portion of tax liabilities is included in other liabilities in the Consolidated Balance Sheet. To the extent that new information becomes available which causes the company to change its judgment regarding the adequacy of existing tax liabilities, such changes to tax liabilities will impact income tax expense in the period in which such determination is made. Interest and penalties, if any, related to accrued liabilities for potential tax assessments are included in income tax expense.

U.S. tax reform introduced Global Intangible Low-Taxed Income (GILTI), which subjects a U.S. shareholder to current tax on income earned by certain foreign subsidiaries. Beginning in 2018, the company elected to include GILTI in measuring deferred taxes.

Translation of Non-U.S. Currency Amounts

Assets and liabilities of non-U.S. subsidiaries that have a local functional currency are translated to U.S. dollars at year-end exchange rates. Translation adjustments are recorded in OCI. Income and expense items are translated at weighted-average rates of exchange prevailing during the year.

Inventory, property, plant and equipment—net and other non-monetary assets and liabilities of non-U.S. subsidiaries and branches that operate in U.S. dollars are translated at the approximate exchange rates prevailing when the company acquired the assets or liabilities. All other assets and liabilities denominated in a currency other than U.S. dollars are translated at year-end exchange rates with the transaction gain or loss recognized in other (income) and expense. Income and expense items are translated at the weighted-average rates of exchange prevailing during the year. These translation gains and losses are included in net income for the period in which exchange rates change.

Derivative Financial Instruments

The company uses derivative financial instruments primarily to manage foreign currency and interest rate risk, and to a lesser extent, equity and credit risk. The company does not use derivative financial instruments for trading or speculative purposes. Derivatives that qualify for hedge accounting can be designated as either cash flow hedges, net investment hedges, or fair value hedges. The company may enter into derivative contracts that economically hedge certain of its risks, even when hedge accounting does not apply, or the company elects not to apply hedge accounting.

Derivatives are recognized in the Consolidated Balance Sheet at fair value on a gross basis as either assets or liabilities and classified as current or noncurrent based upon whether the maturity of the instrument is less than or greater than 12 months.

Changes in the fair value of derivatives designated as a cash flow hedge are recorded, net of applicable taxes, in OCI and subsequently reclassified into the same income statement line as the hedged exposure when the underlying hedged item is recognized in earnings. Effectiveness for net investment hedging derivatives is measured on a spot-to-spot basis. Changes in the fair value of highly effective net investment hedging derivatives and other non-derivative financial instruments designated as net investment hedges are recorded as foreign currency translation adjustments in AOCI. Changes in the fair value of the portion of a net investment hedging derivative excluded from the assessment of effectiveness are recorded in interest expense and cost of financing. Changes in the fair value of interest rate derivatives designated as a fair value hedge and the offsetting changes in the fair value of the underlying hedged exposure are recorded in interest expense and cost of financing. Changes in the fair value of derivatives not designated as hedges are reported in earnings primarily in other (income) and expense. See note T, "Derivative Financial Instruments," for further information.

The cash flows associated with derivatives designated as fair value and cash flow hedges are reported in cash flows from operating activities in the Consolidated Statement of Cash Flows. Cash flows from derivatives designated as net investment hedges and derivatives not designated as hedges are reported in cash flows from investing activities in the Consolidated Statement of Cash Flows. Cash flows from derivatives designated as hedges of foreign currency denominated debt directly associated with the settlement of the principal are reported in payments to settle debt in cash flows from financing activities in the Consolidated Statement of Cash Flows.

Financial Instruments

In determining the fair value of its financial instruments, the company uses a variety of methods and assumptions that are based on market conditions and risks existing at each balance sheet date. See note I, "Financial Assets & Liabilities," for further information. All methods of assessing fair value result in a general approximation of value, and such value may never actually be realized.

Fair Value Measurement

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The company classifies certain assets and liabilities based on the following fair value hierarchy:

- Level 1—Quoted prices (unadjusted) in active markets for identical assets or liabilities that can be accessed at the measurement date;
- Level 2—Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly; and
- Level 3—Unobservable inputs for the asset or liability.

When available, the company uses unadjusted quoted market prices in active markets to measure the fair value and classifies such items as Level 1. If quoted market prices are not available, fair value is based upon internally developed models that use current market-based or independently sourced market parameters such as interest rates and currency rates. Items valued using internally generated models are classified according to the lowest level input or value driver that is significant to the valuation.

The determination of fair value considers various factors including interest rate yield curves and time value underlying the financial instruments. For derivatives and debt securities, the company uses a discounted cash flow analysis using discount rates commensurate with the duration of the instrument.

In determining the fair value of financial instruments, the company considers certain market valuation adjustments to the "base valuations" calculated using the methodologies described below for several parameters that market participants would consider in determining fair value:

- Counterparty credit risk adjustments are applied to financial instruments, taking into account the actual credit risk of a counterparty as observed in the credit default swap market to determine the true fair value of such an instrument.
- Credit risk adjustments are applied to reflect the company's own credit risk when valuing all liabilities measured at fair value. The methodology is consistent with that applied in developing counterparty credit risk adjustments, but incorporates the company's own credit risk as observed in the credit default swap market.

Certain assets that are measured at fair value on a recurring basis can be subject to nonrecurring fair value measurements. These assets include available-for-sale debt securities that are deemed to be other-than-temporarily impaired. In the event of an other-than-temporary impairment of a debt security, fair value is measured using a model described above.

Certain nonfinancial assets such as property, plant and equipment, land, goodwill and intangible assets are also subject to nonrecurring fair value measurements if they are deemed to be impaired. The impairment models used for nonfinancial assets depend on the type of asset. There were no material impairments of nonfinancial assets for the years ended December 31, 2019, 2018 and 2017.

Cash Equivalents

All highly liquid investments with maturities of three months or less at the date of purchase are considered to be cash equivalents.

Marketable Securities

Effective January 1, 2018, with the adoption of the new FASB guidance on recognition, measurement, presentation and disclosure of financial instruments, the company measures equity investments at fair value with changes recognized in net income.

Debt securities included in current assets represent securities that are expected to be realized in cash within one year of the balance sheet date. Long-term debt securities and alliance equity securities are included in investments and sundry assets. Debt securities are considered available for sale and are reported at fair value with unrealized gains and losses, net of applicable taxes, in OCI. The realized gains and losses on available-for-sale debt securities are included in other (income) and expense in the Consolidated Income Statement. Realized gains and losses are calculated based on the specific identification method.

In determining whether an other-than-temporary decline in market value has occurred, the company considers the duration that, and extent to which, the fair value of the investment is below its cost, the financial condition and near-term prospects of the issuer or underlying collateral of a security; and the company's intent and ability to retain the security in order to allow for an anticipated recovery in fair value. Other-than-temporary declines in fair value from amortized cost for available-for-sale debt securities that the company intends to sell or would more likely than not be required to sell before the expected recovery of the amortized cost basis are charged to other (income) and expense in the period in which the loss occurs. For debt securities that the company has no intent to sell and believes that it more likely than not will not be required to sell prior to recovery, only the credit loss component of the impairment is recognized in other (income) and expense, while the remaining loss is recognized in OCI.

Inventory

Raw materials, work in process and finished goods are stated at the lower of average cost or net realizable value.

Notes and Accounts Receivable—Trade and Contract Assets
The company classifies the right to consideration in exchange for products or services transferred to a client as either a receivable or a contract asset. A receivable is a right to consideration that is unconditional as compared to a contract asset which is a right to consideration that is conditional upon factors other than the passage of time. The majority of the company's contract assets represent unbilled amounts related to design and build services contracts when the cost-to-cost method of revenue recognition is utilized, revenue recognized exceeds the amount billed to the client, and the right to consideration is subject to milestone completion or client acceptance. Contract assets are generally classified as current and are recorded on a net basis with deferred income (i.e., contract liabilities) at the contract level.

Factored Receivables

The company enters into various factoring agreements with third-party financial institutions to sell certain of its receivables (includes notes and accounts receivable—trade, financing receivables and other accounts receivables) under nonrecourse

agreements. Accounts receivable sales arrangements are utilized in the normal course of business as part of the company's cash and liquidity management. Facilities primarily in the U.S., Canada and several countries in Europe enable the company to sell certain accounts receivable, without recourse, to third parties in order to manage credit, collection, concentration and currency risk.

These transactions are accounted for as a reduction in receivables and are considered sold when accounting criteria for a sale is met. The proceeds from these arrangements are reflected as cash provided by operating activities in the Consolidated Statement of Cash Flows.

The gross amounts factored (the gross proceeds) under these programs (primarily relating to notes and accounts receivable—trade) for the year ended December 31, 2019 were \$2.1 billion compared to \$2.2 billion for the year ended December 31, 2018. Within the accounts receivables sold and derecognized from the Consolidated Balance Sheet, \$0.5 billion and \$0.9 billion remained uncollected from customers at December 31, 2019 and 2018, respectively. The fees and the net gains and losses associated with the transfer of receivables were not material for any of the periods presented.

Financing Receivables

Financing receivables include sales-type leases, direct financing leases, commercial financing receivables and client loan and installment payment receivables (loans). Leases are accounted for in accordance with lease accounting standards. Loan receivables, which are generally unsecured, are primarily for software and services. Loans are financial assets which are recorded at amortized cost, which approximates fair value. Commercial financing receivables are carried at amortized cost, which approximates fair value. These receivables are for working capital financing to suppliers, distributors and resellers of IBM and OEM IT products and services.

Allowance for Credit Losses

Receivables are recorded concurrent with billing and shipment of a product and/or delivery of a service to customers. A reasonable estimate of probable credit losses on the value of customer receivables is recognized by establishing an allowance for credit losses. An allowance for contract assets, if needed, and uncollectible trade receivables is estimated based on a combination of write-off history, aging analysis and any specific, known troubled accounts.

The company determines its allowances for credit losses on financing receivables based on two portfolio segments: lease receivables and loan receivables. The company further segments the portfolio into three classes: Americas, Europe/Middle East/Africa (EMEA) and Asia Pacific.

When calculating the allowances, the company considers its ability to mitigate a potential loss by repossessing leased equipment and by considering the current fair market value of any other collateral. The value of the equipment is the net realizable value. The allowance for credit losses for sales-type and direct financing leases, installment payment plan receivables and customer loans includes an assessment of the entire balance of the lease or loan, including amounts not yet due. The methodologies that the company uses to calculate its receivables reserves, which are applied consistently to its different portfolios, are as follows:

Individually Evaluated—The company reviews all financing receivables considered at risk quarterly, and performs an analysis based upon current information available about the client, such as financial statements, news reports, published credit ratings, current market-implied credit analysis, as well as the current economic environment, collateral net of repossession cost and prior collection history. For loans that are collateral dependent, impairment is measured using the fair value of the collateral when foreclosure is probable. Using this information, the company determines the expected cash flow for the receivable and calculates an estimate of the potential loss and the probability of loss. For those accounts in which the loss is probable, the company records a specific reserve.

Collectively Evaluated—The company records an unallocated reserve that is calculated by applying a reserve rate to its different portfolios, excluding accounts that have been individually evaluated and specifically reserved. This reserve rate is based upon credit rating, probability of default, term, characteristics (lease/loan) and loss history. Factors that could result in actual receivable losses that are materially different from the estimated reserve include significant changes in the economy, or a sudden change in the economic health of a significant client in the company's receivables portfolio.

Other Credit-Related Policies

Past Due—The company views receivables as past due when payment has not been received after 90 days, measured from the original billing date.

Non-Accrual—Non-accrual assets include those receivables (impaired loans or nonperforming leases) with specific reserves and other accounts for which it is likely that the company will be unable to collect all amounts due according to original terms of the lease or loan agreement. Interest income recognition is discontinued on these receivables. Cash collections are first applied as a reduction to principal outstanding. Any cash received in excess of principal payments outstanding is recognized as interest income. Receivables may be removed from non-accrual status, if appropriate, based upon changes in client circumstances, such as a sustained history of payments.

Impaired Loans—The company evaluates all financing receivables considered at-risk, including loans, for impairment on a quarterly basis. The company considers any receivable with an individually evaluated reserve as an impaired loan. Depending on the level of impairment, loans will also be placed on non-accrual status as appropriate. Client loans are primarily for software and services and are unsecured. These receivables are subjected to credit analysis to evaluate the associated risk and, when appropriate, actions are taken to mitigate risks in these agreements which include covenants to protect against credit deterioration during the life of the obligation.

Write-Off—Receivable losses are charged against the allowance in the period in which the receivable is deemed uncollectible. Subsequent recoveries, if any, are credited to the allowance. Write-offs of receivables and associated reserves occur to the extent that the customer is no longer in operation and/or, there is no reasonable expectation of additional collections or repossession.

Leases

The company conducts business as both a lessee and a lessor. In its ordinary course of business, the company enters into leases as a lessee for property, plant and equipment. The company is also the lessor of certain equipment, mainly through its Global Financing segment.

When procuring goods or services, or upon entering into a contract with its clients, the company determines whether an arrangement contains a lease at its inception. As part of that evaluation, the company considers whether there is an implicitly or explicitly identified asset in the arrangement and whether the company, as the lessee, or the client, if the company is the lessor, has the right to control the use of that asset.

Accounting for Leases as a Lessee

Effective January 1, 2019, when the company is the lessee, all leases with a term of more than 12 months are recognized as right-of-use (ROU) assets and associated lease liabilities in the Consolidated Balance Sheet. The lease liabilities are measured at the lease commencement date and determined using the present value of the lease payments not yet paid and the company's incremental borrowing rate, which approximates the rate at which the company would borrow on a secured basis in the country where the lease was executed. The interest rate implicit in the lease is generally not determinable in transactions where the company is the lessee. The ROU asset equals the lease liability adjusted for any initial direct costs (IDCs), prepaid rent and lease incentives. The company's variable lease payments generally relate to payments tied to various indexes, non-lease components and payments above a contractual minimum fixed amount.

Operating leases are included in operating right-of-use assets—net, current operating lease liabilities and operating lease liabilities in the Consolidated Balance Sheet. Finance leases are included in property, plant and equipment, short-term debt and long-term debt in the Consolidated Balance Sheet. The lease term includes options to extend or terminate the lease when it is reasonably certain that the company will exercise that option.

The company made a policy election to not recognize leases with a lease term of 12 months or less in the Consolidated Balance Sheet.

For all asset classes, the company has elected the lessee practical expedient to combine lease and non-lease components (e.g., maintenance services) and account for the combined unit as a single lease component. A significant portion of the company's lease portfolio is real estate, which are mainly accounted for as operating leases, and are primarily used for corporate offices and data centers. The average term of the real estate leases is approximately five years. The company also has equipment leases, such as IT equipment and vehicles, which have lease terms that range from two to five years. For certain of these operating and finance leases, the company applies a portfolio approach to account for the lease assets and lease liabilities.

Accounting for Leases as a Lessor

The company typically enters into leases as an alternative means of realizing value from equipment that it would otherwise sell. Assets under lease include new and used IBM equipment and certain OEM products. IBM equipment generally consists of IBM Z, Power Systems and Storage Systems products.

Lease payments due to IBM are typically fixed and paid in equal installments over the lease term. The majority of the company's leases do not contain variable payments that are dependent on an index or a rate. Variable lease payments that do not depend on an index or a rate (e.g., property taxes), that are paid directly by the company and are reimbursed by the client, are recorded as revenue, along with the related cost, in the period in which collection of these payments is probable. Payments that are made directly by the client to a third party, including certain property taxes and insurance, are not considered part of variable payments and therefore are not recorded by the company. The company has made a policy election to exclude from consideration in contracts all collections from sales and other similar taxes.

The company's payment terms for leases are typically unconditional. Therefore, in an instance when the client requests to terminate the lease prior to the end of the lease term, the client would typically be required to pay the remaining lease payments in full. At the end of the lease term, the company allows the client to either return the equipment, purchase the equipment at the then-current fair market value or at a pre-stated purchase price or renew the lease based on mutually agreed upon terms.

When lease arrangements include multiple performance obligations, the company allocates the consideration in the contract between the lease components and the non-lease components on a relative standalone selling price basis.

Sales-Type and Direct Financing Leases

For sales-type or direct financing lease, the carrying amount of the asset is derecognized from inventory and a net investment in the lease is recorded. For a sales-type lease, the net investment in the lease is measured at commencement date as the sum of the lease receivable and the estimated residual value of the equipment less unearned income and allowance for credit losses. Any selling profit or loss arising from a sales-type lease is recorded at lease commencement. Selling profit or loss is presented on a gross basis when the company enters into a lease to realize value from a product that it would otherwise sell in its ordinary course of business, whereas in transactions where the company enters into a lease for the purpose of generating revenue by providing financing, the selling profit or loss is presented on a net basis. Under a sales-type lease, initial direct costs are expensed at lease commencement. Over the term of the lease, the company recognizes finance income on the net investment in the lease and any variable lease payments, which are not included in the net investment in the lease.

For a direct financing lease, the net investment in the lease is measured similarly to a sales-type lease, however, the net investment in the lease is reduced by any selling profit. In a direct financing lease, the selling profit and initial direct costs are deferred at commencement and recognized over the lease term. The company rarely enters into direct financing leases.

The estimated residual value represents the estimated fair value of the equipment under lease at the end of the lease. Estimating residual value is a risk unique to financing activities, and management of this risk is dependent upon the ability to accurately project future equipment values. The company has insight into product plans and cycles for both the IBM and OEM IT products under lease. The company estimates the future fair

value of leased equipment by using historical models, analyzing the current market for new and used equipment and obtaining forward-looking product information such as marketing plans and technology innovations.

The company optimizes the recovery of residual values by extending lease arrangements with, or selling leased equipment to existing clients. The company has historically managed residual value risk both through insight into its own product cycles and monitoring of OEM IT product announcements. The company periodically reassesses the realizable value of its lease residual values. Anticipated decreases in specific future residual values that are considered to be other-than-temporary are recognized immediately upon identification and are recorded as an adjustment to the residual value estimate. For sales-type and direct financing leases, this reduction lowers the recorded net investment and is recognized as a loss charged to finance income in the period in which the estimate is changed, as well as an adjustment to unearned income to reduce future-period financing income.

Operating Leases

Equipment provided to clients under an operating lease is carried at cost within property, plant and equipment in the Consolidated Balance Sheet and depreciated over the lease term using the straight-line method, generally ranging from one to four years. The depreciable basis is the original cost of the equipment less the estimated residual value of the equipment at the end of the lease term.

At commencement of an operating lease, IDCs are deferred. As lease payments are made, the company records sales revenue over the lease term. IDCs are amortized over the lease term on the same basis as lease income is recorded.

Assets under operating leases are tested for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The impairment test is based on undiscounted cash flows, and, if impaired, the asset is written down to fair value based on either discounted cash flows or appraised values.

Common Stock

Common stock refers to the \$.20 par value per share capital stock as designated in the company's Certificate of Incorporation. Treasury stock is accounted for using the cost method. When treasury stock is reissued, the value is computed and recorded using a weighted-average basis.

Earnings Per Share of Common Stock

Earnings per share (EPS) is computed using the two-class method, which determines EPS for each class of common stock and participating securities according to dividends and dividend equivalents and their respective participation rights in undistributed earnings. Basic EPS of common stock is computed by dividing net income by the weighted-average number of common shares outstanding for the period. Diluted EPS of common stock is computed on the basis of the weighted-average number of shares of common stock plus the effect of dilutive potential common shares outstanding during the period using the treasury stock method. Dilutive potential common shares include outstanding stock awards, convertible notes and stock options.

NOTE B. ACCOUNTING CHANGES**New Standards to be Implemented****Simplifying the Accounting for Income Taxes**

Standard/Description—Issuance date: December 2019. This guidance simplifies various aspects of income tax accounting by removing certain exceptions to the general principle of the guidance and also clarifies and amends existing guidance to improve consistency in application.

Effective Date and Adoption Considerations—The guidance is effective January 1, 2021 and early adoption is permitted.

Effect on Financial Statements or Other Significant Matters—The company is evaluating the impact of the guidance and adoption date.

Simplifying the Test for Goodwill Impairment

Standard/Description—Issuance date: January 2017. This guidance simplifies the goodwill impairment test by removing Step 2. It also requires disclosure of any reporting units that have zero or negative carrying amounts if they have goodwill allocated to them.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2020 and early adoption was permitted. The company adopted the guidance on a prospective basis as of the effective date.

Effect on Financial Statements or Other Significant Matters—The guidance is not expected to have a material impact in the consolidated financial results.

Financial Instruments—Credit Losses

Standard/Description—Issuance date: June 2016, with amendments in 2018 and 2019. This changes guidance for credit impairment based on an expected loss model rather than an incurred loss model. It requires the consideration of all available relevant information when estimating expected credit losses, including past events, current conditions and forecasts and their implications for expected credit losses. It also expands the scope of financial instruments subject to impairment, including off-balance sheet commitments and residual value.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2020 with one-year early adoption permitted. The company adopted the guidance as of the effective date, using the transition option whereby prior comparative periods will not be retrospectively presented in the Consolidated Financial Statements.

Effect on Financial Statements or Other Significant Matters—The company has completed its changes to policy, processes, systems and controls. This included the assessment of data availability and presentation necessary to meet the disclosure requirements of the guidance beginning in the first quarter of 2020. At January 1, 2020, an increase in the allowance for credit losses of approximately \$15 million and \$35 million was recorded for accounts receivable—trade and financing receivables, respectively. The company also recorded an allowance for credit losses of approximately \$30 million in other liabilities for its off-balance sheet commitments. Additionally, net deferred taxes were reduced by \$15 million in the Consolidated Balance Sheet, resulting in a cumulative-effect net decrease to retained earnings of \$65 million.

Standards Implemented**Disclosure Requirements Changes for Fair Value Measurements and Defined Benefit Plans**

Standard/Description—Issuance date: August 2018. This guidance changes the disclosure requirements for fair value measurements and defined benefit plans.

Effective Date and Adoption Considerations—The guidance is effective for each of the topics on January 1, 2020 and December 31, 2020, respectively, with early adoption of certain provisions permitted. The company adopted the provision in the fair value guidance that removed the Level 1/Level 2 transfer disclosures in the third quarter of 2018 and the remaining provisions of the guidance are not applicable. The company adopted changes to the disclosure requirements for defined benefit plans in the fourth quarter of 2019.

Effect on Financial Statements or Other Significant Matters—As the guidance is a change to disclosures only, it did not have a material impact in the consolidated financial results.

Leases

Standard/Description—Issuance date: February 2016, with amendments in 2018 and 2019. This guidance requires lessees to recognize ROU assets and lease liabilities for most leases in the Consolidated Balance Sheet. For lessors, it also eliminates the use of third-party residual value guarantee (RVG) insurance in the lease classification test, and overall aligns with revenue recognition guidance. Due to changes in lease termination guidance, when equipment is returned to the company prior to the end of the lease term, the carrying amounts of lease receivables will be reclassified to loan receivables. The guidance also requires qualitative and quantitative disclosures to assess the amount, timing and uncertainty of cash flows arising from leases.

Effective Date and Adoption Considerations—The company adopted the guidance on its effective date of January 1, 2019, using the transition option whereby prior comparative periods were not retrospectively presented in the Consolidated Financial Statements. The company elected the package of practical expedients not to reassess prior conclusions related to contracts containing leases, lease classification and initial direct costs and the lessee practical expedient to combine lease and non-lease components for all asset classes. The company made a policy election to not recognize ROU assets and lease liabilities for short-term leases for all asset classes.

Effect on Financial Statements or Other Significant Matters—The guidance had a material impact on the Consolidated Balance Sheet as of the effective date. As a lessee, at adoption, the company recognized operating and financing ROU assets of \$4.8 billion and \$0.2 billion, respectively, and operating and financing lease liabilities of \$5.1 billion and \$0.2 billion, respectively. The transition adjustment recognized in retained earnings on January 1, 2019 was not material. The removal of third-party RVG insurance in the lease classification test did not have a material impact in the consolidated financial results. At December 31, 2019, lease receivables of \$386 million were reclassified to loan receivables. Refer to note M, “Leases,” for additional information, including further discussion on the impact of adoption.

Cloud Computing Implementation Costs

Standard/Description—Issuance date: August 2018. This guidance relates to a customer's accounting for implementation costs incurred in cloud-computing arrangements that are hosted by a vendor. Certain types of implementation costs should be capitalized and amortized over the term of the hosting arrangement.

Effective Date and Adoption Considerations—The guidance is effective January 1, 2020 and early adoption is permitted. The company adopted the guidance on January 1, 2019 on a prospective basis.

Effect on Financial Statements or Other Significant Matters—The guidance did not have a material impact in the consolidated financial results.

Reclassification of Certain Tax Effects from AOCI

Standard/Description—Issuance date: February 2018. In accordance with its accounting policy, the company releases income tax effects from AOCI once the reason the tax effects were established cease to exist (e.g., when available-for-sale debt securities are sold or if a pension plan is liquidated). This guidance allows for the reclassification of stranded tax effects as a result of the change in tax rates from U.S. tax reform to be recorded upon adoption of the guidance rather than at the actual cessation date.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2019 with early adoption permitted. The company adopted the guidance effective January 1, 2018 and elected not to reclassify prior periods.

Effect on Financial Statements or Other Significant Matters—At adoption on January 1, 2018, \$2.4 billion was reclassified from AOCI to retained earnings, primarily comprised of amounts relating to retirement-related benefit plans.

Hedge Accounting

Standard/Description—Issuance date: August 2017. This guidance simplifies the application of hedge accounting in certain areas, better portrays the economic results of an entity's risk management activities in its financial statements and makes targeted improvements to presentation and disclosure requirements.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2019 with early adoption permitted. The company adopted the guidance as of January 1, 2018.

Effect on Financial Statements or Other Significant Matters—The guidance did not have a material impact in the consolidated financial results.

Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost

Standard/Description—Issuance date: March 2017. This guidance impacts the presentation of net periodic pension and postretirement benefit costs (net benefit cost). The service cost component of net benefit cost continues to be presented within

Cost, SG&A expense and RD&E expense in the Consolidated Income Statement, unless eligible for capitalization. The other components of net benefit cost are presented separately from service cost within other (income) and expense in the Consolidated Income Statement.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2018 with early adoption permitted. The company adopted the guidance as of the effective date. This presentation change was applied retrospectively upon adoption.

Effect on Financial Statements or Other Significant Matters—The guidance is primarily a change in financial statement presentation and did not have a material impact in the consolidated financial results.

Financial Instruments—Recognition and Measurement

Standard/Description—Issuance date: January 2016. This guidance addresses aspects of recognition, measurement, presentation and disclosure of financial instruments. It requires certain equity investments to be measured at fair value with changes recognized in net income. The amendment also simplifies the impairment test of equity investments that lack readily determinable fair value.

Effective Date and Adoption Considerations—The guidance was effective January 1, 2018 and early adoption was not permitted except for limited provisions. The company adopted the guidance on the effective date.

Effect on Financial Statements or Other Significant Matters—The guidance did not have a material impact in the consolidated financial results.

Revenue Recognition—Contracts with Customers

Standard/Description—Issuance date: May 2014 with amendments in 2015 and 2016. Revenue recognition depicts the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The guidance also requires specific disclosures relating to revenue recognition.

Effective Date and Adoption Considerations—The company adopted the guidance on its effective date of January 1, 2018 using the modified retrospective transition method.

Effect on Financial Statements or Other Significant Matters—At adoption, \$557 million was reclassified from notes and accounts receivable—trade and deferred income-current to prepaid expenses and other current assets to establish the opening balance for net contract assets. In-scope sales commission costs previously recorded in the Consolidated Income Statement were capitalized in deferred costs in the amount of \$737 million. Deferred income of \$29 million was recorded for certain software licenses that will be recognized over time versus at point in time under previous guidance. Additionally, net deferred taxes were reduced by \$184 million in the Consolidated Balance Sheet, resulting in a cumulative-effect net increase to retained earnings of \$524 million. In the fourth quarter of 2018, the company recognized an additional

impact to net deferred taxes and retained earnings of \$56 million, resulting in a total net increase to retained earnings of \$580 million. The decrease to net deferred taxes was the result of the company's election to include GILTI in measuring deferred taxes. The revenue guidance did not have a material impact in the company's consolidated financial results. Refer to note C, "Revenue Recognition," for additional information.

Share-Based Payments

Standard/Description—Issuance date: March 2016. This guidance changed the accounting for share-based payment transactions, including the income tax consequences, classification of awards as either equity or liabilities and classification in the Consolidated Statement of Cash Flows. Additional guidance was issued in May 2017 and June 2018, which relates to the accounting for modifications of share-based payment awards and accounting for share-based payments issued to non-employees, respectively.

Effective Date and Adoption Considerations—The initial guidance was effective and adopted by the company on January 1, 2017. The company adopted the guidance for modifications in the second quarter of 2017, and guidance for non-employees' payments in the second quarter of 2018.

Effect on Financial Statements or Other Significant Matters—The initial guidance did not have a material impact on the Consolidated Balance Sheet. The company continues to estimate forfeitures in conjunction with measuring stock-based compensation cost. The guidance also requires cash payments on behalf of employees for shares directly withheld for taxes to be presented as financing outflows in the Consolidated Statement of Cash Flows. The guidance for modifications and non-employees' payments had no impact in the consolidated financial results.

NOTE C. REVENUErecognition

Disaggregation of Revenue

The following tables provide details of revenue by major products/services offerings and by geography.

Revenue by Major Products/Service Offerings

(\$ in millions)	2019	2018
For the year ended December 31:		
Cognitive Applications	\$ 5,765	\$ 5,633*
Cloud & Data Platforms	9,499	8,603*
Transaction Processing Platforms	7,936	7,974*
Total Cloud & Cognitive Software	\$23,200	\$22,209*
Consulting	\$ 7,993	\$ 7,705
Application Management	7,646	7,852
Global Process Services	995	1,037*
Total Global Business Services	\$16,634	\$16,595*
Infrastructure & Cloud Services	\$20,736	\$22,185*
Technology Support Services	6,625	6,961
Total Global Technology Services	\$27,361	\$29,146*
Systems Hardware	\$ 5,918	\$ 6,363
Operating Systems Software	1,686	1,671
Total Systems	\$ 7,604	\$ 8,034
Global Financing**	\$ 1,400	\$ 1,590
Other	\$ 948	\$ 2,018*
Total Revenue	\$77,147	\$79,591

* Recast to conform to 2019 presentation.

**Contains lease and loan/working capital financing arrangements which are not subject to the guidance on revenue from contracts with customers.

Revenue by Geography

(\$ in millions)	2019	2018
For the year ended December 31:		
Americas	\$36,274	\$36,994
Europe/Middle East/Africa	24,443	25,491
Asia Pacific	16,430	17,106
Total	\$77,147	\$79,591

Remaining Performance Obligations

The remaining performance obligation (RPO) disclosure provides the aggregate amount of the transaction price yet to be recognized as of the end of the reporting period and an explanation as to when the company expects to recognize these amounts in revenue. It is intended to be a statement of overall work under contract that has not yet been performed and does not include contracts in which the customer is not committed, such as certain as-a-Service, governmental, term software license and services offerings. The customer is not considered committed when they are able to terminate for convenience without payment of a substantive penalty. The disclosure includes estimates of variable consideration, except when the variable consideration is a sales-based or usage-based royalty promised in exchange for a license of intellectual property. Additionally, as a practical expedient, the company does not

include contracts that have an original duration of one year or less. RPO estimates are subject to change and are affected by several factors, including terminations, changes in the scope of contracts, periodic revalidations, adjustments for revenue that has not materialized and adjustments for currency.

At December 31, 2019, the aggregate amount of the transaction price allocated to RPO related to customer contracts that are unsatisfied or partially unsatisfied was \$126 billion. Approximately 60 percent of the amount was expected to be recognized as revenue in the subsequent two years, approximately 35 percent in the subsequent three to five years and the balance (mostly Infrastructure & Cloud Services) thereafter.

Revenue Recognized for Performance Obligations Satisfied (or Partially Satisfied) in Prior Periods

For the year ended December 31, 2019, revenue was reduced by \$50 million for performance obligations satisfied (or partially satisfied) in previous periods mainly due to changes in estimates on contracts with cost-to-cost measures of progress. Refer to note A, "Significant Accounting Policies," for additional information on these contracts and estimates of costs to complete.

Reconciliation of Contract Balances

The following table provides information about notes and accounts receivable—trade, contract assets and deferred income balances.

(\$ in millions)	2019	2018
At December 31:		
Notes and accounts receivable—trade (net of allowances of \$299 in 2019 and \$309 in 2018)	\$ 7,870	\$ 7,432
Contract assets ⁽¹⁾	492	470
Deferred income (current)	12,026	11,165
Deferred income (noncurrent)	3,851	3,445

⁽¹⁾ Included within prepaid expenses and other current assets in the Consolidated Balance Sheet.

The amount of revenue recognized during the year ended December 31, 2019 that was included within the deferred income balance at December 31, 2018 was \$9.5 billion and primarily related to services and software.

Deferred Costs

(\$ in millions)

At December 31:	2019	2018
Capitalized costs to obtain a contract	\$ 609	\$ 717
Deferred costs to fulfill a contract		
Deferred setup costs	1,939	2,085
Other deferred fulfillment costs	1,820	2,173
Total deferred costs⁽¹⁾	\$4,368	\$4,975

⁽¹⁾ Of the total deferred costs, \$1,896 million was current and \$2,472 million was noncurrent at December 31, 2019 and \$2,300 million was current and \$2,676 million was noncurrent at December 31, 2018.

The amount of total deferred costs amortized during the year ended December 31, 2019 was \$3,836 million and there were no material impairment losses incurred. Refer to note A, "Significant Accounting Policies," for additional information on deferred costs to fulfill a contract and capitalized costs of obtaining a contract.

NOTE D. SEGMENTS

In the first quarter of 2019, the company made a number of changes to its organizational structure and management system that brought cloud and cognitive software under one organization to more effectively address evolving client needs and to prepare for the acquisition of Red Hat. With these changes, the company revised its reportable segments, but did not impact its Consolidated Financial Statements.

The segments represent components of the company for which separate financial information is available that is utilized on a regular basis by the chief operating decision maker (the chief executive officer) in determining how to allocate resources and evaluate performance. The segments are determined based on several factors, including client base, homogeneity of products, technology, delivery channels and similar economic characteristics.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The company's segments are as follows:

2018 Segments	Changes (+/-)	2019 Segments
Cognitive Solutions	+ Integration Software + Security Services - Divested Select Software* + Red Hat (post closing)	Cloud & Cognitive Software
Global Business Services	- Divested Mortgage Servicing*	Global Business Services
Technology Services & Cloud Platforms	- Security Services - Integration Software	Global Technology Services
Systems		Systems
Global Financing		Global Financing
Other	+ Divested Mortgage Servicing* + Divested Select Software*	Other**

* IBM completed the sale of its mortgage servicing business on February 28, 2019, and completed the sales of select software products (for all countries) and marketing and platform commerce offerings (in the U.S.) on June 30, 2019. Refer to note E, "Acquisitions & Divestitures," for additional information.

**These divested businesses are reported in Other, as it allows for a better representation of the ongoing performance of the reportable segments.

Segment revenue and pre-tax income include transactions between the segments that are intended to reflect an arm's-length, market-based transfer price. Systems that are used by Global Technology Services in outsourcing arrangements are primarily sourced internally from the Systems segment, and software is primarily sourced internally through the Cloud & Cognitive Software and Systems segments. For providing IT services that are used internally, Global Technology Services and Global Business Services recover cost, as well as a reasonable fee, that is intended to reflect the arm's-length value of providing the services. They enter into arm's-length loans at prices equivalent to market rates with Global Financing to facilitate the acquisition of equipment and software used in services engagements. All internal transaction prices are reviewed annually, and reset if appropriate.

The company utilizes globally integrated support organizations to realize economies of scale and efficient use of resources. As a result, a considerable amount of expense is shared by all of the segments. This shared expense includes sales coverage, certain marketing functions and support functions such as Accounting,

Treasury, Procurement, Legal, Human Resources and Billing and Collections. Where practical, shared expenses are allocated based on measurable drivers of expense, e.g., headcount. When a clear and measurable driver cannot be identified, shared expenses are allocated on a financial basis that is consistent with the company's management system, e.g., advertising expense is allocated based on the gross profits of the segments. A portion of the shared expenses, which are recorded in net income, are not allocated to the segments. These expenses are associated with the elimination of internal transactions and other miscellaneous items.

The following tables reflect the results of continuing operations of the company's segments consistent with the management and measurement system utilized within the company and have been recast for the prior-year periods due to the company's January 2019 segment changes. Performance measurement is based on pre-tax income from continuing operations. These results are used, in part, by the chief operating decision maker, both in evaluating the performance of, and in allocating resources to, each of the segments.

Management System Segment View

(\$ in millions)

For the year ended December 31:	Cloud & Cognitive Software	Global Business Services	Global Technology Services	Systems	Global Financing	Total Segments
2019						
External revenue	\$23,200	\$16,634	\$27,361	\$7,604	\$1,400	\$76,199
Internal revenue	2,827	278	1,157	726	1,232	6,220
Total revenue	\$26,027	\$16,911	\$28,518	\$8,330	\$2,632	\$82,419
Pre-tax income from continuing operations	\$ 7,952	\$ 1,666	\$ 1,645	\$ 701	\$1,055	\$13,019
Revenue year-to-year change	2.5%	(0.1)%	(5.0)%	(5.9)%	(17.8)%	(2.3)%
Pre-tax income year-to-year change	(10.5)%	2.2%	(7.6)%	(22.4)%	(22.5)%	(10.6)%
Pre-tax income margin	30.6%	9.9%	5.8%	8.4%	40.1%	15.8%
2018						
External revenue	\$22,209*	\$16,595*	\$29,146*	\$8,034	\$1,590	\$77,573*
Internal revenue	3,190*	326	872*	815	1,610	6,813*
Total revenue	\$25,399*	\$16,921*	\$30,018*	\$8,848	\$3,200	\$84,386*
Pre-tax income from continuing operations	\$ 8,882*	\$ 1,629*	\$ 1,781*	\$ 904	\$1,361	\$14,557*
Revenue year-to-year change	2.0%*	2.9%*	0.5%*	(1.1)%	1.0%	1.3%*
Pre-tax income year-to-year change	10.1%*	25.0%*	(32.0)%*	(19.9)%	6.5%	1.1%*
Pre-tax income margin	35.0%*	9.6%*	5.9%*	10.2%	42.5%	17.3%*
2017						
External revenue	\$21,751*	\$16,073*	\$29,213*	\$8,194	\$1,696	\$76,927*
Internal revenue	3,159*	363	657	750	1,471	6,401*
Total revenue	\$24,910*	\$16,436*	\$29,870*	\$8,945	\$3,168	\$83,329*
Pre-tax income from continuing operations	\$ 8,068*	\$ 1,303*	\$ 2,618*	\$1,128	\$1,278	\$14,396*
Revenue year-to-year change	2.0%*	(1.9)%*	(3.6)%*	5.7%	(9.3)%	(0.9)%*
Pre-tax income year-to-year change	7.3%*	(18.4)%*	(13.2)%*	21.9%	(22.8)%	(2.2)%*
Pre-tax income margin	32.4%*	7.9%*	8.8%*	12.6%	40.3%	17.3%*

* Recast to conform to 2019 presentation.

Reconciliations of IBM as Reported

(\$ in millions)

For the year ended December 31:	2019	2018	2017	(\$ in millions)	2019	2018	2017
Pre-tax income from continuing operations							
Total reportable segments	\$82,419	\$84,386*	\$83,329*	Total reportable segments	\$13,019	\$14,557*	\$14,396*
Other—divested businesses	786	1,810*	2,041*	Amortization of acquired intangible assets	(1,298)	(809)	(945)
Other revenue	162	207	171	Acquisition-related charges	(423)	(16)	(52)
Elimination of internal transactions	(6,220)	(6,813)*	(6,401)*	Non-operating retirement-related (costs)/income	(615)	(1,572)	(1,341)
Total IBM consolidated revenue	\$77,147	\$79,591	\$79,139	Elimination of internal transactions	(290)	(725)*	(742)*
				Other—divested businesses	390	292*	468*
				Unallocated corporate amounts	(617)	(385)	(385)
				Total pre-tax income from continuing operations	\$10,166	\$11,342	\$11,400

* Recast to conform to 2019 presentation.

* Recast to conform to 2019 presentation.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Immaterial Items**Investment in Equity Alliances and
Equity Alliances Gains/(Losses)**

The investments in equity alliances and the resulting gains and (losses) from these investments that are attributable to the segments did not have a material effect on the financial position or the financial results of the segments.

To ensure the efficient use of the company's space and equipment, several segments may share leased or owned plant, property and equipment assets. Where assets are shared, landlord ownership of the assets is assigned to one segment and is not allocated to each user segment. This is consistent with the company's management system and is reflected accordingly in the table below. In those cases, there will not be a precise correlation between segment pre-tax income and segment assets.

Segment Assets and Other Items

Cloud & Cognitive Software assets are mainly goodwill, acquired intangible assets and accounts receivable. Global Business Services assets are primarily goodwill and accounts receivable. Global Technology Services assets are primarily goodwill, plant, property and equipment, including the assets associated with the outsourcing business, accounts receivable and acquired intangible assets. Systems assets are primarily goodwill, manufacturing inventory, and plant, property and equipment. Global Financing assets are primarily financing receivables, cash and marketable securities, and fixed assets under operating leases.

Depreciation expense and capital expenditures that are reported by each segment also are consistent with the landlord ownership basis of asset assignment.

Global Financing amounts for interest income and interest expense reflect the interest income and interest expense associated with the Global Financing business, including the intercompany financing activities discussed on page 33, as well as the income from investment in cash and marketable securities.

Management System Segment View

(\$ in millions)

For the year ended December 31:	Cloud & Cognitive Software	Global Business Services	Global Technology Services	Systems	Global Financing	Total Segments
2019						
Assets	\$58,453	\$10,039	\$22,436	\$4,590	\$29,568	\$125,087
Depreciation/amortization of intangibles**	1,107	149	2,601	350	186	4,392
Capital expenditures/investments in intangibles	515	48	1,575	305	57	2,501
Interest income	—	—	—	—	1,490	1,490
Interest expense	—	—	—	—	512	512
2018						
Assets	\$28,713*	\$ 8,360*	\$17,624*	\$4,030	\$41,320	\$100,047*
Depreciation/amortization of intangibles**	1,058*	100*	2,359*	315	229	4,063*
Capital expenditures/investments in intangibles	469*	57*	2,569*	241	274	3,610*
Interest income	—	—	—	—	1,647	1,647
Interest expense	—	—	—	—	515	515
2017						
Assets	\$29,650*	\$ 8,647*	\$17,577*	\$3,898	\$41,096	\$100,868*
Depreciation/amortization of intangibles**	1,185*	99*	2,209*	341	267	4,101*
Capital expenditures/investments in intangibles	467*	46*	2,193*	189	364	3,259*
Interest income	—	—	—	—	1,527	1,527
Interest expense	—	—	—	—	381	381

* Recast to conform to 2019 presentation.

**Segment pre-tax income from continuing operations does not include the amortization of intangible assets.

Reconciliations of IBM as Reported

	(\$ in millions)		
At December 31:	2019	2018	2017
Assets			
Total reportable segments	\$125,087	\$100,047*	\$100,868*
Elimination of internal transactions	(4,317)	(7,143)	(6,272)
Other—divested businesses	1,894	2,575*	2,285*
Unallocated amounts			
Cash and marketable securities	7,308	10,393	10,162
Notes and accounts receivable	3,298	1,597	2,554
Deferred tax assets	4,995	5,089	4,746
Plant, other property and equipment	2,334	2,463	2,659
Operating right-of-use assets**	3,530	—	—
Pension assets	6,865	4,666	4,643
Other	1,194	3,695	3,712
Total IBM consolidated assets	\$152,186	\$123,382	\$125,356

* Recast to conform to 2019 presentation.

**Reflects the adoption of the FASB guidance on leases in 2019.

Major Clients

No single client represented 10 percent or more of the company's total revenue in 2019, 2018 or 2017.

Geographic Information

The following provides information for those countries that are 10 percent or more of the specific category.

Revenue*

	(\$ in millions)		
For the year ended December 31:	2019	2018	2017
United States	\$28,395	\$29,078	\$29,759
Japan	8,681	8,489	8,239
Other countries	40,071	42,024	41,141
Total IBM consolidated revenue	\$77,147	\$79,591	\$79,139

* Revenues are attributed to countries based on the location of the client.

Plant and Other Property—Net

	(\$ in millions)		
At December 31:	2019	2018	2017
United States	\$4,485	\$ 4,585	\$ 4,670
Other countries	5,294	5,774	5,985
Total	\$9,778	\$10,359	\$10,655

Operating Right-of-Use Assets—Net*

	(\$ in millions)		
At December 31:	2019	2018	2017
United States	\$1,386	\$—	\$—
Japan	659	—	—
Other countries	2,951	—	—
Total	\$4,996	\$—	\$—

* Reflects the adoption of the FASB guidance on leases in 2019.

Revenue by Classes of Similar Products or Services

The following table presents external revenue for similar classes of products or services within the company's reportable segments. Client solutions often include IBM software and systems and other suppliers' products if the client solution requires it. For each of the segments that include services, Software-as-a-Service, consulting, education, training and other product-related services are included as services. For each of these segments, software includes product license charges and ongoing subscriptions.

	(\$ in millions)		
For the year ended December 31:	2019	2018	2017
Cloud & Cognitive Software*			
Software	\$18,712	\$17,970**	\$17,681**
Services	4,321	4,082**	3,920**
Systems	166	156	150
Global Business Services*			
Services	\$16,363	\$16,238**	\$15,728**
Software	156	151**	179**
Systems	115	206	165
Global Technology Services*			
Services	\$20,768	\$22,222**	\$21,913**
Maintenance	5,183	5,484	5,783
Systems	1,072	1,069	1,207
Software	338	371**	310**
Systems			
Servers	\$ 3,746	\$ 3,996	\$ 3,993
Storage	1,920	2,114	2,243
Software	1,528	1,499**	1,520**
Services	410	425**	438**
Global Financing			
Financing	\$ 1,120	\$ 1,223	\$ 1,167
Used equipment sales	281	366	530

* Recast to conform to 2019 presentation.

**Reclassified to conform to 2019 presentation. Refer to "Basis of Presentation" in note A, "Significant Accounting Policies," for additional information.

NOTE E. ACQUISITIONS & DIVESTITURES

Acquisitions

The company accounts for business combinations using the acquisition method, and accordingly, the identifiable assets acquired, the liabilities assumed and any noncontrolling interest in the acquiree are recorded at their acquisition date fair values. Significant judgments and use of estimates are required when performing valuations. For example, the company uses judgments when estimating the fair value of intangible assets using a discounted cash flow model, which involves the use of significant estimates and assumptions with respect to revenue growth rates, the customer attrition rate and discount rates.

Purchase price consideration for all acquisitions was paid primarily in cash. All acquisitions, except otherwise stated were for 100 percent of the acquired business and are reported in the Consolidated Statement of Cash Flows, net of acquired cash and cash equivalents.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

2019

In 2019, the company completed one acquisition at an aggregate cost of \$35 billion.

Red Hat—On July 9, 2019, the company completed the acquisition of all of the outstanding shares of Red Hat. Red Hat's portfolio of open-source and cloud technologies combined with IBM's innovative hybrid cloud technology and industry expertise are delivering the hybrid multi-cloud capabilities required to address the next chapter of cloud implementations.

On the acquisition date, Red Hat shareholders received \$190 per share in cash, representing a total equity value of approximately \$34 billion. The company funded the transaction through a combination of cash on hand and proceeds from debt issuances. Refer to note P, "Borrowings," for additional details on the financing of the transaction.

The following table reflects the breakdown of total consideration:

(\$ in millions)	Total Consideration
Cash paid for outstanding Red Hat common stock	\$33,769
Cash paid for Red Hat equity awards	24
Cash paid to settle warrants	1,008
Cash consideration	\$34,801
Fair value of stock-based compensation awards attributable to pre-combination services	174
Stock issued to holders of vested performance share units	45
Settlement of pre-existing relationships	60
Total consideration	\$35,080

The following table reflects the purchase price and the resulting purchase price allocation as of December 31, 2019. The net purchase price adjustments recorded in the fourth-quarter 2019 were related to deferred tax assets and liabilities.

(\$ in millions)	Amortization Life (in Years)	Allocated Amount
Current assets*		\$ 3,186
Property, plant and equipment/ noncurrent assets		939
Intangible assets		
Goodwill	N/A	23,125
Client relationships	10	7,215
Completed technology	9	4,571
Trademarks	20	1,686
Total assets acquired		\$40,722
Current liabilities**		1,378
Noncurrent liabilities		4,265
Total liabilities assumed		\$ 5,642
Total purchase price		\$35,080

* Includes \$2.2 billion of cash and cash equivalents.

**Includes \$485 million of short-term debt related to the convertible notes acquired from Red Hat that were recognized at their fair value on the acquisition date, which was fully settled as of October 1, 2019.

N/A—Not applicable

The goodwill generated is primarily attributable to the assembled workforce of Red Hat and the increased synergies expected to be achieved from the integration of Red Hat products into the company's various integrated solutions neither of which qualify as an amortizable intangible asset.

The overall weighted-average useful life of the identified amortizable intangible assets acquired was 10.9 years. These identified intangible assets will be amortized on a straight-line basis over their useful lives, which approximates the pattern that the assets' economic benefits are expected to be consumed over time. The following table presents the goodwill allocated to the segments as of December 31, 2019.

(\$ in billions)	Goodwill Allocated*
Segment	
Cloud & Cognitive Software	\$18.5
Global Technology Services	3.1
Global Business Services	1.1
Systems	0.4
Total	\$23.1

* It is expected that approximately seven percent of the goodwill will be deductible for tax purposes.

The valuation of the assets acquired and liabilities assumed is subject to revision. If additional information becomes available, the company may further revise the purchase price allocation as soon as practical, but no later than one year from Red Hat's acquisition date. Any such revisions or changes may be material. The primary area of the purchase price allocation that is subject to revision relates to certain tax matters.

The company recognized acquisition-related costs, such as legal and advisory fees, of \$189 million within SG&A in the Consolidated Income Statement for the year ended December 31, 2019. This included \$55 million of amortized costs related to bridge term loan facility fees.

In addition, the company recognized compensation expense related to employee retention plans for the period beginning on the acquisition date through December 31, 2019 in the Consolidated Income Statement as follows:

(\$ in millions)	Compensation Expense*
Line Item	
Cost	\$ 20
Selling, general and administrative expense	124
Research, development and engineering expense	86
Total	\$230

* The remaining compensation expense of approximately \$185 million associated with the retention plans will be recognized over the remaining requisite service periods, which range from six months to three years from the acquisition date.

The acquisition of Red Hat settled a pre-existing vendor/customer relationship in which the company had historically paid in advance for purchases of Red Hat products. Because the terms of the agreements were determined to approximate fair value at the acquisition date, the company did not recognize any gain or loss separately from the acquisition, and \$60 million was transferred on the acquisition date as a part of the fair value consideration.

The Consolidated Income Statement includes revenue and a pre-tax loss attributable to Red Hat since the date of acquisition for the year ended December 31, 2019 of \$945 million and \$1,658 million, respectively. The pre-tax loss was primarily driven by the deferred revenue fair value adjustment, retention expenses, intangible asset amortization and deal fees. The pre-tax loss excludes interest expense.

The table below presents the supplemental consolidated financial results of the company on an unaudited pro forma basis, as if the acquisition had been consummated on January 1, 2018 through the periods shown below. The primary adjustments reflected in the pro forma results relate to: (1) the debt used to fund the acquisition, (2) changes driven by acquisition accounting, including amortization of intangible assets and the deferred revenue fair value adjustment, (3) employee retention plans, (4) elimination of intercompany transactions between IBM and Red Hat, and (5) the presentation of acquisition-related costs. Acquisition-related costs are non-recurring in nature and the pro forma net income amounts shown below include \$374 million of these costs.

The unaudited pro forma financial information presented below does not purport to represent the actual results of operations that IBM and Red Hat would have achieved had the companies been combined during the periods presented and is not intended to project the future results of operations that the combined company may achieve after the acquisition. Historical fiscal periods are not aligned under this presentation. The unaudited pro forma financial information does not reflect any potential cost savings, operating efficiencies, long-term debt pay down estimates, suspension of IBM's share repurchase program, financial synergies or other strategic benefits that may be realized as a result of the acquisition and also does not reflect any restructuring costs to achieve those benefits.

(Unaudited)

(\$ in millions)

For the year ended December 31:	2019	2018
Revenue	\$79,628	\$81,360
Net income	\$ 9,723	\$ 5,702

2018

In 2018, the company completed two acquisitions at an aggregate cost of \$49 million. One acquisition was completed by the Cloud & Cognitive Software segment and one acquisition by the Global Business Services segment. These acquisitions did not have a material impact on the Consolidated Financial Statements.

2017

In 2017, the company completed five acquisitions for an aggregate cost of \$134 million.

The Global Technology Services segment completed acquisitions of three businesses: in the first quarter, Agile 3 Solutions, LLC, a privately held business; in the third quarter, the cloud and managed hosting services business from a large U.S. telecommunications company, and Cloudigo Ltd., a privately held business. The Cloud & Cognitive Software segment completed the acquisition of one privately held business: in the second quarter, XCC Web Content & Custom Apps Extension from TIMETOACT Software & Consulting GmbH. Global Business Services completed the acquisition of one privately held business: in the fourth quarter, Vivant Digital.

The following table reflects the purchase price related to these acquisitions and the resulting purchase price allocations as of December 31, 2017.

(\$ in millions)

	Amortization Life (in Years)	Total Acquisitions
Current assets		\$ 18
Fixed assets/noncurrent assets		69
Intangible assets		
Goodwill	N/A	16
Completed technology	5	9
Client relationships	5–7	64
Patents/trademarks	1–5	1
Total assets acquired		\$177
Current liabilities		(9)
Noncurrent liabilities		(34)
Total liabilities assumed		\$ (43)
Total purchase price		\$134

N/A—Not applicable

The overall weighted-average life of the identified amortizable intangible assets acquired was 6.6 years. These identified intangible assets are amortized on a straight-line basis over their useful lives. Goodwill of \$13 million and \$3 million was assigned to the Global Technology Services segment and the Cloud & Cognitive Software segment, respectively. It was expected that approximately 50 percent of the goodwill will be deductible for tax purposes.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Divestitures

2019

Select IBM Software Products—On December 6, 2018, IBM and HCL Technologies Limited (HCL) announced a definitive agreement, in which HCL would acquire select standalone Cloud & Cognitive Software products for \$1,775 million, inclusive of \$150 million of contingent consideration. The transaction included commercial software, intellectual property and services offerings. In addition, the transaction includes transition services for IT and other services.

The transaction closed on June 30, 2019. The company received cash of \$812 million at closing and \$40 million of the contingent consideration in the third quarter of 2019. The company expects to receive an additional \$813 million (net of any additional contingent consideration) within 12 months of closing. The outstanding contingent consideration is expected to be earned within 24 months of the closing. IBM will remit payment to HCL predominantly for servicing certain customer contracts until such contracts are terminated or entitlements are assumed by HCL. Cash of \$174 million was remitted in the fourth quarter of 2019 related to deferred revenue that existed prior to closing. IBM expects to remit an additional \$325 million of cash to HCL by the end of 2021. The company recognized pre-tax gains on the sale of \$556 million at closing and \$72 million in the third quarter of 2019. The total pre-tax gain on the transaction for the year ended December 31, 2019 was \$626 million. The total gain on sale may change in the future due to contingent consideration or changes in other transaction estimates, however, material changes are not expected.

Select IBM Marketing Platform and Commerce Offerings—On April 4, 2019, IBM and Centerbridge Partners, L.P. (Centerbridge) announced a definitive agreement, in which Centerbridge would acquire select marketing platform and commerce offerings from IBM. The transaction included commercial software and services offerings. In addition, the company is providing Centerbridge with transition services including IT, supply chain management, and other services. Upon closing, Centerbridge announced that this business would be re-branded under the name Acoustic. The closing completed for the U.S. on June 30, 2019. The company expects a subsequent closing for the remaining countries to occur within 12 months of the U.S. closing. The timing of the subsequent closing is subject to change as more information becomes available. The company received a net cash payment of \$240 million at the U.S. closing and expects to receive an additional \$150 million within 36 months of the U.S. closing.

The company recognized an immaterial pre-tax gain on the sale on June 30, 2019. The amount of the pre-tax gain for the remaining countries will not be determinable until the valuation of the final balance sheet transferred is completed, however, it is not expected to be material.

The above two divested businesses are reported in Other—divested businesses. Refer to note D, “Segments” for additional information.

IBM Risk Analytics and Regulatory Offerings—On September 24, 2019, IBM and SS&C Technologies Holdings, Inc. (SS&C) entered into a definitive agreement in which SS&C would acquire certain Algorithmics and related assets from IBM. The content is reported in the Cloud & Cognitive Software segment. The transaction closed in the fourth quarter of 2019. The company recognized an immaterial pre-tax gain on the sale for the year ended December 31, 2019.

IBM Sales Performance Management Offerings—On November 20, 2019, IBM and Varicent Parent Holdings Corporation (Varicent) entered into a definitive agreement in which Varicent would acquire certain sales performance management assets from IBM. The content is reported in the Cloud & Cognitive Software segment. The initial closing of certain countries was completed on December 31, 2019. The company expects a subsequent closing for the remaining countries to occur within the first half of 2020. The company received a net cash payment of \$230 million and recognized a pre-tax gain on the sale of \$136 million for the year ended December 31, 2019. The amount of the pre-tax gain for the remaining countries will not be determinable until the valuation of the final balance sheet transferred is completed, however, it is not expected to be material.

In addition to the above, the company completed three divestitures reported in the Global Financing segment, the Global Business Services segment and the Other—divested businesses. The financial terms related to each of these transactions were not material.

The pre-tax gain recognized on the divestitures above was recorded in other (income) and expense in the Consolidated Income Statement.

2018 and 2017

The company had no divestitures in 2018. The company completed five divestitures in 2017, four of which were reported in the Cloud & Cognitive Software segment and one was a research-related divestiture. The financial terms related to these transactions were not material. Overall, the company recognized a pre-tax gain of \$31 million related to these transactions in 2017.

NOTE F. RESEARCH, DEVELOPMENT & ENGINEERING

RD&E expense was \$5,989 million in 2019, \$5,379 million in 2018 and \$5,590 million in 2017.

The company incurred total expense of \$5,657 million, \$5,027 million and \$5,170 million in 2019, 2018 and 2017, respectively, for scientific research and the application of scientific advances to the development of new and improved products and their uses, as well as services and their application. Within these amounts, software-related expense was \$3,541 million, \$3,050 million and \$3,145 million in 2019, 2018 and 2017, respectively.

Expense for product-related engineering was \$334 million, \$352 million and \$420 million in 2019, 2018 and 2017, respectively.

NOTE G. TAXES

(\$ in millions)

For the year ended December 31:	2019	2018	2017
Income from continuing operations before income taxes			
U.S. operations	\$ (315)	\$ 627	\$ 560
Non-U.S. operations	10,481	10,715	10,840
Total income from continuing operations before income taxes	\$10,166	\$11,342	\$11,400

The income from continuing operations provision for income taxes by geographic operations was as follows:

For the year ended December 31:	2019	2018	2017
U.S. operations	\$ (408)	\$1,199	\$2,923
Non-U.S. operations	1,139	1,420	2,719
Total continuing operations provision for income taxes	\$ 731	\$2,619	\$5,642

The components of the income from continuing operations provision for income taxes by taxing jurisdiction were as follows:

For the year ended December 31:	2019	2018	2017
U.S. federal			
Current	\$ 331	\$ (342)	\$2,388
Deferred	(839)	1,377	77
	\$ (508)	\$1,035	\$2,465
U.S. state and local			
Current	\$ (85)	\$ 127	\$ 55
Deferred	(82)	(292)	28
	\$ (167)	\$ (165)	\$ 83
Non-U.S.			
Current	\$1,829	\$2,135	\$3,891
Deferred	(423)	(386)	(797)
	\$1,406	\$1,749	\$3,094
Total continuing operations provision for income taxes	\$ 731	\$2,619	\$5,642
Discontinued operations provision for/(benefit from) income taxes	(1)	2	(3)
Provision for social security, real estate, personal property and other taxes	3,304	3,322	3,434
Total taxes included in net income	\$4,034	\$5,943	\$9,073

A reconciliation of the statutory U.S. federal tax rate to the company's effective tax rate from continuing operations was as follows:

For the year ended December 31:	2019	2018	2017
Statutory rate	21%	21%	35%
Enactment of U.S. tax reform	1	18	48
Tax differential on foreign income	(11)	(9)*	(26)
Intra-entity transfers	0	0	(5)
Domestic incentives	(2)	(3)*	(2)
State and local	(1)	(1)	1
Other	(1)	(3)	(2)
Effective rate	7%	23%	49%

* Reclassified to conform to 2019 presentation.

Percentages rounded for disclosure purposes.

The significant components reflected within the tax rate reconciliation labeled "Tax differential on foreign income" include the effects of foreign subsidiaries' earnings taxed at rates other than the U.S. statutory rate, foreign export incentives, U.S. taxes on foreign income and any net impacts of intercompany transactions. These items also reflect audit settlements or changes in the amount of unrecognized tax benefits associated with each of these items.

On December 22, 2017, the U.S. Tax Cuts and Jobs Act was enacted. U.S. tax reform introduced many changes, including lowering the U.S. corporate tax rate to 21 percent, changes in incentives, provisions to prevent U.S. base erosion and significant changes in the taxation of international income, including provisions which allow for the repatriation of foreign earnings without U.S. tax. The enactment of U.S. tax reform resulted in charges to tax expense of \$0.1 billion, \$2.0 billion and \$5.5 billion for the years ended December 31, 2019, 2018 and 2017, respectively. The charge in 2017 was the result of the one-time U.S. transition tax and any foreign tax costs on undistributed foreign earnings, as well as the remeasurement of deferred tax balances to the new U.S. federal tax rate. In 2018, the charge was primarily attributable to the company's election to include GILTI in measuring deferred taxes, plus refinements to the one-time U.S. transition tax and foreign tax costs on undistributed foreign earnings. The charge in 2019 was related to additional tax reform guidance issued by the U.S. Treasury in January 2019.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The 2019 continuing operations effective tax rate decreased 15.9 points from 2018 driven by: a decrease in charges related to U.S. tax reform (16.5 points) and a charge in 2018 from intercompany payments (3.4 points). These benefits were partially offset by a lower benefit year to year from audit activity (4.4 points).

The effect of tax law changes on deferred tax assets and liabilities did not have a material impact on the company's 2019 effective tax rate.

Deferred Tax Assets

(\$ in millions)

At December 31:	2019	2018
Retirement benefits	\$ 3,766	\$3,620
Leases*	1,729	103**
Share-based and other compensation	637	636
Domestic tax loss/credit carryforwards	1,259	964
Deferred income	600	674
Foreign tax loss/credit carryforwards	836	903
Bad debt, inventory and warranty reserves	298	348
Depreciation	253	231
Accruals	368	336
Intangible assets	592	620
Capitalized research and development	722	—
Other	1,438	1,398
Gross deferred tax assets	12,498	9,833
Less: valuation allowance	608	915
Net deferred tax assets	\$11,890	\$8,918

Deferred Tax Liabilities

(\$ in millions)

At December 31:	2019	2018
Goodwill and intangible assets ⁺	\$ 3,111	\$1,200
GILTI deferred taxes	1,908	1,927
Leases and right-of-use assets*	2,216	580
Depreciation	728	719
Retirement benefits	1,002	455
Software development costs ⁺	1,075	292
Deferred transition costs	233	233
Undistributed foreign earnings	725	981
Other	940	1,011
Gross deferred tax liabilities	\$11,938	\$7,398

* Reflects the adoption of the FASB guidance on leases.

**Previously included in Other.

⁺ The increase in the balance was primarily due to the acquisition of Red Hat.

For financial reporting purposes, the company had foreign and domestic loss carryforwards, the tax effect of which was \$504 million, including a tax only capital loss in a subsidiary, as well as foreign and domestic credit carryforwards of \$1,591 million. Substantially all of these carryforwards are available for at least two years and the majority are available for 10 years or more.

The valuation allowances as of December 31, 2019, 2018 and 2017 were \$608 million, \$915 million and \$1,004 million, respectively. The amounts principally apply to certain foreign and domestic loss carryforwards and credits. In the opinion of management, it is more likely than not that these assets will not be realized. However, to the extent that tax benefits related to these carryforwards are realized in the future, the reduction in the valuation allowance will reduce income tax expense.

The amount of unrecognized tax benefits at December 31, 2019 increased by \$387 million in 2019 to \$7,146 million. A reconciliation of the beginning and ending amount of unrecognized tax benefits was as follows:

(\$ in millions)	2019	2018	2017
Balance at January 1	\$6,759	\$ 7,031	\$3,740
Additions based on tax positions related to the current year	816	394	3,029
Additions for tax positions of prior years	779	1,201	803
Reductions for tax positions of prior years (including impacts due to a lapse of statute)	(922)	(1,686)	(367)
Settlements	(286)	(181)	(174)
Balance at December 31	\$7,146	\$ 6,759	\$7,031

The additions to unrecognized tax benefits related to the current and prior years were primarily attributable to U.S. federal and state tax matters, as well as non-U.S. tax matters, including transfer pricing, credits and incentives. The settlements and reductions to unrecognized tax benefits for tax positions of prior years were primarily attributable to U.S. federal and state tax matters, non-U.S. audits and impacts due to lapse of statute of limitations.

The unrecognized tax benefits at December 31, 2019 of \$7,146 million can be reduced by \$584 million associated with timing adjustments, U.S. tax credits, potential transfer pricing adjustments and state income taxes. The net amount of \$6,562 million, if recognized, would favorably affect the company's effective tax rate. The net amounts at December 31, 2018 and 2017 were \$6,041 million and \$6,064 million, respectively.

Interest and penalties related to income tax liabilities are included in income tax expense. During the year ended December 31, 2019, the company recognized \$13 million in interest expense and penalties; in 2018, the company recognized a net benefit of \$14 million in interest expense and penalties; and, in 2017, the company recognized \$174 million in interest expense and penalties. The company had \$819 million for the payment of interest and penalties accrued at December 31, 2019, and had \$680 million accrued at December 31, 2018.

Within the next 12 months, the company believes it is reasonably possible that the total amount of unrecognized tax benefits associated with certain positions may be reduced. The potential decrease in the amount of unrecognized tax benefits is associated with the anticipated resolution of various U.S. state and non-U.S. audits. The company estimates that the unrecognized tax benefits at December 31, 2019 could be reduced by \$236 million.

The company's U.S. income tax returns for 2013 and 2014 continue to be examined by the IRS with specific focus on certain cross-border transactions in 2013. Although the IRS could propose additional adjustments related to these transactions, the company believes it is adequately reserved on these matters. In the third quarter of 2018, the U.S. Internal Revenue Service commenced its audit of the company's U.S. tax returns for 2015 and 2016. The company anticipates that this audit will be completed in 2021. With respect to major U.S. state and foreign taxing jurisdictions, the company is generally no longer subject to tax examinations for years prior to 2014. The company is no longer subject to income tax examination of its U.S. federal tax return for years prior to 2013. The open years contain matters that could be subject to differing interpretations of applicable tax laws and regulations as it relates to the amount and/or timing of income, deductions and tax credits. Although the outcome of tax audits is always uncertain, the company believes that adequate

amounts of tax, interest and penalties have been provided for any adjustments that are expected to result for these years.

The company is involved in a number of income tax-related matters in India challenging tax assessments issued by the India Tax Authorities. As of December 31, 2019, the company had recorded \$729 million as prepaid income taxes in India. A significant portion of this balance represents cash tax deposits paid over time to protect the company's right to appeal various income tax assessments made by the India Tax Authorities. Although the outcome of tax audits is always uncertain, the company believes that adequate amounts of tax, interest and penalties have been provided for any adjustments that are expected to result for these years.

Within consolidated retained earnings at December 31, 2019 were undistributed after-tax earnings from certain non-U.S. subsidiaries that were not indefinitely reinvested. At December 31, 2019, the company had a deferred tax liability of \$725 million for the estimated taxes associated with the repatriation of these earnings. Undistributed earnings of approximately \$650 million and other outside basis differences in foreign subsidiaries were indefinitely reinvested in foreign operations. Quantification of the deferred tax liability, if any, associated with indefinitely reinvested earnings and outside basis differences was not practicable.

NOTE H. EARNINGS PER SHARE

The following table presents the computation of basic and diluted earnings per share of common stock.

(\$ in millions except per share amounts)			
For the year ended December 31:	2019	2018	2017
Weighted-average number of shares on which earnings per share calculations are based			
Basic	887,235,105	912,048,072	932,828,295
Add—incremental shares under stock-based compensation plans	4,199,440	2,786,316	3,094,373
Add—incremental shares associated with contingently issuable shares	1,378,831	1,481,326	1,462,957
Assuming dilution	892,813,376	916,315,714	937,385,625
Income from continuing operations	\$ 9,435	\$ 8,723	\$ 5,758
Income/(loss) from discontinued operations, net of tax	(4)	5	(5)
Net income on which basic earnings per share is calculated	\$ 9,431	\$ 8,728	\$ 5,753
Income from continuing operations	\$ 9,435	\$ 8,723	\$ 5,758
Net income applicable to contingently issuable shares	0	(6)	(2)
Income from continuing operations on which diluted earnings per share is calculated	\$ 9,435	\$ 8,718	\$ 5,756
Income/(loss) from discontinued operations, net of tax, on which basic and diluted earnings per share is calculated	(4)	5	(5)
Net income on which diluted earnings per share is calculated	\$ 9,431	\$ 8,722	\$ 5,752
Earnings/(loss) per share of common stock			
Assuming dilution			
Continuing operations	\$ 10.57	\$ 9.51	\$ 6.14
Discontinued operations	(0.01)	0.01	0.00
Total	\$ 10.56	\$ 9.52	\$ 6.14
Basic			
Continuing operations	\$ 10.63	\$ 9.56	\$ 6.17
Discontinued operations	0.00	0.01	0.00
Total	\$ 10.63	\$ 9.57	\$ 6.17

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Weighted-average stock options to purchase 855,679 common shares in 2019, 576,776 common shares in 2018 and 209,294 common shares in 2017 were outstanding, but were not included in the computation of diluted earnings per share because the

exercise price of the options was greater than the average market price of the common shares for the full year, and therefore, the effect would have been antidilutive.

NOTE I. FINANCIAL ASSETS & LIABILITIES**Fair Value Measurements****Financial Assets and Liabilities Measured at Fair Value on a Recurring Basis**

The following table presents the company's financial assets and financial liabilities that are measured at fair value on a recurring basis at December 31, 2019 and 2018.

(\$ in millions)	Fair Value Hierarchy Level	2019		2018	
		Assets ⁽⁷⁾	Liabilities ⁽⁸⁾	Assets ⁽⁷⁾	Liabilities ⁽⁸⁾
At December 31:					
Cash equivalents ⁽¹⁾					
Time deposits and certificates of deposit ⁽⁴⁾	2	\$4,392	\$ —	\$7,679	\$ —
Money market funds	1	427	—	25	—
Total cash equivalents		\$4,819	\$ —	\$7,704	\$ —
Equity investments ⁽²⁾	1	0	—	0	—
Debt securities—current ^{(3) (4)}	2	696	—	618	—
Debt securities—noncurrent ^{(2) (4)}	2	65	—	—	—
Derivatives designated as hedging instruments ⁽⁵⁾					
Interest rate contracts	2	56	—	220	80
Foreign exchange contracts	2	175	635	483	239
Derivatives not designated as hedging instruments					
Foreign exchange contracts	2	10	33	26	13
Equity contracts ⁽⁶⁾	1,2	1	4	2	51
Total		\$5,823	\$673	\$9,053	\$383

⁽¹⁾ Included within cash and cash equivalents in the Consolidated Balance Sheet.

⁽²⁾ Included within investments and sundry assets in the Consolidated Balance Sheet.

⁽³⁾ Included within marketable securities in the Consolidated Balance Sheet.

⁽⁴⁾ Available-for-sale debt securities with carrying values that approximate fair value. The contractual maturities are substantially one year or less.

⁽⁵⁾ Excludes \$7,324 million and \$6,261 million at December 31, 2019 and 2018, respectively, of debt designated as hedging instruments that are reported at carrying value.

⁽⁶⁾ Level 1 includes immaterial amounts related to equity futures contracts.

⁽⁷⁾ The gross balances of derivative assets contained within prepaid expenses and other current assets, and investments and sundry assets in the Consolidated Balance Sheet at December 31, 2019 were \$149 million and \$94 million, respectively, and at December 31, 2018 were \$385 million and \$347 million, respectively.

⁽⁸⁾ The gross balances of derivative liabilities contained within other accrued expenses and liabilities, and other liabilities in the Consolidated Balance Sheet at December 31, 2019 were \$167 million and \$506 million, respectively, and at December 31, 2018 were \$177 million and \$206 million, respectively.

Financial Assets and Liabilities Not Measured at Fair Value

Short-Term Receivables and Payables

Notes and other accounts receivable and other investments are financial assets with carrying values that approximate fair value. Accounts payable, other accrued expenses and short-term debt (excluding the current portion of long-term debt and including short-term finance lease liabilities) are financial liabilities with carrying values that approximate fair value. If measured at fair value in the financial statements, these financial instruments would be classified as Level 3 in the fair value hierarchy, except for short-term debt which would be classified as Level 2.

Loans and Long-Term Receivables

Fair values are based on discounted future cash flows using current interest rates offered for similar loans to clients with similar credit ratings for the same remaining maturities. At December 31, 2019 and 2018, the difference between the carrying amount and estimated fair value for loans and long-term receivables was immaterial. If measured at fair value in the financial statements, these financial instruments would be classified as Level 3 in the fair value hierarchy.

Long-Term Debt

Fair value of publicly traded long-term debt is based on quoted market prices for the identical liability when traded as an asset in an active market. For other long-term debt (including long-term finance lease liabilities) for which a quoted market price is not available, an expected present value technique that uses rates currently available to the company for debt with similar terms and remaining maturities is used to estimate fair value. The carrying amount of long-term debt was \$54,102 million and \$35,605 million, and the estimated fair value was \$58,431 million and \$36,599 million at December 31, 2019 and 2018, respectively. If measured at fair value in the financial statements, long-term debt (including the current portion) would be classified as Level 2 in the fair value hierarchy.

NOTE J. INVENTORY

(\$ in millions)

At December 31:	2019	2018
Finished goods	\$ 220	\$ 266
Work in process and raw materials	1,399	1,415
Total	\$1,619	\$1,682

NOTE K. FINANCING RECEIVABLES

Financing receivables primarily consist of client loan and installment payment receivables (loans), investment in sales-type and direct financing leases, and commercial financing receivables. Client loan and installment payment receivables (loans) are provided primarily to clients to finance the purchase of hardware, software and services. Payment terms on these financing arrangements are generally for terms up to seven years. Client loans and installment payment financing contracts are priced independently at competitive market rates. Investment in sales-type and direct financing leases relates principally to the company's Systems products and are for terms ranging generally from two to six years. Commercial financing receivables relate primarily to inventory and accounts receivable financing for dealers and remarketers of IBM and OEM products. Payment terms for inventory and accounts receivable financing generally range from 30 to 90 days.

Beginning in the second quarter of 2019 and continuing throughout the year, the company wound down the portion of its commercial financing operations which provides short-term working capital solutions for OEM information technology suppliers, distributors and resellers, which has resulted in a significant reduction of commercial financing receivables. This wind down is consistent with IBM's capital allocation strategy and high-value focus. IBM Global Financing will continue to provide differentiated end-to-end financing solutions, including commercial financing in support of IBM partner relationships.

A summary of the components of the company's financing receivables is presented as follows:

(\$ in millions)	Investment in Sales-Type and Direct Financing Leases	Commercial Financing Receivables	Client Loan and Installment Payment Receivables/(Loans)	Total
At December 31, 2019:				
Financing receivables, gross	\$6,077	\$3,836	\$13,592	\$23,504
Unearned income	(509)	(4)	(570)	(1,083)
Recorded investment	\$5,567	\$3,831	\$13,022	\$22,421
Allowance for credit losses	(72)	(11)	(138)	(221)
Unguaranteed residual value	652	—	—	652
Guaranteed residual value	53	—	—	53
Total financing receivables, net	\$6,199	\$3,820	\$12,884	\$22,904
Current portion	\$2,334	\$3,820	\$ 8,037	\$14,192
Noncurrent portion	\$3,865	\$ —	\$ 4,847	\$ 8,712

(\$ in millions)

	Investment in Sales-Type and Direct Financing Leases	Commercial Financing Receivables	Client Loan and Installment Payment Receivables/ (Loans)	Total
At December 31, 2018:				
Financing receivables, gross	\$6,846	\$11,889	\$13,614	\$32,348
Unearned income	(526)	(37)	(632)	(1,195)
Recorded investment	\$6,320	\$11,852	\$12,981	\$31,153
Allowance for credit losses	(99)	(13)	(179)	(292)
Unguaranteed residual value	589	—	—	589
Guaranteed residual value	85	—	—	85
Total financing receivables, net	\$6,895	\$11,838	\$12,802	\$31,536
Current portion	\$2,834	\$11,838	\$ 7,716	\$22,388
Noncurrent portion	\$4,061	\$ —	\$ 5,086	\$ 9,148

The company utilizes certain of its financing receivables as collateral for nonrecourse borrowings. Financing receivables pledged as collateral for borrowings were \$1,062 million and \$710 million at December 31, 2019 and 2018, respectively. These borrowings are included in note P, "Borrowings."

The company did not have any financing receivables held for sale as of December 31, 2019 and 2018.

Financing Receivables by Portfolio Segment

The following tables present the recorded investment by portfolio segment and by class, excluding commercial financing receivables and other miscellaneous financing receivables at December 31, 2019 and 2018. Commercial financing receivables are excluded from the presentation of financing receivables by portfolio segment, as they are short term in nature and the current estimated risk of loss and resulting impact to the company's financing results are not material.

(\$ in millions)

At December 31, 2019:	Americas	EMEA	Asia Pacific	Total
Recorded investment:				
Lease receivables	\$ 3,419	\$ 1,186	\$ 963	\$ 5,567
Loan receivables	6,726	3,901	2,395	13,022
Ending balance	\$10,144	\$5,087	\$3,359	\$18,590
Recorded investment, collectively evaluated for impairment	\$10,032	\$5,040	\$3,326	\$18,399
Recorded investment, individually evaluated for impairment	\$ 112	\$ 47	\$ 32	\$ 191
Allowance for credit losses				
Beginning balance at January 1, 2019				
Lease receivables	\$ 53	\$ 22	\$ 24	\$ 99
Loan receivables	105	43	32	179
Total	\$ 158	\$ 65	\$ 56	\$ 279
Write-offs	(42)	(3)	(18)	(63)
Recoveries	1	0	1	2
Provision	5	(7)	(3)	(5)
Other*	(1)	0	(1)	(2)
Ending balance at December 31, 2019	\$ 120	\$ 54	\$ 36	\$ 210
Lease receivables	\$ 33	\$ 23	\$ 16	\$ 72
Loan receivables	\$ 88	\$ 31	\$ 20	\$ 138
Related allowance, collectively evaluated for impairment	\$ 25	\$ 11	\$ 4	\$ 39
Related allowance, individually evaluated for impairment	\$ 96	\$ 43	\$ 32	\$ 171

* Primarily represents translation adjustments.

Write-offs of lease receivables and loan receivables were \$16 million and \$47 million, respectively, for the year ended December 31, 2019. Provisions for credit losses recorded for lease receivables and loan receivables were a release of \$6 million and an addition of \$2 million, respectively, for the year ended December 31, 2019.

The average recorded investment of impaired leases and loans for Americas, EMEA and Asia Pacific was \$138 million, \$49 million and \$45 million, respectively, for the year ended December 31, 2019. Both interest income recognized, and interest income recognized on a cash basis on impaired leases and loans were immaterial for the year ended December 31, 2019.

(\$ in millions)

At December 31, 2018:	Americas	EMEA	Asia Pacific	Total
Recorded investment:				
Lease receivables	\$ 3,827	\$1,341	\$1,152	\$ 6,320
Loan receivables	6,817	3,675	2,489	12,981
Ending balance	\$10,644	\$5,016	\$3,641	\$19,301
Recorded investment, collectively evaluated for impairment	\$10,498	\$4,964	\$3,590	\$19,052
Recorded investment, individually evaluated for impairment	\$ 146	\$ 52	\$ 51	\$ 249
Allowance for credit losses				
Beginning balance at January 1, 2018				
Lease receivables	\$ 63	\$ 9	\$ 31	\$ 103
Loan receivables	108	52	51	211
Total	\$ 172	\$ 61	\$ 82	\$ 314
Write-offs	(10)	(2)	(23)	(35)
Recoveries	0	0	2	2
Provision	7	9	0	16
Other*	(11)	(3)	(4)	(19)
Ending balance at December 31, 2018	\$ 158	\$ 65	\$ 56	\$ 279
Lease receivables	\$ 53	\$ 22	\$ 24	\$ 99
Loan receivables	\$ 105	\$ 43	\$ 32	\$ 179
Related allowance, collectively evaluated for impairment	\$ 39	\$ 16	\$ 5	\$ 59
Related allowance, individually evaluated for impairment	\$ 119	\$ 49	\$ 51	\$ 219

* Primarily represents translation adjustments.

Write-offs of lease receivables and loan receivables were \$15 million and \$20 million, respectively, for the year ended December 31, 2018. Provisions for credit losses recorded for lease receivables and loan receivables were \$14 million and \$2 million, respectively, for the year ended December 31, 2018.

When determining the allowances, financing receivables are evaluated either on an individual or a collective basis. For the company's policy on determining allowances for credit losses, refer to note A, "Significant Accounting Policies."

The average recorded investment of impaired leases and loans for Americas, EMEA and Asia Pacific was \$138 million, \$55 million and \$73 million, respectively, for the year ended December 31, 2018. Both interest income recognized, and interest income recognized on a cash basis on impaired leases and loans were immaterial for the year ended December 31, 2018.

Notes to Consolidated Financial Statements
 International Business Machines Corporation and Subsidiary Companies

Past Due Financing Receivables

The company considers a client's financing receivable balance past due when any installment is aged over 90 days. The following tables present summary information about the recorded investment in lease and loan financing receivables, including recorded investments aged over 90 days and still accruing, billed invoices aged over 90 days and recorded investment not accruing.

(\$ in millions)

At December 31, 2019:	Total Recorded Investment	Recorded Investment >90 Days ⁽¹⁾	Recorded Investment >90 Days and Accruing ⁽¹⁾	Billed Invoices >90 Days and Accruing	Recorded Investment Not Accruing ⁽²⁾
Americas	\$ 3,419	\$187	\$147	\$11	\$ 41
EMEA	1,186	28	13	2	17
Asia Pacific	963	19	7	1	11
Total lease receivables	\$ 5,567	\$234	\$168	\$14	\$ 69
Americas	\$ 6,726	\$127	\$ 71	\$11	\$ 72
EMEA	3,901	77	8	3	72
Asia Pacific	2,395	26	6	2	21
Total loan receivables	\$13,022	\$231	\$ 85	\$15	\$166
Total	\$18,590	\$465	\$253	\$29	\$235

(\$ in millions)

At December 31, 2018:	Total Recorded Investment	Recorded Investment >90 Days ⁽¹⁾	Recorded Investment >90 Days and Accruing ⁽¹⁾	Billed Invoices >90 Days and Accruing	Recorded Investment Not Accruing ⁽³⁾
Americas	\$ 3,827	\$310	\$256	\$19	\$ 57
EMEA	1,341	25	9	1	16
Asia Pacific	1,152	49	27	3	24
Total lease receivables	\$ 6,320	\$385	\$292	\$24	\$ 97
Americas	\$ 6,817	\$259	\$166	\$24	\$ 99
EMEA	3,675	98	25	3	73
Asia Pacific	2,489	40	11	1	31
Total loan receivables	\$12,981	\$397	\$202	\$29	\$203
Total	\$19,301	\$782	\$494	\$52	\$300

⁽¹⁾ At a contract level, which includes total billed and unbilled amounts for financing receivables aged greater than 90 days.

⁽²⁾ Of the recorded investment not accruing, \$191 million is individually evaluated for impairment with a related allowance of \$171 million.

⁽³⁾ Of the recorded investment not accruing, \$249 million is individually evaluated for impairment with a related allowance of \$219 million.

Credit Quality Indicators

The company's credit quality indicators, which are based on rating agency data, publicly available information and information provided by customers, are reviewed periodically based on the relative level of risk. The resulting indicators are a numerical rating system that maps to Moody's Investors Service credit ratings as shown below. The company uses information provided by Moody's, where available, as one of many inputs in its determination of customer credit ratings.

The following tables present the recorded investment net of allowance for credit losses for each class of receivables, by credit quality indicator, at December 31, 2019 and 2018. Receivables with a credit quality indicator ranging from Aaa to Baa3 are considered investment grade. All others are considered non-investment grade. The credit quality indicators do not reflect mitigation actions that the company takes to transfer credit risk to third parties.

(\$ in millions)

At December 31, 2019:	Lease Receivables			Loan Receivables		
	Americas	EMEA	Asia Pacific	Americas	EMEA	Asia Pacific
Credit rating						
Aaa—Aa3	\$ 465	\$ 54	\$ 43	\$1,028	\$ 193	\$ 189
A1—A3	750	181	454	1,186	395	892
Baa1—Baa3	955	409	147	1,882	1,527	619
Ba1—Ba2	746	326	154	1,513	921	388
Ba3—B1	215	140	101	471	564	205
B2—B3	242	50	47	522	253	72
Caa—D	13	2	2	36	18	10
Total	\$3,385	\$1,162	\$947	\$6,638	\$3,871	\$2,376

(\$ in millions)

At December 31, 2018:	Lease Receivables			Loan Receivables		
	Americas	EMEA	Asia Pacific	Americas	EMEA	Asia Pacific
Credit rating						
Aaa—Aa3	\$ 593	\$ 45	\$ 85	\$1,055	\$ 125	\$ 185
A1—A3	678	158	413	1,206	436	901
Baa1—Baa3	892	417	297	1,587	1,148	648
Ba1—Ba2	852	426	191	1,516	1,175	417
Ba3—B1	433	171	84	770	472	184
B2—B3	299	90	50	531	249	109
Caa—D	26	10	7	47	28	15
Total	\$3,774	\$1,319	\$1,128	\$6,712	\$3,633	\$2,457

Troubled Debt Restructurings

The company did not have any significant troubled debt restructurings for the years ended December 31, 2019 and 2018.

NOTE M. LEASES

Accounting for Leases as a Lessee

The following tables presents the various components of lease costs:

(\$ in millions)

At December 31:	2019	2018
Land and land improvements	\$ 365	\$ 448
Buildings and building and leasehold improvements	9,364	9,640
Information technology equipment	18,054	17,468
Production, engineering, office and other equipment	3,721	4,081
Plant and other property—gross	31,504	31,636
Less: Accumulated depreciation	21,726	21,276
Plant and other property—net	9,778	10,359
Rental machines	523	824
Less: Accumulated depreciation	292	392
Rental machines—net	232	433
Total—net	\$10,010	\$10,792

(\$ in millions)	For the year ended December 31:	2019
Finance lease cost		\$ 30
Operating lease cost		1,645
Short-term lease cost		38
Variable lease cost		534
Sublease income		(24)
Total lease cost		\$2,223

The company recorded net gains on sale and leaseback transactions of \$41 million for the year ended December 31, 2019.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The following table presents supplemental information relating to the cash flows arising from lease transactions. Cash payments related to variable lease costs and short-term leases are not included in the measurement of operating and finance lease liabilities, and, as such, are excluded from the amounts below.

(\$ in millions)	2019
For the year ended December 31:	2019
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash outflows from finance leases	\$ 8
Financing cash outflows from finance leases	22
Operating cash outflows from operating leases	1,541
ROU assets obtained in exchange for new finance lease liabilities	209*
ROU assets obtained in exchange for new operating lease liabilities	6,481*

* Includes opening balance additions as a result of the adoption of the new lease guidance effective January 1, 2019. The post adoption addition of leases for the year ended December 31, 2019 was \$1,679 million for operating leases and immaterial for finance leases.

The following table presents a maturity analysis of expected undiscounted cash flows for operating and finance leases on an annual basis for the next five years and thereafter.

(\$ in millions)	2020	2021	2022	2023	2024	Thereafter	Imputed Interest*	Total**
Finance leases	\$ 62	\$ 59	\$ 48	\$ 31	\$ 12	\$ 46	\$ (54)	\$ 204
Operating leases	1,486	1,198	928	673	514	806	(346)	5,259

* Imputed interest represents the difference between undiscounted cash flows and discounted cash flows.

**The company entered into lease agreements for certain facilities and equipment with payments totaling approximately \$181 million that have not yet commenced as of December 31, 2019, and therefore are not included in this table.

The following table presents the weighted-average lease term and discount rate for finance and operating leases.

At December 31:	2019
Finance leases	
Weighted-average remaining lease term	4.8 yrs.
Weighted-average discount rate	1.62 %
Operating leases	
Weighted-average remaining lease term	5.4 yrs.
Weighted-average discount rate	3.03 %

At December 31, 2019, the total amount of finance leases recognized in the Consolidated Balance Sheet for ROU assets in property, plant and equipment was \$187 million and lease liabilities in short-term debt and long-term debt was \$52 million and \$151 million, respectively.

Prior to the adoption of the new lease guidance on January 1, 2019, ROU assets and lease liabilities for operating leases were not recognized in the Consolidated Balance Sheet. The company elected the practical expedient to not provide comparable presentation in the Consolidated Balance Sheet for periods prior to

adoption. Rental expense, including amounts charged to inventory and fixed assets, and excluding amounts previously reserved, were \$1,944 million and \$1,821 million for the years ended December 31, 2018 and 2017, respectively.

The following table, which was included in the company's 2018 Annual Report, depicts gross minimum rental commitments under noncancelable leases, amounts related to vacant space associated with workforce transformation, sublease income commitments and capital lease commitments.

(\$ in millions)	2019	2020	2021	2022	2023	Beyond 2023
Operating lease commitments						
Gross minimum rental commitments (including vacant space below)	\$1,581	\$1,233	\$914	\$640	\$445	\$815
Vacant space	29	23	14	9	5	8
Sublease income commitments	11	7	5	4	4	2
Capital lease commitments	3	3	3	3	2	28

The difference between the company's total lease commitments as reported at December 31, 2018 compared to the January 1, 2019 ROU asset balance in the Consolidated Balance Sheet is primarily due to the required use of a discount factor (imputed interest) under the new lease guidance and certain amounts that are not included in the ROU assets under the new lease guidance (e.g. tenant incentives and vacant space).

Accounting for Leases as a Lessor

The following table presents amounts included in the Consolidated Income Statement related to lessor activity:

(\$ in millions)	For the year ended December 31:	2019
Lease income—sales-type and direct financing leases		
Sales-type lease selling price	\$1,509	
Less: Carrying value of underlying assets excluding unguaranteed residual value	591	
Gross profit	918	
Interest income on lease receivables	303	
Total sales-type and direct financing lease income	\$1,221	
Lease income—operating leases	324	
Variable lease income	56	
Total lease income	\$1,601	

Sales-Type and Direct Financing Leases

At December 31, 2019, the unguaranteed residual value of sales-type and direct financing leases was \$652 million. For further information on the company's net investment in leases, including guaranteed and unguaranteed residual values, refer to note K, "Financing Receivables."

For the years ended December 31, 2019 and 2018, impairment of residual values was immaterial.

The following table presents a maturity analysis of the lease payments due to IBM on sales-type and direct financing leases over the next five years and thereafter, as well as a reconciliation of the undiscounted cash flows to the financing receivables recognized in the Consolidated Balance Sheet at December 31, 2019:

(\$ in millions)	Total
2020	\$2,632
2021	1,921
2022	1,053
2023	382
2024	82
Thereafter	7
Total undiscounted cash flows	\$6,077
Present value of lease payments (recognized as financing receivables)	5,567*
Difference between undiscounted cash flows and discounted cash flows	\$ (509)

* The present value of the lease payments will not equal the financing receivables balances in the Consolidated Balance Sheet, due to certain items including IDCs, allowance for credit losses and residual values, which are included in the financing receivables balances, but are not included in the future lease payments.

Operating Leases

The following table presents a maturity analysis of the undiscounted lease payments due to IBM on operating leases over the next five years and thereafter, at December 31, 2019:

(\$ in millions)	Total
2020	\$145
2021	35
2022	4
2023	0
2024	0
Thereafter	—
Total undiscounted cash flows	\$184

There were no material impairment losses incurred for equipment provided to clients under an operating lease for the year ended December 31, 2019.

At December 31, 2019, the unguaranteed residual value of operating leases was \$81 million.

NOTE N. INTANGIBLE ASSETS INCLUDING GOODWILL

Intangible Assets

The following table presents the company's intangible asset balances by major asset class.

(\$ in millions)

At December 31, 2019: [*]	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Intangible asset class			
Capitalized software	\$ 1,749	\$ (743)	\$ 1,006
Client relationships	8,921	(1,433)	7,488
Completed technology	6,261	(1,400)	4,861
Patents/trademarks	2,301	(445)	1,856
Other**	56	(31)	24
Total	\$19,287	\$(4,052)	\$15,235

(\$ in millions)

At December 31, 2018:	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Intangible asset class			
Capitalized software	\$1,568	\$ (629)	\$ 939
Client relationships	2,068	(1,123)	945
Completed technology	2,156	(1,296)	860
Patents/trademarks	641	(330)	311
Other**	56	(23)	32
Total	\$6,489	\$(3,402)	\$3,087

* Amounts as of December 31, 2019 include a decrease of \$42 million in net intangible asset balances due to foreign currency translation.

There was no foreign currency impact on net intangible assets for the year ended December 31, 2018.

**Other intangibles are primarily acquired proprietary and nonproprietary business processes, methodologies and systems.

The net carrying amount of intangible assets increased \$12,147 million during the year ended December 31, 2019, primarily due to the acquisition of Red Hat and additions resulting from capitalized software, partially offset by intangible asset amortization. Intangible assets of \$13,472 million generated from the acquisition of Red Hat were allocated to the segments as follows:

(\$ in millions)

Segment	Intangible Assets Allocated*
Cloud & Cognitive Software	\$10,729
Global Technology Services	1,819
Global Business Services	617
Systems	306
Total	\$13,472

* For additional information on the acquisition of Red Hat, refer to note E, "Acquisitions & Divestitures."

There was no impairment of intangible assets recorded in 2019 and 2018. The aggregate intangible amortization expense was \$1,850 million and \$1,353 million for the years ended December 31, 2019 and 2018, respectively. In addition, in 2019 and 2018, respectively, the company retired \$946 million and \$1,469 million of fully amortized intangible assets, impacting both the gross carrying amount and accumulated amortization by this amount. In 2019, the company divested select intangible assets with a gross carrying amount of \$335 million and \$260 million of accumulated amortization.

The future amortization expense relating to intangible assets currently recorded in the Consolidated Balance Sheet is estimated to be the following at December 31, 2019:

(\$ in millions)

	Capitalized Software	Acquired Intangibles	Total
2020	\$529	\$1,855	\$2,384
2021	352	1,747	2,099
2022	123	1,684	1,808
2023	1	1,371	1,372
2024	0	1,322	1,322
Thereafter	—	6,250	6,250

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Goodwill

The changes in the goodwill balances by reportable segment, for the years ended December 31, 2019 and 2018, are as follows:

(\$ in millions)

Segment	Balance January 1, 2019	Goodwill Additions	Purchase Price Adjustments	Divestitures	Foreign Currency Translation and Other Adjustments**	Balance December 31, 2019
Cloud & Cognitive Software	\$24,594	\$18,399	\$ 133	\$ (131)	\$41	\$43,037
Global Business Services	4,711	1,059	1	(1)	5	5,775
Global Technology Services	3,988	3,119	—	—	34	7,141
Systems	1,847	525	(110)	—	7	2,270
Other—divested businesses	1,126	—	—	(1,126)	—	—
Total	\$36,265	\$23,102	\$ 24	\$(1,257)	\$87	\$58,222

(\$ in millions)

Segment	Balance January 1, 2018	Goodwill Additions	Purchase Price Adjustments	Divestitures	Foreign Currency Translation and Other Adjustments**	Balance December 31, 2018
Cloud & Cognitive Software*	\$24,973	\$ 9	\$ 0	\$(1)	\$(388)	\$24,594
Global Business Services*	4,782	24	(3)	—	(92)	4,711
Global Technology Services*	4,044	—	0	—	(56)	3,988
Systems	1,862	—	0	—	(15)	1,847
Other—divested businesses*	1,127	1	0	0	(2)	1,126
Total	\$36,788	\$34	\$ (3)	\$(1)	\$(553)	\$36,265

* Recast to conform to 2019 presentation.

**Primarily driven by foreign currency translation.

Goodwill additions recorded during 2019 were related to the acquisition of Red Hat in the third quarter of 2019. For additional information on this transaction and related purchase price adjustments, refer to note E, "Acquisitions & Divestitures."

There were no goodwill impairment losses recorded during 2019 or 2018 and the company has no accumulated impairment losses.

Purchase price adjustments recorded in 2019 and 2018 were related to acquisitions that were still subject to the measurement period that ends at the earlier of 12 months from the acquisition date or when information becomes available. Net purchase price adjustments recorded in 2019 and 2018 were not material.

NOTE O. INVESTMENTS & SUNDAY ASSETS

(\$ in millions)

At December 31:	2019	2018
Derivatives—noncurrent	\$ 94	\$ 347
Alliance investments		
Equity method	184	192
Non-equity method	38	34
Long-term deposits	242	268
Other receivables	276	359
Employee benefit-related	253	263
Prepaid income taxes	664	626
Other assets	321	296
Total	\$2,074	\$2,386

NOTE P. BORROWINGS**Short-Term Debt**

(\$ in millions)

At December 31:	2019	2018
Commercial paper	\$ 304	\$ 2,995
Short-term loans	971	161
Long-term debt—current maturities	7,522	7,051
Total	\$8,797	\$10,207

The weighted-average interest rate for commercial paper at December 31, 2019 and 2018 was 1.6 percent and 2.5 percent, respectively. The weighted-average interest rates for short-term loans were 6.1 percent and 4.3 percent at December 31, 2019 and 2018, respectively.

Long-Term Debt
Pre-Swap Borrowing

(\$ in millions)

At December 31:	Maturities	2019	2018*
U.S. dollar debt (weighted-average interest rate at December 31, 2019):**			
3.0%	2019	\$ —	\$ 5,465
2.3%	2020	4,326	4,344
2.5%	2021	8,498	5,529
2.6%	2022	6,289	3,529
3.3%	2023	2,388	2,428
3.3%	2024	5,045	2,037
6.7%	2025	636	600
3.3%	2026	4,350	1,350
4.7%	2027	969	969
6.5%	2028	313	313
3.5%	2029	3,250	—
5.9%	2032	600	600
8.0%	2038	83	83
4.5%	2039	2,745	745
4.0%	2042	1,107	1,107
7.0%	2045	27	27
4.7%	2046	650	650
4.3%	2049	3,000	—
7.1%	2096	316	316
		\$44,594	\$30,091
Other currencies (weighted-average interest rate at December 31, 2019, in parentheses):**			
Euro (1.3%)	2020–2031	\$14,306	\$10,011
Pound sterling (2.7%)	2020–2022	1,390	1,338
Japanese yen (0.3%)	2022–2026	1,339	1,325
Other (6.1%)	2020–2022	375	390
		\$62,003	\$43,155
Finance lease obligations (2.0%)	2020–2030	204	41
		\$62,207	\$43,196
Less: net unamortized discount		881	802
Less: net unamortized debt issuance costs		142	76
Add: fair value adjustment [†]		440	337
		\$61,624	\$42,656
Less: current maturities		7,522	7,051
Total		\$54,102	\$35,605

* Reclassified to conform to 2019 presentation.

**Includes notes, debentures, bank loans and secured borrowings.

[†] The portion of the company's fixed-rate debt obligations that is hedged is reflected in the Consolidated Balance Sheet as an amount equal to the sum of the debt's carrying value and a fair value adjustment representing changes in the fair value of the hedged debt obligations attributable to movements in benchmark interest rates.

The company's indenture governing its debt securities and its various credit facilities each contain significant covenants which obligate the company to promptly pay principal and interest, limit the aggregate amount of secured indebtedness and sale

and leaseback transactions to 10 percent of the company's consolidated net tangible assets, and restrict the company's ability to merge or consolidate unless certain conditions are met. The credit facilities also include a covenant on the company's

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

consolidated net interest expense ratio, which cannot be less than 2.20 to 1.0, as well as a cross default provision with respect to other defaulted indebtedness of at least \$500 million.

The company is in compliance with all of its significant debt covenants and provides periodic certifications to its lenders. The failure to comply with its debt covenants could constitute an event of default with respect to the debt to which such provisions apply. If certain events of default were to occur, the principal and interest on the debt to which such event of default applied would become immediately due and payable.

On May 15, 2019, the company issued an aggregate of \$20 billion of indebtedness in the following eight tranches: \$1.5 billion of 2-year floating rate notes priced at 3 month LIBOR plus 40

basis points, \$1.5 billion of 2-year fixed rate notes with a 2.8 percent coupon, \$2.75 billion of 3-year fixed rate notes with a 2.85 percent coupon, \$3.0 billion of 5-year fixed rate notes with a 3.0 percent coupon, \$3.0 billion of 7-year fixed rate notes with a 3.3 percent coupon, \$3.25 billion of 10-year fixed rate notes with a 3.5 percent coupon, \$2.0 billion of 20-year fixed rate notes with a 4.15 percent coupon and \$3.0 billion of 30-year fixed rate notes with a 4.25 percent coupon. The proceeds from these debt issuances were primarily used for the acquisition of Red Hat. For additional information on this transaction, see note E, "Acquisitions & Divestitures."

Additionally, the long-term debt table above includes Euro bonds that were issued in the first quarter of 2019 to partially finance the acquisition of Red Hat upon closing.

Post-Swap Borrowing (Long-Term Debt, Including Current Portion)

(\$ in millions)

	2019		2018	
	Amount	Weighted-Average Interest Rate	Amount	Weighted-Average Interest Rate
For the year ended December 31:				
Fixed-rate debt	\$52,169	2.9%	\$28,770	2.7%
Floating-rate debt*	9,455	2.2%	13,886	3.0%
Total	\$61,624		\$42,656	

* Includes \$2,975 million in 2019 and \$7,563 million in 2018 of notional interest rate swaps that effectively convert fixed-rate long-term debt into floating-rate debt. Refer to note T, "Derivative Financial Instruments," for additional information.

Pre-swap annual contractual obligations of long-term debt outstanding at December 31, 2019, are as follows:

(\$ in millions)	Total
2020	\$ 7,526
2021	9,826
2022	7,175
2023	5,374
2024	6,305
Thereafter	26,000
Total	\$62,207

Interest on Debt

(\$ in millions)

For the year ended December 31:	2019	2018	2017
Cost of financing	\$ 608	\$ 757	\$ 658
Interest expense	1,344	723	615
Interest capitalized	5	3	5
Total interest paid and accrued	\$1,957	\$1,482	\$1,278

Refer to the related discussion in note D, "Segments," for total interest expense of the Global Financing segment. Refer to note T, "Derivative Financial Instruments," for a discussion of the use of foreign currency denominated debt designated as a hedge of net investment, as well as a discussion of the use of currency and interest rate swaps in the company's debt risk management program.

Lines of Credit

On July 18, 2019, the company extended the maturity date of its existing \$10.25 billion Five-Year Credit Agreement by a period of one year. In addition, the company and IBM Credit LLC extended the maturity date of their existing \$2.5 billion Three-Year Credit Agreement by a period of one year. Finally, the company and IBM Credit LLC entered into a new \$2.5 billion, 364-Day Credit Agreement to replace the maturing \$2.5 billion, 364-Day Credit Agreement. The new maturity dates for the Five-Year and Three-Year Credit Agreements are July 20, 2024 and July 20, 2022, respectively. Each of the facility sizes remained unchanged. The total expense recorded by the company related to the Five-Year Credit Agreement was \$7.4 million in 2019, \$6.7 million in 2018 and \$6.1 million in 2017. The total expense recorded by the company related to the 364-Day and Three-Year Credit Agreements was \$2.3 million in 2019, \$2.1 million in 2018 and \$2.8 million in 2017. The Five-Year Credit Agreement permits the company and its subsidiary borrowers to borrow up to \$10.25 billion on a revolving basis. Borrowings of the subsidiary borrowers will be unconditionally backed by the company. The company may also, upon the agreement of either existing lenders, or of additional banks not currently party to the Five-Year Credit Agreement, increase the commitments under the Credit Agreement up to an additional \$1.75 billion. The 364-Day Credit Agreement and the Three-Year Credit Agreement allow the company and IBM Credit (each a "Borrower") to borrow up to an aggregate of \$5 billion on a revolving basis. Neither Borrower is a guarantor or co-obligor of the other Borrower under the 364-Day and Three-Year Credit Agreements. Subject to certain conditions stated in the Five-Year, 364-Day and Three-Year Credit Agreements (the "Credit Agreements"), the Borrowers may borrow, prepay and re-borrow amounts under the Credit Agreements at any time during the term of such agreements. Funds borrowed may be used for the general corporate purposes of the Borrowers.

Interest rates on borrowings under the Credit Agreements will be based on prevailing market interest rates, as further described in the Credit Agreements. The Credit Agreements contain customary representations and warranties, covenants, events of default, and indemnification provisions. The company believes that circumstances that might give rise to breach of these covenants or an event of default, as specified in the Credit Agreements, are remote. The company also has other committed lines of credit in some of the geographies which are not significant in the aggregate. Interest rates and other terms of borrowing under these lines of credit vary from country to country, depending on local market conditions.

As of December 31, 2019, there were no borrowings by the company, or its subsidiaries, under these credit facilities.

NOTE Q. OTHER LIABILITIES

(\$ in millions)

At December 31:	2019	2018
Income tax reserves	\$ 5,118	\$ 4,195
Excess 401(k) Plus Plan	1,521	1,380
Disability benefits	478	507
Derivative liabilities	506	206
Workforce reductions	725	736
Deferred taxes*	5,230	3,696
Other taxes payable	42	40
Environmental accruals	254	244
Warranty accruals	45	76
Asset retirement obligations	94	111
Acquisition related	9	13
Divestiture related	65	173
Other	439	796
Total	\$14,526	\$12,174

* The increase in the balance at December 31, 2019 was primarily related to the acquisition of Red Hat.

In response to changing business needs, the company periodically takes workforce reduction actions to improve productivity, cost competitiveness and to rebalance skills. The noncurrent contractually obligated future payments associated with these activities are reflected in the workforce reductions caption in the previous table. The noncurrent liabilities are workforce accruals related to terminated employees who are no longer working for the company who were granted annual payments to supplement their incomes in certain countries. Depending on the individual country's legal requirements, these required payments will continue until the former employee begins receiving pension benefits or passes away. The total amounts accrued for workforce reductions, including amounts classified as current in the Consolidated Balance Sheet were \$950 million and \$941 million at December 31, 2019 and 2018, respectively.

The company employs extensive internal environmental protection programs that primarily are preventive in nature. The company also participates in environmental assessments and cleanups at a number of locations, including operating facilities, previously owned facilities and Superfund sites. The company's maximum exposure for all environmental liabilities cannot be estimated and no amounts have been recorded for non-ARO environmental liabilities that are not probable or estimable. The total amounts accrued for non-ARO environmental liabilities, including amounts classified as current in the Consolidated Balance Sheet, that do not reflect actual or anticipated insurance recoveries, were \$270 million and \$255 million at December 31, 2019 and 2018, respectively. Estimated environmental costs

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

are not expected to materially affect the consolidated financial position or consolidated results of the company's operations in future periods. However, estimates of future costs are subject to change due to protracted cleanup periods and changing environmental remediation regulations.

As of December 31, 2019, the company was unable to estimate the range of settlement dates and the related probabilities for certain asbestos remediation AROs. These conditional AROs are primarily related to the encapsulated structural fireproofing that is not subject to abatement unless the buildings are demolished and non-encapsulated asbestos that the company would remediate only if it performed major renovations of certain existing buildings. Because these conditional obligations have indeterminate settlement dates, the company could not develop a reasonable estimate of their fair values. The company will continue to assess its ability to estimate fair values at each future reporting date. The related liability will be recognized once sufficient additional information becomes available. The total amounts accrued for ARO liabilities, including amounts classified as current in the Consolidated Balance Sheet were \$150 million and \$146 million at December 31, 2019 and 2018, respectively.

NOTE R. COMMITMENTS & CONTINGENCIES

Commitments

The company's extended lines of credit to third-party entities include unused amounts of \$1.8 billion and \$7.4 billion at December 31, 2019 and 2018, respectively. A portion of these amounts was available to the company's business partners to support their working capital needs. The decrease reflects the company's wind-down of its OEM IT commercial financing operations. In addition, the company has committed to provide future financing to its clients in connection with client purchase agreements for \$6.3 billion and \$4.4 billion at December 31, 2019 and 2018, respectively.

The company has applied the guidance requiring a guarantor to disclose certain types of guarantees, even if the likelihood of requiring the guarantor's performance is remote. The following is a description of arrangements in which the company is the guarantor.

The company is a party to a variety of agreements pursuant to which it may be obligated to indemnify the other party with respect to certain matters. Typically, these obligations arise in the context of contracts entered into by the company, under which the company customarily agrees to hold the other party harmless against losses arising from a breach of representations and covenants related to such matters as title to assets sold, certain IP rights, specified environmental matters, third-party performance of nonfinancial contractual obligations and certain income taxes. In each of these circumstances, payment by the company is conditioned on the other party making a claim pursuant to the procedures specified in the particular contract, the procedures of which typically allow the company to challenge the other party's claims. While typically indemnification provisions do not include a contractual maximum on the company's payment, the company's obligations under these agreements may be limited in terms of time and/or nature of claim, and in some instances, the company may have recourse against third parties for certain payments made by the company.

It is not possible to predict the maximum potential amount of future payments under these or similar agreements due to the conditional nature of the company's obligations and the unique facts and circumstances involved in each particular agreement. Historically, payments made by the company under these agreements have not had a material effect on the company's business, financial condition or results of operations.

In addition, the company guarantees certain loans and financial commitments. The maximum potential future payment under these financial guarantees was \$20 million and \$26 million at December 31, 2019 and 2018, respectively. The fair value of the guarantees recognized in the Consolidated Balance Sheet was immaterial.

Changes in the company's warranty liability for standard warranties, which are included in other accrued expenses and liabilities and other liabilities in the Consolidated Balance Sheet and in deferred income for extended warranty contracts, are presented in the following tables:

Standard Warranty Liability

(\$ in millions)	2019	2018
Balance at January 1	\$ 118	\$ 152
Current period accruals	111	121
Accrual adjustments to reflect experience	(1)	(32)
Charges incurred	(115)	(123)
Balance at December 31	\$ 113	\$ 118

Extended Warranty Liability (Deferred Income)

(\$ in millions)	2019	2018
Balance at January 1	\$ 533	\$ 566
Revenue deferred for new extended warranty contracts	198	220
Amortization of deferred revenue	(253)	(240)
Other*	(2)	(13)
Balance at December 31	\$ 477	\$ 533
Current portion	\$ 227	\$ 271
Noncurrent portion	\$ 250	\$ 262

* Other consists primarily of foreign currency translation adjustments.

Contingencies

As a company with a substantial employee population and with clients in more than 175 countries, IBM is involved, either as plaintiff or defendant, in a variety of ongoing claims, demands, suits, investigations, tax matters and proceedings that arise from time to time in the ordinary course of its business. The company is a leader in the information technology industry and, as such, has been and will continue to be subject to claims challenging its IP rights and associated products and offerings, including claims of copyright and patent infringement and violations of trade secrets and other IP rights. In addition, the company enforces its own IP against infringement, through license negotiations, lawsuits or otherwise. Also, as is typical

for companies of IBM's scope and scale, the company is party to actions and proceedings in various jurisdictions involving a wide range of labor and employment issues (including matters related to contested employment decisions, country-specific labor and employment laws, and the company's pension, retirement and other benefit plans), as well as actions with respect to contracts, product liability, securities, foreign operations, competition law and environmental matters. These actions may be commenced by a number of different parties, including competitors, clients, current or former employees, government and regulatory agencies, stockholders and representatives of the locations in which the company does business. Some of the actions to which the company is party may involve particularly complex technical issues, and some actions may raise novel questions under the laws of the various jurisdictions in which these matters arise.

The company records a provision with respect to a claim, suit, investigation or proceeding when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. Any recorded liabilities, including any changes to such liabilities for the years ended December 31, 2019, 2018 and 2017 were not material to the Consolidated Financial Statements.

In accordance with the relevant accounting guidance, the company provides disclosures of matters for which the likelihood of material loss is at least reasonably possible. In addition, the company also discloses matters based on its consideration of other matters and qualitative factors, including the experience of other companies in the industry, and investor, customer and employee relations considerations.

With respect to certain of the claims, suits, investigations and proceedings discussed herein, the company believes at this time that the likelihood of any material loss is remote, given, for example, the procedural status, court rulings, and/or the strength of the company's defenses in those matters. With respect to the remaining claims, suits, investigations and proceedings discussed in this note, except as specifically discussed herein, the company is unable to provide estimates of reasonably possible losses or range of losses, including losses in excess of amounts accrued, if any, for the following reasons. Claims, suits, investigations and proceedings are inherently uncertain, and it is not possible to predict the ultimate outcome of these matters. It is the company's experience that damage amounts claimed in litigation against it are unreliable and unrelated to possible outcomes, and as such are not meaningful indicators of the company's potential liability. Further, the company is unable to provide such an estimate due to a number of other factors with respect to these claims, suits, investigations and proceedings, including considerations of the procedural status of the matter in question, the presence of complex or novel

legal theories, and/or the ongoing discovery and development of information important to the matters. The company reviews claims, suits, investigations and proceedings at least quarterly, and decisions are made with respect to recording or adjusting provisions and disclosing reasonably possible losses or range of losses (individually or in the aggregate), to reflect the impact and status of settlement discussions, discovery, procedural and substantive rulings, reviews by counsel and other information pertinent to a particular matter.

Whether any losses, damages or remedies finally determined in any claim, suit, investigation or proceeding could reasonably have a material effect on the company's business, financial condition, results of operations or cash flows will depend on a number of variables, including: the timing and amount of such losses or damages; the structure and type of any such remedies; the significance of the impact any such losses, damages or remedies may have in the Consolidated Financial Statements; and the unique facts and circumstances of the particular matter that may give rise to additional factors. While the company will continue to defend itself vigorously, it is possible that the company's business, financial condition, results of operations or cash flows could be affected in any particular period by the resolution of one or more of these matters.

The following is a summary of the more significant legal matters involving the company.

The company is a defendant in an action filed on March 6, 2003 in state court in Salt Lake City, Utah by the SCO Group (SCO v. IBM). The company removed the case to Federal Court in Utah. Plaintiff is an alleged successor in interest to some of AT&T's UNIX IP rights, and alleges copyright infringement, unfair competition, interference with contract and breach of contract with regard to the company's distribution of AIX and Dynix and contribution of code to Linux and the company has asserted counterclaims. On September 14, 2007, plaintiff filed for bankruptcy protection, and all proceedings in this case were stayed. The court in another suit, the SCO Group, Inc. v. Novell, Inc., held a trial in March 2010. The jury found that Novell is the owner of UNIX and UnixWare copyrights; the judge subsequently ruled that SCO is obligated to recognize Novell's waiver of SCO's claims against IBM and Sequent for breach of UNIX license agreements. On August 30, 2011, the Tenth Circuit Court of Appeals affirmed the district court's ruling and denied SCO's appeal of this matter. In June 2013, the Federal Court in Utah granted SCO's motion to reopen the SCO v. IBM case. In February 2016, the Federal Court ruled in favor of IBM on all of SCO's remaining claims, and SCO appealed. On October 30, 2017, the Tenth Circuit Court of Appeals affirmed the dismissal of all but one of SCO's remaining claims, which was remanded to the Federal Court in Utah.

On March 9, 2017, the Commonwealth of Pennsylvania's Department of Labor and Industry sued IBM in Pennsylvania state court regarding a 2006 contract for the development of a custom software system to manage the Commonwealth's unemployment insurance benefits programs. The matter is pending in a Pennsylvania court.

In December 2017, CIS General Insurance Limited (CISGIL) sued IBM UK regarding a contract entered into by IBM UK and CISGIL in 2015 to implement and operate an IT insurance platform. The contract was terminated by IBM UK in July 2017 for non-payment by CISGIL. CISGIL alleges wrongful termination, breach of contract and breach of warranty. The matter is pending in the London High Court with trial beginning in January 2020.

In May 2015, a putative class action was commenced in the United States District Court for the Southern District of New York related to the company's October 2014 announcement that it was divesting its global commercial semiconductor technology business, alleging violations of the Employee Retirement Income Security Act (ERISA). Management's Retirement Plans Committee and three current or former IBM executives are named as defendants. On September 29, 2017, the Court granted the defendants' motion to dismiss the first amended complaint. On December 10, 2018, the Second Circuit Court of Appeals reversed the District Court order. On January 14, 2020, the Supreme Court of the United States vacated the decision and remanded the case to the Second Circuit.

The company is party to, or otherwise involved in, proceedings brought by U.S. federal or state environmental agencies under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), known as "Superfund," or laws similar to CERCLA. Such statutes require potentially responsible parties to participate in remediation activities regardless of fault or ownership of sites. The company is also conducting environmental investigations, assessments or remediations at or in the vicinity of several current or former operating sites globally pursuant to permits, administrative orders or agreements with country, state or local environmental agencies, and is involved in lawsuits and claims concerning certain current or former operating sites.

The company is also subject to ongoing tax examinations and governmental assessments in various jurisdictions. Along with many other U.S. companies doing business in Brazil, the company is involved in various challenges with Brazilian tax authorities regarding non-income tax assessments and non-income tax

litigation matters. The total potential amount related to all these matters for all applicable years is approximately \$925 million. The company believes it will prevail on these matters and that this amount is not a meaningful indicator of liability.

NOTE S. EQUITY ACTIVITY

The authorized capital stock of IBM consists of 4,687,500,000 shares of common stock with a \$.20 per share par value, of which 887,110,455 shares were outstanding at December 31, 2019, and 150,000,000 shares of preferred stock with a \$.01 per share par value, none of which were outstanding at December 31, 2019.

Stock Repurchases

The Board of Directors authorizes the company to repurchase IBM common stock. The company repurchased 9,979,516 common shares at a cost of \$1,331 million, 32,949,233 common shares at a cost of \$4,447 million, and 27,237,179 common shares at a cost of \$4,323 million in 2019, 2018 and 2017, respectively. These amounts reflect transactions executed through December 31 of each year. Actual cash disbursements for repurchased shares may differ due to varying settlement dates for these transactions. At December 31, 2019, \$2,008 million of Board common stock repurchase authorization was available. The company suspended its share repurchase program effective with the close of the Red Hat acquisition on July 9, 2019, in order to focus on reducing debt related to the acquisition.

Other Stock Transactions

The company issued the following shares of common stock as part of its stock-based compensation plans and employees stock purchase plan: 4,569,917 shares in 2019, 3,998,245 shares in 2018, and 4,311,998 shares in 2017. The company issued 2,041,347 treasury shares in 2019, 424,589 treasury shares in 2018 and 463,083 treasury shares in 2017, as a result of restricted stock unit releases and exercises of stock options by employees of certain acquired businesses and by non-U.S. employees. Also, as part of the company's stock-based compensation plans, 2,000,704 common shares at a cost of \$272 million, 1,173,416 common shares at a cost of \$171 million, and 1,226,080 common shares at a cost of \$193 million in 2019, 2018 and 2017, respectively, were remitted by employees to the company in order to satisfy minimum statutory tax withholding requirements. These amounts are included in the treasury stock balance in the Consolidated Balance Sheet and the Consolidated Statement of Equity.

Reclassifications and Taxes Related to Items of Other Comprehensive Income

(\$ in millions)

For the year ended December 31, 2019:	Before Tax Amount	Tax (Expense)/Benefit	Net of Tax Amount
Other comprehensive income/(loss)			
Foreign currency translation adjustments	\$ (39)	\$ 29	\$ (10)
Net changes related to available-for-sale securities			
Unrealized gains/(losses) arising during the period	\$ 1	\$ 0	\$ 1
Reclassification of (gains)/losses to other (income) and expense	—	—	—
Total net changes related to available-for-sale securities	\$ 1	\$ 0	\$ 1
Unrealized gains/(losses) on cash flow hedges			
Unrealized gains/(losses) arising during the period	\$ (689)	\$ 167	\$ (522)
Reclassification of (gains)/losses to:			
Cost of services	(68)	17	(50)
Cost of sales	(51)	15	(37)
Cost of financing	89	(22)	67
SG&A expense	(53)	14	(39)
Other (income) and expense	(39)	10	(29)
Interest expense	197	(50)	148
Total unrealized gains/(losses) on cash flow hedges	\$ (614)	\$ 151	\$ (463)
Retirement-related benefit plans⁽⁴⁾			
Prior service costs/(credits)	\$ (73)	\$ 10	\$ (63)
Net (losses)/gains arising during the period	(120)	52	(68)
Curtailments and settlements	41	(12)	29
Amortization of prior service (credits)/costs	(9)	5	(4)
Amortization of net (gains)/losses	1,843	(371)	1,471
Total retirement-related benefit plans	\$1,681	\$(316)	\$1,365
Other comprehensive income/(loss)	\$1,029	\$(136)	\$ 893

⁽¹⁾ These AOCI components are included in the computation of net periodic pension cost. Refer to note V, "Retirement-Related Benefits," for additional information.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

	Before Tax Amount	Tax (Expense)/ Benefit	Net of Tax Amount
For the year ended December 31, 2018:			
Other comprehensive income/(loss)			
Foreign currency translation adjustments	\$ (730)	\$(172)	\$ (902)
Net changes related to available-for-sale securities			
Unrealized gains/(losses) arising during the period	\$ (2)	\$ 1	\$ (1)
Reclassification of (gains)/losses to other (income) and expense	—	—	—
Total net changes related to available-for-sale securities	\$ (2)	\$ 1	\$ (1)
Unrealized gains/(losses) on cash flow hedges			
Unrealized gains/(losses) arising during the period	\$ (136)	\$ 43	\$ (93)
Reclassification of (gains)/losses to:			
Cost of services	(30)	8	(22)
Cost of sales	(8)	3	(5)
Cost of financing	75	(19)	56
SG&A expense	0	0	0
Other (income) and expense	341	(86)	255
Interest expense	71	(18)	53
Total unrealized gains/(losses) on cash flow hedges	\$ 313	\$ (69)	\$ 244
Retirement-related benefit plans⁽¹⁾			
Prior service costs/(credits)	\$ (182)	\$ 31	\$ (151)
Net (losses)/gains arising during the period	(2,517)	576	(1,941)
Curtailments and settlements	11	(2)	9
Amortization of prior service (credits)/costs	(73)	5	(68)
Amortization of net (gains)/losses	2,966	(632)	2,334
Total retirement-related benefit plans	\$ 204	\$ (21)	\$ 184
Other comprehensive income/(loss)	\$ (215)	\$(262)	\$ (476)

⁽¹⁾ These AOCI components are included in the computation of net periodic pension cost. Refer to note V, "Retirement-Related Benefits," for additional information.

(\$ in millions)	Before Tax Amount	Tax (Expense)/Benefit	Net of Tax Amount
For the year ended December 31, 2017:			
Other comprehensive income/(loss)			
Foreign currency translation adjustments	\$ 152	\$ 617	\$ 769
Net changes related to available-for-sale securities			
Unrealized gains/(losses) arising during the period	\$ 1	\$ (1)	\$ 0
Reclassification of (gains)/losses to other (income) and expense	1	0	1
Total net changes related to available-for-sale securities	\$ 2	\$ (1)	\$ 1
Unrealized gains/(losses) on cash flow hedges			
Unrealized gains/(losses) arising during the period	\$ (58)	\$ 0	\$ (58)
Reclassification of (gains)/losses to:			
Cost of services	(70)	27	(43)
Cost of sales	(3)	1	(3)
Cost of financing	23	(9)	14
SG&A expense	(11)	3	(9)
Other (income) and expense	(324)	124	(199)
Interest expense	22	(8)	13
Total unrealized gains/(losses) on cash flow hedges	\$ (421)	\$ 137	\$ (284)
Retirement-related benefit plans⁽⁴⁾			
Prior service costs/(credits)	\$ 0	\$ 0	\$ 0
Net (losses)/gains arising during the period	682	(201)	481
Curtailments and settlements	19	(5)	14
Amortization of prior service (credits)/costs	(88)	29	(58)
Amortization of net (gains)/losses	2,889	(1,006)	1,883
Total retirement-related benefit plans	\$3,502	\$ (1,182)	\$2,320
Other comprehensive income/(loss)	\$3,235	\$ (429)	\$2,806

⁽³⁾ These AOCI components are included in the computation of net periodic pension cost. Refer to note V, "Retirement-Related Benefits," for additional information.

Accumulated Other Comprehensive Income/(Loss) (net of tax)

(\$ in millions)	Net Unrealized Gains/(Losses) on Cash Flow Hedges	Foreign Currency Translation Adjustments*	Net Change Retirement-Related Benefit Plans	Net Unrealized Gains/(Losses) on Available-For-Sale Securities	Accumulated Other Comprehensive Income/(Loss)
December 31, 2016	\$ 319	\$(3,603)	\$(26,116)	\$ 2	\$(29,398)
Other comprehensive income before reclassifications	(58)	769	495	0	1,206
Amount reclassified from accumulated other comprehensive income	(226)	0	1,825	1	1,599
Total change for the period	(284)	769	2,320	1	2,806
December 31, 2017	35	(2,834)	(23,796)	3	(26,592)
Cumulative effect of a change in accounting principle**	5	46	(2,471)	(2)	(2,422)
Other comprehensive income before reclassifications	(93)	(902)	(2,092)	(1)	(3,089)
Amount reclassified from accumulated other comprehensive income	337	—	2,276	—	2,612
Total change for the period	244	(902)	184	(1)	(476)
December 31, 2018	284	(3,690)	(26,083)	0	(29,490)
Other comprehensive income before reclassifications	(522)	(10)	(131)	1	(663)
Amount reclassified from accumulated other comprehensive income	59	—	1,496	—	1,556
Total change for the period	(463)	(10)	1,365	1	893
December 31, 2019	\$179	\$3,700	\$24,718	\$ 0	\$28,597

* Foreign currency translation adjustments are presented gross except for any associated hedges which are presented net of tax.

**Reflects the adoption of the FASB guidance on stranded tax effects, hedging and financial instruments. Refer to note B, "Accounting Changes," for additional information.

NOTE T. DERIVATIVE FINANCIAL INSTRUMENTS

The company operates in multiple functional currencies and is a significant lender and borrower in the global markets. In the normal course of business, the company is exposed to the impact of interest rate changes and foreign currency fluctuations, and to a lesser extent equity and commodity price changes and client credit risk. The company limits these risks by following established risk management policies and procedures, including the use of derivatives, and, where cost effective, financing with debt in the currencies in which assets are denominated. For interest rate exposures, derivatives are used to better align rate movements between the interest rates associated with the company's lease and other financial assets and the interest rates associated with its financing debt. Derivatives are also used to manage the related cost of debt. For foreign currency exposures, derivatives are used to better manage the cash flow volatility arising from foreign exchange rate fluctuations.

In the Consolidated Balance Sheet, the company does not offset derivative assets against liabilities in master netting arrangements nor does it offset receivables or payables recognized upon payment or receipt of cash collateral against the fair values of the related derivative instruments. The amount recognized in other receivables for the right to reclaim cash collateral was \$26 million at December 31, 2019 and no amount was recognized at December 31, 2018. No amount was recognized in accounts payable for the obligation to return cash collateral at December 31, 2019 and \$70 million was recognized at December 31, 2018. The company restricts the use of cash collateral received to rehypothecation, and therefore reports it in restricted cash in the Consolidated Balance Sheet. No amount was rehypothecated at December 31, 2019 and 2018. Additionally, if derivative exposures covered by a qualifying master netting agreement had been netted in the Consolidated Balance Sheet at December 31, 2019 and 2018, the total derivative asset and liability positions each would have been reduced by \$194 million and \$267 million, respectively.

In its hedging programs, the company may use forward contracts, futures contracts, interest-rate swaps, cross-currency swaps, equity swaps, and options depending upon the underlying exposure. The company is not a party to leveraged derivative instruments.

A brief description of the major hedging programs, categorized by underlying risk, follows.

Interest Rate Risk

Fixed and Variable Rate Borrowings

The company issues debt in the global capital markets to fund its operations and financing business. Access to cost-effective financing can result in interest rate mismatches with the underlying assets. To manage these mismatches and to reduce overall interest cost, the company may use interest-rate swaps to convert specific fixed-rate debt issuances into variable-rate debt (i.e., fair value hedges) and to convert specific variable-rate debt issuances into fixed-rate debt (i.e., cash flow hedges). At December 31, 2019 and 2018, the total notional amount of the company's interest-rate swaps was \$3.0 billion and \$7.6 billion, respectively. The weighted-average remaining maturity of these instruments at December 31, 2019 and 2018 was approximately 2.2 years and 3.5 years, respectively. These interest-rate contracts were accounted for as fair value hedges. The company did not have any cash flow hedges relating to this program outstanding at December 31, 2019 and 2018.

Forecasted Debt Issuance

The company is exposed to interest rate volatility on future debt issuances. To manage this risk, the company may use instruments such as forward starting interest-rate swaps to lock in the rate on the interest payments related to the forecasted debt issuances. On May 15, 2019, the company issued an aggregate of \$20 billion of indebtedness (see note P, "Borrowings," for additional information). Following the receipt of the net proceeds from this debt offering, the company terminated \$5.5 billion of forward starting interest-rate swaps. These instruments were designated and accounted for as cash flow hedges for a portion of this issuance and hedged exposure to the variability in future cash flows over a maximum of 30 years. These swaps were the only instruments outstanding under this program at December 31, 2018, and there were no instruments outstanding at December 31, 2019.

In connection with cash flow hedges of forecasted interest payments related to the company's borrowings, the company recorded net losses of \$192 million and net losses of \$35 million (before taxes) at December 31, 2019 and 2018, respectively, in AOCI. The company estimates that \$18 million (before taxes) of the deferred net losses on derivatives in AOCI at December 31, 2019 will be reclassified to net income within the next 12 months, providing an offsetting economic impact against the underlying anticipated transactions.

Foreign Exchange Risk

Long-Term Investments in Foreign Subsidiaries (Net Investment)

A large portion of the company's foreign currency denominated debt portfolio is designated as a hedge of net investment in foreign subsidiaries to reduce the volatility in stockholders' equity caused by changes in foreign currency exchange rates in the functional currency of major foreign subsidiaries with respect to the U.S. dollar. The company also uses cross-currency swaps and foreign exchange forward contracts for this risk management purpose. At December 31, 2019 and 2018, the total notional amount of derivative instruments designated as net investment hedges was \$7.9 billion and \$6.4 billion, respectively. At December 31, 2019 and 2018, the weighted-average remaining maturity of these instruments was approximately 0.1 years and 0.2 years, respectively.

Anticipated Royalties and Cost Transactions

The company's operations generate significant nonfunctional currency, third-party vendor payments and intercompany payments for royalties and goods and services among the company's non-U.S. subsidiaries and with the company. In anticipation of these foreign currency cash flows and in view of the volatility of the currency markets, the company selectively employs foreign exchange forward contracts to manage its currency risk. These forward contracts are accounted for as cash flow hedges. The maximum length of time over which the company has hedged its exposure to the variability in future cash flows is four years. At December 31, 2019 and 2018, the total notional amount of forward contracts designated as cash flow hedges of forecasted royalty and cost transactions was \$9.7 billion and \$9.8 billion, respectively. At December 31, 2019 and 2018, the weighted-average remaining maturity of these instruments was approximately 0.8 years at both periods.

At December 31, 2019 and 2018, in connection with cash flow hedges of anticipated royalties and cost transactions, the company recorded net gains of \$145 million and net gains of \$342 million (before taxes), respectively, in AOCI. The company estimates that \$72 million (before taxes) of deferred net gains on derivatives in AOCI at December 31, 2019 will be reclassified to net income within the next 12 months, providing an offsetting economic impact against the underlying anticipated transactions.

Foreign Currency Denominated Borrowings

The company is exposed to exchange rate volatility on foreign currency denominated debt. To manage this risk, the company employs cross-currency swaps to convert fixed-rate foreign currency denominated debt to fixed-rate debt denominated in the functional currency of the borrowing entity. These swaps are accounted for as cash flow hedges. The maximum length of time over which the company has hedged its exposure to the variability in future cash flows is approximately 12 years. At December 31, 2019 and 2018, the total notional amount of cross-currency swaps designated as cash flow hedges of foreign currency denominated debt was \$8.2 billion and \$6.5 billion, respectively.

At December 31, 2019 and 2018, in connection with cash flow hedges of foreign currency denominated borrowings, the company recorded net losses of \$185 million and net gains of \$75 million (before taxes), respectively, in AOCI. The company estimates that \$166 million (before taxes) of deferred net gains on derivatives in AOCI at December 31, 2019 will be reclassified to net income within the next 12 months, providing an offsetting economic impact against the underlying exposure.

Subsidiary Cash and Foreign Currency

Asset/Liability Management

The company uses its Global Treasury Centers to manage the cash of its subsidiaries. These centers principally use currency swaps to convert cash flows in a cost-effective manner. In addition, the company uses foreign exchange forward contracts to economically hedge, on a net basis, the foreign currency exposure of a portion of the company's nonfunctional currency assets and liabilities. The terms of these forward and swap contracts are generally less than one year. The changes in the fair values of these contracts and of the underlying hedged exposures are generally offsetting and are recorded in other (income) and expense in the Consolidated Income Statement. At December 31, 2019 and 2018, the total notional amount of derivative instruments in economic hedges of foreign currency exposure was \$7.1 billion and \$5.2 billion, respectively.

Equity Risk Management

The company is exposed to market price changes in certain broad market indices and in the company's own stock primarily related to certain obligations to employees. Changes in the overall value of these employee compensation obligations are recorded in SG&A expense in the Consolidated Income Statement. Although not designated as accounting hedges, the company utilizes derivatives, including equity swaps and futures, to economically hedge the exposures related to its employee compensation obligations. The derivatives are linked to the total return on certain broad market indices or the total return on the company's common stock, and are recorded at fair value with gains or losses also reported in SG&A expense in the Consolidated Income Statement. At December 31, 2019 and 2018, the total notional amount of derivative instruments in economic hedges of these compensation obligations was \$1.3 billion and \$1.2 billion, respectively.

Cumulative Basis Adjustments for Fair Value Hedges

At December 31, 2019 and 2018, the following amounts were recorded in the Consolidated Balance Sheet related to cumulative basis adjustments for fair value hedges:

	(\$ in millions)	
At December 31:	2019	2018
Short-term debt		
Carrying amount of the hedged item	\$ —	\$(1,878)
Cumulative hedging adjustments included in the carrying amount—assets/(liabilities)	—	(4) ⁽¹⁾
Long-term debt		
Carrying amount of the hedged item	(3,411)	(6,004)
Cumulative hedging adjustments included in the carrying amount—assets/(liabilities)	(440) ⁽²⁾	(333) ⁽²⁾

⁽¹⁾ Includes \$(6) million of hedging adjustments on discontinued hedging relationships at December 31, 2018.

⁽²⁾ Includes \$(404) million and \$(213) million of hedging adjustments on discontinued hedging relationships at December 31, 2019 and 2018, respectively.

The Effect of Derivative Instruments in the Consolidated Income Statement

The total amounts of income and expense line items presented in the Consolidated Income Statement in which the effects of fair value hedges, cash flow hedges, net investment hedges and derivatives not designated as hedging instruments are recorded and the total effect of hedge activity on these income and expense line items are as follows:

(\$ in millions)	Total		Gains/(Losses) of Total Hedge Activity	
	2019	2018	2019	2018
For the year ended December 31:				
Cost of services	\$32,491	\$33,687*	\$ 68	\$ 30
Cost of sales	7,263	7,835*	51	8
Cost of financing	904	1,132	(42)	(6)
SG&A expense	20,604	19,366	267	(116)
Other (income) and expense	(968)	1,152	(15)	(434)
Interest expense	1,344	723	(93)	(6)

* Reclassified to conform to 2019 presentation.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

For the year ended December 31:	Consolidated Income Statement Line Item	Gain/(Loss) Recognized in Consolidated Income Statement					
		Recognized on Derivatives			Attributable to Risk Being Hedged ⁽²⁾		
		2019	2018	2017	2019	2018	2017
Derivative instruments in fair value hedges⁽¹⁾							
Interest rate contracts	Cost of financing	\$ 44	\$ (61)	\$ 1	\$ (32)	\$ 97	\$ 74
	Interest expense	98	(58)	1	(71)	92	69
Derivative instruments not designated as hedging instruments							
Foreign exchange contracts	Other (income) and expense	(53)	(93)	16	N/A	N/A	N/A
Equity contracts	SG&A expense	214	(116)	135	N/A	N/A	N/A
Total		\$302	\$(327)	\$153	\$(103)	\$189	\$144

(\$ in millions)

For the year ended December 31:	Gain/(Loss) Recognized in Consolidated Income Statement and Other Comprehensive Income						Amounts Excluded from Effectiveness Testing ⁽³⁾	
	Recognized in OCI			Consolidated Income Statement Line Item	Reclassified from AOCI			
	2019	2018	2017		2019	2018	2017	
Derivative instruments in cash flow hedges								
Interest rate contracts	\$ (168)	\$ (35)	\$ —	Cost of financing	\$ (3)	\$ —	\$ —	\$ —
				Interest expense	(8)	—	—	—
Foreign exchange contracts	(521)	(101)	(58)	Cost of services	68	30	70	—
				Cost of sales	51	8	3	—
				Cost of financing	(86)	(75)	(23)	—
				SG&A expense	53	0	11	—
				Other (income) and expense	39	(341)	324	—
				Interest expense	(190)	(71)	(22)	—
Instruments in net investment hedges⁽⁴⁾								
Foreign exchange contracts	(95)	686	(1,607)	Cost of financing	—	—	—	35
				Interest expense	—	—	—	77
Total	\$ (784)	\$ 549	\$(1,665)		\$ (75)	\$(449)	\$363	\$112
								\$64
								\$45

Gain or loss amounts and presentation for 2017 are not conformed to the new hedge accounting guidance that the company adopted in 2018. Refer to note B, "Accounting Changes," for further information.

⁽¹⁾ The amount includes changes in clean fair values of the derivative instruments in fair value hedging relationships and the periodic accrual for coupon payments required under these derivative contracts.

⁽²⁾ The amount includes basis adjustments to the carrying value of the hedged item recorded during the period and amortization of basis adjustments recorded on de-designated hedging relationships during the period.

⁽³⁾ The company's policy is to recognize all fair value changes in amounts excluded from effectiveness testing in net income each period.

⁽⁴⁾ Instruments in net investment hedges include derivative and non-derivative instruments.

N/A—Not applicable

For the years ending December 31, 2019, 2018 and 2017, there were no material gains or losses excluded from the assessment of hedge effectiveness (for fair value or cash flow hedges), or

associated with an underlying exposure that did not or was not expected to occur (for cash flow hedges); nor are there any anticipated in the normal course of business.

NOTE U. STOCK-BASED COMPENSATION

The following table presents total stock-based compensation cost included in income from continuing operations.

(\$ in millions)	2019	2018	2017
For the year ended December 31:			
Cost	\$ 100	\$ 82	\$ 91
Selling, general and administrative	453	361	384
Research, development and engineering	126	67	59
Pre-tax stock-based compensation cost	679	510	534
Income tax benefits	(155)	(116)	(131)
Net stock-based compensation cost	\$ 524	\$ 393	\$ 403

Total unrecognized compensation cost related to non-vested awards at December 31, 2019 was \$1.2 billion and is expected to be recognized over a weighted-average period of approximately 2.5 years.

Capitalized stock-based compensation cost was not material at December 31, 2019, 2018 and 2017.

Incentive Awards

Stock-based incentive awards are provided to employees under the terms of the company's long-term performance plans (the Plans). The Plans are administered by the Executive Compensation and Management Resources Committee of the Board of Directors. Awards available under the Plans principally include restricted stock units, performance share units, stock options or any combination thereof.

There were 273 million shares originally authorized to be awarded under the company's existing Plans and 66 million shares granted under previous plans that, if and when those awards were cancelled, could be reissued under the existing Plans. At December 31, 2019, 94 million unused shares were available to be granted.

Stock Awards

Stock awards are made in the form of Restricted Stock Units (RSUs), including Retention Restricted Stock Units (RRSUs), or Performance Share Units (PSUs).

The following table summarizes RSU and PSU activity under the Plans during the years ended December 31, 2019, 2018 and 2017.

	RSUs		PSUs	
	Weighted-Average Grant Price	Number of Units	Weighted-Average Grant Price	Number of Units
Balance at January 1, 2017	\$147	8,899,092	\$155	2,874,758
Awards granted	137	3,540,949	137	824,875
Awards released	153	(3,032,531)	175	(293,236)
Awards canceled/forfeited/performance adjusted	147	(852,247)	170	(757,084)*
Balance at December 31, 2017	\$141	8,555,263	\$144	2,649,313**
Awards granted	121	4,806,790	130	909,140
Awards released	148	(2,579,962)	152	(666,244)
Awards canceled/forfeited/performance adjusted	139	(979,387)	147	(472,514)*
Balance at December 31, 2018	\$130	9,802,704	\$136	2,419,695**
Awards granted	119	5,650,861	117	1,395,534
Awards released	136	(3,145,016)	140	(846,672)
Awards canceled/forfeited/performance adjusted	128	(981,921)	131	(112,107)*
Balance at December 31, 2019	\$123	11,326,628	\$126	2,856,450**

* Includes adjustments of (8,544), (328,120) and (623,245) PSUs for 2019, 2018 and 2017, respectively, because final performance metrics were above or below specified targets.

**Represents the number of shares expected to be issued based on achievement of grant date performance targets. The actual number of shares issued will depend on final performance against specified targets over the vesting period.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The total fair value of RSUs and PSUs granted and vested during the years ended December 31, 2019, 2018 and 2017 were as follows:

(\$ in millions)	2019	2018	2017
For the year ended December 31:	2019	2018	2017
RSUs			
Granted	\$674	\$583	\$484
Vested	428	381	463
PSUs			
Granted	\$164	\$118	\$113
Vested	118	101	51

As of December 31, 2019, there was \$1.1 billion of unrecognized compensation cost related to non-vested RSUs, which will be recognized on a straight-line basis over the remaining weighted-average contractual term of approximately 2.5 years.

In connection with vesting and release of RSUs and PSUs, the tax benefits realized by the company for the years ended December 31, 2019, 2018 and 2017 were \$131 million, \$117 million and \$180 million, respectively.

Stock Options

In 2016, the company made one grant of 1.5 million premium-priced stock options. The option award was granted with a three-year cliff vesting period and a 10-year contractual term. The award's cost of \$12 million was recognized ratably over the three-year vesting period. As of December 31, 2019, these options were vested with a weighted-average exercise price of \$140 per share and had a remaining weighted-average contractual life of approximately 6.1 years. The options were exercisable within a range of \$129 to \$154. The total intrinsic value of these vested options as of December 31, 2019 was \$1.9 million.

The company has not granted options since 2016. No stock options were exercised, forfeited or canceled during the years ended December 31, 2019 and 2018. The total intrinsic value of options exercised during the year ended December 31, 2017 was \$7 million. In connection with this exercise, \$11 million in cash was received from employees and the company realized a tax benefit of \$2 million.

The company settles employee stock option exercises primarily with newly issued common shares and, occasionally, with treasury shares. Total treasury shares held at December 31, 2019 and 2018 were approximately 1,351 million and 1,341 million shares, respectively.

Acquisitions

In connection with the acquisition of Red Hat, the company issued and assumed 6.4 million stock awards with a fair value of \$845 million. A share conversion ratio of 1.35 was applied to convert Red Hat's outstanding equity awards for Red Hat's common stock into IBM stock awards. At December 31, 2019, there were 4.6 million of these stock awards outstanding with a weighted-average grant price of \$140 per share.

In connection with various other acquisition transactions, there was an additional 0.1 million stock options outstanding at December 31, 2019, as a result of the company's conversion of stock-based awards previously granted by acquired entities. The weighted-average exercise price of these awards was \$43 per share.

IBM Employees Stock Purchase Plan

The company maintains a non-compensatory Employees Stock Purchase Plan (ESPP). The ESPP enables eligible participants to purchase shares of IBM common stock at a 5 percent discount off the average market price on the day of purchase through payroll deductions of up to 10 percent of eligible compensation. Eligible compensation includes any compensation received by the employee during the year. The ESPP provides for semi-annual offering periods during which shares may be purchased and continues as long as shares remain available under the ESPP, unless terminated earlier at the discretion of the Board of Directors. Individual ESPP participants are restricted from purchasing more than \$25,000 of common stock in one calendar year or 1,000 shares in an offering period.

Employees purchased approximately 1.0 million shares under the ESPP during each year ended December 31, 2019, 2018 and 2017. Cash dividends declared and paid by the company on its common stock also include cash dividends on the company stock purchased through the ESPP. Dividends are paid on full and fractional shares and can be reinvested. The company stock purchased through the ESPP is considered outstanding and is included in the weighted-average outstanding shares for purposes of computing basic and diluted earnings per share.

Approximately 18.8 million shares were available for purchase under the ESPP at December 31, 2019.

NOTE V. RETIREMENT-RELATED BENEFITS

Description of Plans

IBM sponsors the following retirement-related plans/benefits:

Plan		Eligibility	Funding	Benefit Calculation	Other
U.S. Defined Benefit (DB) Pension Plans	Qualified Personal Pension Plan (PPP)	U.S. regular, full-time and part-time employees hired prior to January 1, 2005	Company contributes to irrevocable trust fund, held for sole benefit of participants and beneficiaries	Vary based on the participant: Five-year, final pay formula based on salary, years of service, mortality and other participant-specific factors	Benefit accruals ceased December 31, 2007
	Excess Personal Pension Plan (PPP)		Unfunded, provides benefits in excess of IRS limitations for qualified plans	Cash balance formula based on percentage of employees' annual salary, as well as an interest crediting rate	
	Supplemental Executive Retention Plan (Retention Plan)	Eligible U.S. executives	Unfunded	Based on average earnings, years of service and age at termination of employment	
U.S. Defined Contribution (DC) Plans⁽¹⁾	401(k) Plus	U.S. regular, full-time and part-time employees	All contributions are made in cash and invested in accordance with participants' investment elections	Dollar-for-dollar match, generally 5 or 6 percent of eligible compensation and automatic matching of 1, 2 or 4 percent of eligible compensation, depending on date of hire	Employees generally receive contributions after one year of service
	Excess 401(k) Plus	U.S. employees whose eligible compensation is expected to exceed IRS compensation limit for qualified plans	Unfunded, non-qualified amounts deferred are record-keeping (notional) accounts and are not held in trust for the participants, but may be invested in accordance with participants' investment elections (under the 401 (k) Plus Plan options)	Company match and automatic contributions (at the same rate under 401(k) Plus Plan) on eligible compensation deferred and on compensation earned in excess of the IRC pay limit. The percentage varies depending on eligibility and years of service	Employees generally receive contributions after one year of service. Amounts deferred into the Plan, including company contributions, are recorded as liabilities
U.S. Nonpension Postretirement Benefit Plan	Nonpension Postretirement Plan	Medical and dental benefits for eligible U.S. retirees and eligible dependents, as well as life insurance for eligible U.S. retirees	Company contributes to irrevocable trust fund, held for the sole benefit of participants and beneficiaries	Varies based on plan design formulas and eligibility requirements	Since January 1, 2004, new hires are not eligible for these benefits
Non-U.S. Plans	DB or DC	Eligible regular employees in certain non-U.S. subsidiaries or branches	Company deposits funds under various fiduciary-type arrangements, purchases annuities under group contracts or provides reserves for these plans	Based either on years of service and the employee's compensation (generally during a fixed number of years immediately before retirement) or on annual credits	In certain countries, benefit accruals have ceased and/or have been closed to new hires as of various dates
	Nonpension Postretirement Plan	Medical and dental benefits for eligible non-U.S. retirees and eligible dependents, as well as life insurance for certain eligible non-U.S. retirees	Primarily unfunded except for a few select countries where the company contributes to irrevocable trust funds, held for the sole benefit of participants and beneficiaries	Varies based on plan design formulas and eligibility requirements by country	Most non-U.S. retirees are covered by local government sponsored and administered programs

⁽¹⁾ Matching and automatic contributions are made once at the end of the year for employees that are employed as of December 15 of the plan year. Contributions may be made for certain types of separations that occur prior to December 15.

Plan Financial Information**Summary of Financial Information**

The following table presents a summary of the total retirement-related benefits net periodic (income)/cost recorded in the Consolidated Income Statement.

(\$ in millions)

For the year ended December 31:	U.S. Plans			Non-U.S. Plans			Total		
	2019	2018	2017	2019	2018	2017	2019	2018	2017
Defined benefit pension plans	<u>\$(153)</u>	\$ 542	\$ 237	\$ 955	\$1,284	\$1,315	\$ 803	\$1,827	\$1,552
Retention Plan	11	17	16	—	—	—	11	17	16
Total defined benefit pension plans (income)/cost	<u>\$(142)</u>	\$ 559	\$ 253	\$ 955	\$1,284	\$1,315	\$ 813	\$1,843	\$1,568
IBM 401(k) Plus Plan and non-U.S. plans	\$ 588	\$ 588	\$ 616	\$ 427	\$ 412	\$ 404	\$1,015	\$1,000	\$1,020
Excess 401(k)	26	24	26	—	—	—	26	24	26
Total defined contribution plans cost	\$ 613	\$ 612	\$ 643	\$ 427	\$ 412	\$ 404	\$1,040	\$1,024	\$1,046
Nonpension postretirement benefit plans cost	\$ 154	\$ 147	\$ 180	\$ 65	\$ 51	\$ 62	\$ 219	\$ 198	\$ 242
Total retirement-related benefits net periodic cost	\$ 624	\$1,319	\$1,076	\$1,448	\$1,747	\$1,781	\$2,072	\$3,066	\$2,857

The following table presents a summary of the total PBO for defined benefit pension plans, APBO for nonpension postretirement benefit plans, fair value of plan assets and the associated funded status recorded in the Consolidated Balance Sheet.

(\$ in millions)

At December 31:	Benefit Obligations		Fair Value of Plan Assets		Funded Status*	
	2019	2018	2019	2018	2019	2018
U.S. Plans						
Overfunded plans						
Qualified PPP	\$48,471	\$46,145	\$51,784	\$48,213	\$ 3,313	\$ 2,069
Underfunded plans						
Excess PPP	\$ 1,473	\$ 1,395	\$ —	\$ —	\$ (1,473)	\$ (1,395)
Retention Plan	288	273	—	—	(288)	(273)
Nonpension postretirement benefit plan	3,857	3,912	3	29	(3,854)	(3,882)
Total underfunded U.S. plans	\$ 5,618	\$ 5,579	\$ 3	\$ 29	\$ (5,615)	\$ (5,550)
Non-U.S. Plans						
Overfunded plans						
Qualified defined benefit pension plans**	\$18,371	\$17,379	\$21,921	\$19,975	\$ 3,550	\$ 2,597
Nonpension postretirement benefit plans	19	0	21	0	2	0
Total overfunded non-U.S. plans	\$18,390	\$17,379	\$21,942	\$19,975	\$ 3,552	\$ 2,597
Underfunded plans						
Qualified defined benefit pension plans**	\$23,222	\$22,139	\$18,398	\$16,783	\$ (4,824)	\$ (5,356)
Nonqualified defined benefit pension plans	6,731	6,252	—	—	(6,731)	(6,252)
Nonpension postretirement benefit plans	828	704	44	65	(785)	(640)
Total underfunded non-U.S. plans	\$30,782	\$29,095	\$18,442	\$16,848	\$ (12,340)	\$ (12,248)
Total overfunded plans	\$66,861	\$63,524	\$73,726	\$68,190	\$ 6,865	\$ 4,666
Total underfunded plans	\$36,399	\$34,675	\$18,445	\$16,877	\$ (17,955)	\$ (17,798)

* Funded status is recognized in the Consolidated Balance Sheet as follows: Asset amounts as prepaid pension assets; (Liability) amounts as compensation and benefits (current liability) and retirement and nonpension postretirement benefit obligations (noncurrent liability).

**Non-U.S. qualified plans represent plans funded outside of the U.S. Non-U.S. nonqualified plans are unfunded.

At December 31, 2019, the company's qualified defined benefit pension plans worldwide were 102 percent funded compared to the benefit obligations, with the U.S. Qualified PPP 107 percent funded. Overall, including nonqualified plans, the company's defined benefit pension plans worldwide were 93 percent funded.

Defined Benefit Pension and Nonpension Postretirement Benefit Plan Financial Information

The following tables through page 129 represent financial information for the company's retirement-related benefit plans,

excluding defined contribution plans. The defined benefit pension plans under U.S. Plans consists of the Qualified PPP, the Excess PPP and the Retention Plan. The defined benefit pension plans and the nonpension postretirement benefit plans under non-U.S. Plans consists of all plans sponsored by the company's subsidiaries. The nonpension postretirement benefit plan under U.S. Plan consists of only the U.S. Nonpension Postretirement Benefit Plan.

The following tables present the components of net periodic (income)/cost of the retirement-related benefit plans recognized in the Consolidated Income Statement, excluding defined contribution plans.

(\$ in millions)

	Defined Benefit Pension Plans					
	U.S. Plans			Non-U.S. Plans		
For the year ended December 31:	2019	2018	2017	2019	2018	2017
Service cost	\$ —	\$ —	\$ —	\$ 370	\$ 413	\$ 410
Interest cost ⁽¹⁾	1,882	1,719	1,913	847	830	837
Expected return on plan assets ⁽¹⁾	(2,599)	(2,701)	(3,014)	(1,588)	(1,342)	(1,325)
Amortization of transition assets ⁽¹⁾	—	—	—	0	0	0
Amortization of prior service costs/(credits) ⁽¹⁾	16	16	16	(23)	(83)	(97)
Recognized actuarial losses ⁽¹⁾	559	1,525	1,337	1,249	1,401	1,507
Curtailments and settlements ⁽¹⁾	—	—	—	41	11	19
Multi-employer plans	—	—	—	32	38	40
Other costs/(credits) ⁽²⁾	—	—	—	28	16	(76)
Total net periodic (income)/cost	\$ (142)	\$ 559	\$ 253	\$ 955	\$ 1,284	\$ 1,315

(\$ in millions)

	Nonpension Postretirement Benefit Plans					
	U.S. Plan			Non-U.S. Plans		
For the year ended December 31:	2019	2018	2017	2019	2018	2017
Service cost	\$ 10	\$ 13	\$ 14	\$ 5	\$ 5	\$ 6
Interest cost ⁽¹⁾	145	132	154	55	45	57
Expected return on plan assets ⁽¹⁾	—	0	0	(5)	(6)	(7)
Amortization of transition assets ⁽¹⁾	—	—	—	—	0	0
Amortization of prior service costs/(credits) ⁽¹⁾	(2)	(7)	(7)	0	0	0
Recognized actuarial losses ⁽¹⁾	1	10	20	10	6	7
Curtailments and settlements ⁽¹⁾	—	—	—	0	0	0
Total net periodic cost	\$154	\$147	\$180	\$65	\$51	\$62

⁽¹⁾ These components of net periodic pension costs are included in other (income) and expense in the Consolidated Income Statement.

⁽²⁾ The non-U.S. defined benefit pension plans amount in 2017 includes a gain of \$91 million related to IBM UK pension litigation.

For the U.S. Qualified PPP, beginning in 2019, substantially all participants are considered inactive. The amortization period of unrecognized actuarial losses was changed to the average remaining life expectancy of inactive plan participants, which was 18 years as of December 31, 2018. As a result, there was a reduction to 2019 amortization expense of approximately \$900 million. There was no impact to the funded status, retiree benefit payments or funding requirements.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The following table presents the changes in benefit obligations and plan assets of the company's retirement-related benefit plans, excluding DC plans.

(\$ in millions)

	Defined Benefit Pension Plans				Nonpension Postretirement Benefit Plans			
	U.S. Plans		Non-U.S. Plans		U.S. Plan		Non-U.S. Plans	
	2019	2018	2019	2018	2019	2018	2019	2018
Change in benefit obligation								
Benefit obligation at January 1	\$47,812	\$52,444	\$45,770	\$49,111	\$ 3,912	\$ 4,184	\$ 705	\$ 732
Service cost	—	—	370	413	10	13	5	5
Interest cost	1,882	1,719	847	830	145	132	55	45
Plan participants' contributions	—	—	23	25	57	59	—	—
Acquisitions/divestitures, net	—	—	(32)	(27)	—	0	0	0
Actuarial losses/(gains)	4,040	(2,743)	3,467	(240)	148	(71)	141	43
Benefits paid from trust	(3,378)	(3,484)	(1,902)	(1,976)	(389)	(383)	(6)	(7)
Direct benefit payments	(124)	(124)	(403)	(390)	(6)	(22)	(27)	(31)
Foreign exchange impact	—	—	134	(2,012)	—	—	(1)	(86)
Amendments/curtailments/ settlements/other	—	—	50	34	(21)	—	(23)	3
Benefit obligation at December 31	\$50,232	\$47,812	\$48,324	\$45,770	\$ 3,857	\$ 3,912	\$ 848	\$ 705
Change in plan assets								
Fair value of plan assets at January 1	\$48,213	\$52,694	\$36,758	\$40,798	\$ 29	\$ 18	\$ 65	\$ 70
Actual return on plan assets	6,949	(997)	4,896	(610)	1	1	7	12
Employer contributions	—	—	243	325	304	335	—	0
Acquisitions/divestitures, net	—	—	(25)	(22)	—	0	—	0
Plan participants' contributions	—	—	23	25	57	59	—	0
Benefits paid from trust	(3,378)	(3,484)	(1,902)	(1,976)	(389)	(383)	(6)	(7)
Foreign exchange impact	—	—	333	(1,754)	—	—	(1)	(10)
Amendments/curtailments/ settlements/other	—	—	(7)	(28)	—	0	0	0
Fair value of plan assets at December 31	\$51,784	\$48,213	\$40,319	\$36,758	\$ 3	\$ 29	\$ 65	\$ 65
Funded status at December 31	\$ 1,551	\$ 401	\$ (8,005)	\$ (9,012)	\$(3,854)	\$(3,882)	\$(783)	\$(640)
Accumulated benefit obligation*	\$50,232	\$47,812	\$47,645	\$45,161	N/A	N/A	N/A	N/A

* Represents the benefit obligation assuming no future participant compensation increases.

N/A—Not applicable

The following table presents the net funded status recognized in the Consolidated Balance Sheet.

(\$ in millions)

At December 31:	Defined Benefit Pension Plans				Nonpension Postretirement Benefit Plans			
	U.S. Plans		Non-U.S. Plans		U.S. Plan		Non-U.S. Plans	
	2019	2018	2019	2018	2019	2018	2019	2018
Prepaid pension assets	\$ 3,313	\$ 2,069	\$ 3,550	\$ 2,597	\$ 0	\$ 0	\$ 2	\$ 0
Current liabilities—compensation and benefits	(120)	(120)	(313)	(302)	(346)	(340)	(33)	(36)
Noncurrent liabilities—retirement and nonpension postretirement benefit obligations	(1,641)	(1,548)	(11,242)	(11,306)	(3,507)	(3,542)	(752)	(605)
Funded status—net	\$ 1,551	\$ 401	\$ (8,005)	\$ (9,012)	\$ (3,854)	\$ (3,882)	\$ (783)	\$ (640)

The following table presents the pre-tax net loss and prior service costs/(credits) and transition (assets)/liabilities recognized in OCI and the changes in the pre-tax net loss, prior service costs/(credits) and transition (assets)/liabilities recognized in AOCI for the retirement-related benefit plans.

(\$ in millions)

	Defined Benefit Pension Plans				Nonpension Postretirement Benefit Plans			
	U.S. Plans		Non-U.S. Plans		U.S. Plan		Non-U.S. Plans	
	2019	2018	2019	2018	2019	2018	2019	2018
Net loss at January 1	\$17,476	\$18,045	\$18,452	\$18,275	\$405	\$486	\$172	\$145
Current period loss/(gain)	(309)	956	109	1,590	147	(72)	125	33
Curtailments and settlements	—	—	(41)	(11)	—	—	0	0
Amortization of net loss included in net periodic (income)/cost	(559)	(1,525)	(1,249)	(1,401)	(1)	(10)	(10)	(6)
Net loss at December 31	\$16,608	\$17,476	\$17,272	\$18,452	\$551	\$405	\$287	\$172
Prior service costs/(credits) at January 1	\$ 57	\$ 74	\$ 172	\$ (90)	\$ 52	\$ 45	\$ 4	\$ 3
Current period prior service costs/(credits)	—	—	102	181	(21)	—	(8)	1
Curtailments, settlements and other	—	—	—	0	—	—	—	0
Amortization of prior service (costs)/credits included in net periodic (income)/cost	(16)	(16)	23	83	2	7	0	0
Prior service costs/(credits) at December 31	\$ 41	\$ 57	\$ 297	\$ 172	\$ 34	\$ 52	\$ (4)	\$ 4
Transition (assets)/liabilities at January 1	\$ —	\$ —	\$ 0	\$ 0	\$ —	\$ —	\$ 0	\$ 0
Amortization of transition assets/(liabilities) included in net periodic (income)/cost	—	—	0	—	—	—	—	0
Transition (assets)/liabilities at December 31	\$ —	\$ —	\$ 0	\$ 0	\$ —	\$ —	\$ 0	\$ 0
Total loss recognized in accumulated other comprehensive income/(loss)*	\$16,648	\$17,533	\$17,569	\$18,624	\$585	\$457	\$283	\$176

* Refer to note S, "Equity Activity," for the total change in AOCI, and the Consolidated Statement of Comprehensive Income for the components of net periodic (income)/cost, including the related tax effects, recognized in OCI for the retirement-related benefit plans.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

On October 26, 2018, the High Court in London in the case of Lloyds Pension Group Trustees Limited v Lloyds Bank PLC, confirmed that the UK defined benefit pension plans are required to equalize pension benefits to take into account unequal guaranteed minimum pension benefits accrued during the period 1990-1997. As a result of this court decision, IBM recorded an increase of \$125 million to the PBO for the IBM UK defined benefit plan, which represents approximately 1 percent of the UK PBO. This amount was recorded as prior service cost in OCI for the year ended December 31, 2018.

Assumptions Used to Determine Plan Financial Information

Underlying both the measurement of benefit obligations and net periodic (income)/cost are actuarial valuations. These valuations use participant-specific information such as salary, age and years of service, as well as certain assumptions, the most significant of which include estimates of discount rates, expected return on plan assets, rate of compensation increases, interest crediting rates and mortality rates. The company evaluates these assumptions, at a minimum, annually, and makes changes as necessary.

The following tables present the assumptions used to measure the net periodic (income)/cost and the year-end benefit obligations for retirement-related benefit plans.

	Defined Benefit Pension Plans					
	U.S. Plans			Non-U.S. Plans		
	2019	2018	2017	2019	2018	2017
Weighted-average assumptions used to measure net periodic (income)/cost for the year ended December 31						
Discount rate	4.10%	3.40%	3.80%	1.85%	1.76%	1.80%
Expected long-term returns on plan assets	5.25%	5.25%	5.75%	4.38%	3.62%	3.77%
Rate of compensation increase	N/A	N/A	N/A	2.18%	2.41%	2.45%
Interest crediting rate	3.60%	2.30%	1.60%	0.30%	0.30%	0.59%
Weighted-average assumptions used to measure benefit obligations at December 31						
Discount rate	3.10%	4.10%	3.40%	1.19%	1.85%	1.76%
Rate of compensation increase	N/A	N/A	N/A	2.60%	2.18%	2.41%
Interest crediting rate	2.70%	3.60%	2.30%	0.28%	0.30%	0.30%
Nonpension Postretirement Benefit Plans						
	U.S. Plan			Non-U.S. Plans		
	2019	2018	2017	2019	2018	2017
Weighted-average assumptions used to measure net periodic cost for the year ended December 31						
Discount rate	3.90%	3.30%	3.60%	7.48%	7.28%	8.26%
Expected long-term returns on plan assets	N/A	N/A	N/A	8.64%	8.91%	10.47%
Interest crediting rate	3.60%	2.30%	1.60%	N/A	N/A	N/A
Weighted-average assumptions used to measure benefit obligations at December 31						
Discount rate	2.80%	3.90%	3.30%	4.98%	7.48%	7.28%
Interest crediting rate	2.70%	3.60%	2.30%	N/A	N/A	N/A

N/A—Not applicable

Item	Description of Assumptions
Discount Rate	<p>Changes in discount rate assumptions impact net periodic (income)/cost and the PBO.</p> <p>For the U.S. and certain non-U.S. countries, a portfolio of high-quality corporate bonds is used to construct a yield curve. Cash flows from the company's expected benefit obligation payments are matched to the yield curve to derive the discount rates.</p> <p>In other non-U.S. countries where the markets for high-quality long-term bonds are not as well developed, a portfolio of long-term government bonds is used as a base, and a credit spread is added to simulate corporate bond yields at these maturities in the jurisdiction of each plan. This is the benchmark for developing the respective discount rates.</p>
Expected Long-Term Returns on Plan Assets	<p>Represents the expected long-term returns on plan assets based on the calculated market-related value of plan assets and considers long-term expectations for future returns and the investment policies and strategies discussed on page 132. These rates of return are developed and tested for reasonableness against historical returns by the company.</p> <p>The use of expected returns may result in pension income that is greater or less than the actual return of those plan assets in a given year. Over time, however, the expected long-term returns are designed to approximate the actual long-term returns, and therefore result in a pattern of income or loss recognition that more closely matches the pattern of the services provided by the employees.</p> <p>The difference between actual and expected returns is recognized as a component of net loss or gain in AOCI, which is amortized as a component of net periodic (income)/cost over the service lives or life expectancy of the plan participants, depending on the plan, provided such amounts exceed certain thresholds provided by accounting standards. The market-related value of plan assets recognizes changes in the fair value of plan assets systematically over a five-year period in the expected return on plan assets line in net periodic (income)/cost.</p> <p>The projected long-term rate of return on plan assets for 2020 is 4.5% for U.S. and 3.4% for non-U.S. DB Plans.</p>
Rate of Compensation Increases and Mortality Assumptions	<p>Compensation rate increases are determined based on the company's long-term plans for such increases. These rate increases are not applicable to the U.S. DB pension plans as benefit accruals ceased December 31, 2007.</p> <p>Mortality assumptions are based on life expectancy and death rates for different types of participants and are periodically updated based on actual experience.</p>
Interest Crediting Rate	Benefits for certain participants in the PPP are calculated using a cash balance formula. An assumption underlying this formula is an interest crediting rate, which impacts both net periodic (income)/cost and the PBO. This provides the basis for projecting the expected interest rate that plan participants will earn on the benefits that they are expected to receive in the following year and is based on the average from August to October of the one-year U.S. Treasury Constant Maturity yield plus one percent.
Healthcare Cost Trend Rate	<p>For nonpension postretirement benefit plans, the company reviews external data and its own historical trends for healthcare costs to determine the healthcare cost trend rates. The healthcare cost trend rate has an insignificant effect on plan costs or the benefit obligation due to the terms of the plan which limit the company's obligation to the participants.</p> <p>The company's U.S. healthcare cost trend rate assumption for 2020 is 6.50 percent. The company assumes that trend rate will decrease to 5.0 percent over the next six years.</p>

The following tables present the increase/(decrease) in net periodic income and benefit obligations as a result of changes in plan assumptions.

(\$ in millions)	Net Periodic Income			(\$ in millions)		Benefit Obligations	
For the year ended December 31:	2019	2018	2017	At December 31:		2019	2018
Discount rate (U.S. DB pension plans)	\$307	\$(124)	\$ (64)	Discount rate impact		\$4,385	\$(3,239)
Expected long-term return on plan assets (U.S. DB pension plans)	—	(256)	(656)	APBO (U.S. nonpension plans)		252	(153)
Interest crediting rate (PPP)	(59)	(25)	(14)	Benefit obligations (all plans)		8,932	(4,032)
				Mortality assumptions impact			
				PBO (U.S. DB and nonpension plans)		(186)	27

Plan Assets

Retirement-related benefit plan assets are recognized and measured at fair value. Because of the inherent uncertainty of valuations, these fair value measurements may not necessarily reflect the amounts the company could realize in current market transactions.

Investment Policies and Strategies

The investment objectives of the Qualified PPP portfolio are designed to generate returns that will enable the plan to meet its future obligations. The precise amount for which these obligations will be settled depends on future events, including the retirement dates and life expectancy of the plans' participants. The obligations are estimated using actuarial assumptions, based on the current economic environment and other pertinent factors described previously on page 131. The Qualified PPP portfolio's investment strategy balances the requirement to generate returns, using potentially higher yielding assets such as equity securities, with the need to control risk in the portfolio with less volatile assets, such as fixed-income securities. Risks include, among others, inflation, volatility in equity values and changes in interest rates that could cause the plan to become underfunded, thereby increasing its dependence on contributions from the company. To mitigate any potential concentration risk, careful consideration is given to balancing the portfolio among industry sectors, companies and geographies, taking into account interest rate sensitivity, dependence on economic growth, currency and other factors that affect investment returns. There were no significant changes to investment strategy made in 2019 and none are planned for 2020. The Qualified PPP portfolio's target allocation is 12 percent equity securities, 80 percent fixed-income securities, 4 percent real estate and 4 percent other investments.

The assets are managed by professional investment firms and investment professionals who are employees of the company. They are bound by investment mandates determined by the company's management and are measured against specific benchmarks. Among these managers, consideration is given, but not limited to, balancing security concentration, issuer concentration, investment style and reliance on particular active and passive investment strategies.

Market liquidity risks are tightly controlled, with \$4,043 million of the Qualified PPP portfolio as of December 31, 2019 invested in private market assets consisting of private equities and private real estate investments, which are less liquid than publicly traded securities. In addition, the Qualified PPP portfolio had \$1,347 million in commitments for future investments in private markets to be made over a number of years. These commitments are expected to be funded from plan assets.

Derivatives are used as an effective means to achieve investment objectives and/or as a component of the plan's risk management strategy. The primary reasons for the use of derivatives are fixed income management, including duration, interest rate management and credit exposure, cash equitization and to manage currency strategies.

Outside the U.S., the investment objectives are similar to those described previously, subject to local regulations. The weighted-average target allocation for the non-U.S. plans is 20 percent equity securities, 71 percent fixed-income securities, 3 percent real estate and 6 percent other investments, which is consistent with the allocation decisions made by the company's management. In some countries, a higher percentage allocation to fixed income is required to manage solvency and funding risks. In others, the responsibility for managing the investments typically lies with a board that may include up to 50 percent of members elected by employees and retirees. This can result in slight differences compared with the strategies previously described. Generally, these non-U.S. plans do not invest in illiquid assets and their use of derivatives is consistent with the U.S. plan and mainly for currency hedging, interest rate risk management, credit exposure and alternative investment strategies.

The company's nonpension postretirement benefit plans are underfunded or unfunded. For some plans, the company maintains a nominal, highly liquid trust fund balance to ensure timely benefit payments.

Defined Benefit Pension Plan Assets

The following table presents the company's defined benefit pension plans' asset classes and their associated fair value at December 31, 2019. The U.S. Plan consists of the Qualified PPP and the non-U.S. Plans consist of all plans sponsored by the company's subsidiaries.

(\$ in millions)

	U.S. Plan				Non-U.S. Plans			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Equity								
Equity securities ⁽¹⁾	\$1,943	\$ —	\$ —	\$1,943	\$2,209	\$ 0	\$ —	\$2,209
Equity mutual funds ⁽²⁾	85	—	—	85	—	—	—	—
Fixed income								
Government and related ⁽³⁾	—	21,134	—	21,134	—	10,288	2	10,290
Corporate bonds ⁽⁴⁾	—	16,666	518	17,185	—	2,124	—	2,124
Mortgage and asset-backed securities	—	630	—	630	—	19	—	19
Fixed income mutual funds ⁽⁵⁾	386	—	—	386	—	—	—	—
Insurance contracts	—	—	—	—	—	1,862	—	1,862
Cash and short-term investments ⁽⁶⁾	54	848	—	903	204	644	—	849
Real estate	—	—	—	—	—	—	328	328
Derivatives ⁽⁷⁾	0	6	—	6	18	969	—	987
Other mutual funds ⁽⁸⁾	—	—	—	—	25	0	—	25
Subtotal	2,469	39,284	518	42,271	2,456	15,907	330	18,693
Investments measured at net asset value using the NAV practical expedient ⁽⁹⁾								
Other ⁽¹⁰⁾	—	—	—	(6)	—	—	—	(26)
Fair value of plan assets	\$2,469	\$39,284	\$518	\$51,784	\$2,456	\$15,907	\$330	\$40,319

⁽¹⁾ Represents U.S. and international securities. The U.S. Plan includes IBM common stock of \$2 million, representing 0.004 percent of the U.S. Plan assets. Non-U.S. Plans include IBM common stock of \$10 million, representing 0.02 percent of the non-U.S. Plans assets.

⁽²⁾ Invests in predominantly equity securities.

⁽³⁾ Includes debt issued by national, state and local governments and agencies.

⁽⁴⁾ The U.S. Plan includes IBM corporate bonds of \$37 million, representing 0.07 percent of the U.S. Plan assets. Non-U.S. Plans include IBM corporate bonds of \$8 million, representing 0.02 percent of the non-U.S. Plans assets.

⁽⁵⁾ Invests predominantly in fixed income securities.

⁽⁶⁾ Includes cash, cash equivalents and short-term marketable securities.

⁽⁷⁾ Includes interest rate derivatives, forwards, exchange traded and other over-the-counter derivatives.

⁽⁸⁾ Invests in both equity and fixed-income securities.

⁽⁹⁾ Investments measured at fair value using the net asset value (NAV) per share (or its equivalent) as a practical expedient, including commingled funds, hedge funds, private equity and real estate partnerships.

⁽¹⁰⁾Represents net unsettled transactions, relating primarily to purchases and sales of plan assets.

The U.S. nonpension postretirement benefit plan assets of \$3 million were invested primarily in cash equivalents, categorized as Level 1 in the fair value hierarchy. The non-U.S. nonpension postretirement benefit plan assets of \$65 million, primarily in

Brazil, and, to a lesser extent, in Mexico and South Africa, were invested primarily in government and related fixed-income securities and corporate bonds, categorized as Level 2 in the fair value hierarchy.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The following table presents the company's defined benefit pension plans' asset classes and their associated fair value at December 31, 2018. The U.S. Plan consists of the Qualified PPP and the non-U.S. Plans consist of all plans sponsored by the company's subsidiaries.

(\$ in millions)

	U.S. Plan				Non-U.S. Plans			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Equity								
Equity securities ⁽¹⁾	\$1,538	\$ —	\$ —	\$ 1,538	\$2,333	\$ —	\$ 0	\$ 2,333
Equity mutual funds ⁽²⁾	65	—	—	65	18	5	—	23
Fixed income								
Government and related ⁽³⁾	—	19,661	—	19,661	20	8,951	2	8,973
Corporate bonds ⁽⁴⁾	—	15,849	359	16,208	—	1,865	0	1,865
Mortgage and asset-backed securities	—	635	4	640	—	6	—	6
Fixed income mutual funds ⁽⁵⁾	421	—	—	421	11	—	—	11
Insurance contracts	—	—	—	—	—	1,308	—	1,308
Cash and short-term investments ⁽⁶⁾	55	1,020	—	1,075	322	431	—	753
Real estate	—	—	—	—	—	—	339	339
Derivatives ⁽⁷⁾	3	(1)	—	2	24	606	—	630
Other mutual funds ⁽⁸⁾	—	—	—	—	24	—	—	24
Subtotal	2,081	37,164	363	39,608	2,753	13,172	341	16,266
Investments measured at net asset value using the NAV practical expedient ⁽⁹⁾								
—	—	—	—	8,835	—	—	—	20,525
Other ⁽¹⁰⁾	—	—	—	(230)	—	—	—	(32)
Fair value of plan assets	\$2,081	\$37,164	\$363	\$48,213	\$2,753	\$13,172	\$341	\$36,758

⁽¹⁾ Represents U.S. and international securities. The U.S. Plan includes IBM common stock of \$2 million, representing 0.004 percent of the U.S. Plan assets. Non-U.S. Plans include IBM common stock of \$10 million, representing 0.03 percent of the non-U.S. Plans assets.

⁽²⁾ Invests in predominantly equity securities.

⁽³⁾ Includes debt issued by national, state and local governments and agencies.

⁽⁴⁾ The U.S. Plan does not include any IBM corporate bonds. Non-U.S. Plans include IBM corporate bonds of \$3 million, representing 0.007 percent of the non-U.S. Plans assets.

⁽⁵⁾ Invests in predominantly fixed-income securities.

⁽⁶⁾ Includes cash and cash equivalents and short-term marketable securities.

⁽⁷⁾ Includes interest rate derivatives, forwards, exchange traded and other over-the-counter derivatives.

⁽⁸⁾ Invests in both equity and fixed-income securities.

⁽⁹⁾ Investments measured at fair value using the net asset value (NAV) per share (or its equivalent) as a practical expedient, including commingled funds, hedge funds, private equity and real estate partnerships.

⁽¹⁰⁾ Represents net unsettled transactions, relating primarily to purchases and sales of plan assets.

The U.S. nonpension postretirement benefit plan assets of \$29 million were invested in cash equivalents, categorized as Level 1 in the fair value hierarchy. The non-U.S. nonpension postretirement benefit plan assets of \$65 million, primarily in

Brazil, and, to a lesser extent, in Mexico and South Africa, were invested primarily in government and related fixed-income securities and corporate bonds, categorized as Level 2 in the fair value hierarchy.

The following tables present the reconciliation of the beginning and ending balances of Level 3 assets for the years ended December 31, 2019 and 2018 for the U.S. Plan.

(\$ in millions)

	Corporate Bonds	Mortgage and Asset-Backed Securities	Total
Balance at January 1, 2019	\$359	\$ 4	\$363
Return on assets held at end of year	40	—	40
Return on assets sold during the year	1	0	1
Purchases, sales and settlements, net	105	0	105
Transfers, net	13	(4)	9
Balance at December 31, 2019	\$518	\$ —	\$518

(\$ in millions)

	Corporate Bonds	Mortgage and Asset-Backed Securities	Total
Balance at January 1, 2018	\$372	\$4	\$376
Return on assets held at end of year	(23)	0	(23)
Return on assets sold during the year	0	0	0
Purchases, sales and settlements, net	10	0	10
Transfers, net	—	0	0
Balance at December 31, 2018	\$359	\$4	\$363

The following tables present the reconciliation of the beginning and ending balances of Level 3 assets for the years ended December 31, 2019 and 2018 for the non-U.S. Plans.

(\$ in millions)

	Government and Related	Private Real Estate	Total
Balance at January 1, 2019	\$ 2	\$339	\$341
Return on assets held at end of year	0	(11)	(11)
Return on assets sold during the year	0	4	4
Purchases, sales and settlements, net	(1)	(17)	(18)
Transfers, net	—	—	—
Foreign exchange impact	0	13	13
Balance at December 31, 2019	\$ 2	\$328	\$330

(\$ in millions)

	Government and Related	Private Real Estate	Total
Balance at January 1, 2018	\$ 8	\$356	\$365
Return on assets held at end of year	0	8	8
Return on assets sold during the year	(1)	(2)	(2)
Purchases, sales and settlements, net	(3)	(3)	(6)
Transfers, net	(2)	—	(2)
Foreign exchange impact	0	(21)	(21)
Balance at December 31, 2018	\$ 2	\$339	\$341

Valuation Techniques

The following is a description of the valuation techniques used to measure plan assets at fair value. There were no changes in valuation techniques during 2019 and 2018.

Equity securities are valued at the closing price reported on the stock exchange on which the individual securities are traded. IBM common stock is valued at the closing price reported on the New York Stock Exchange. Mutual funds are typically valued based on quoted market prices. These assets are generally classified as Level 1.

The fair value of fixed-income securities is typically estimated using pricing models, quoted prices of securities with similar characteristics or discounted cash flows and are generally classified as Level 2. If available, they are valued using the closing price reported on the major market on which the individual securities are traded.

Cash includes money market accounts that are valued at their cost plus interest on a daily basis, which approximates fair value. Short-term investments represent securities with original maturities of one year or less. These assets are classified as Level 1 or Level 2.

Real estate valuations require significant judgment due to the absence of quoted market prices, the inherent lack of liquidity and the long-term nature of such assets. These assets are initially valued at cost and are reviewed periodically utilizing available and relevant market data, including appraisals, to determine if the carrying value of these assets should be adjusted. These assets are classified as Level 3.

Exchange-traded derivatives are valued at the closing price reported on the exchange on which the individual securities are traded, while forward contracts are valued using a mid-close price. Over-the-counter derivatives are typically valued using pricing models. The models require a variety of inputs, including, for example, yield curves, credit curves, measures of volatility and foreign exchange rates. These assets are classified as Level 1 or Level 2 depending on availability of quoted market prices.

Certain investments are measured at fair value using the net asset value (NAV) per share (or its equivalent) as a practical expedient. These investments, which include commingled funds, hedge funds, private equity and real estate partnerships, are typically valued using the NAV provided by the administrator of the fund and reviewed by the company. The NAV is based on the value of the underlying assets owned by the fund, minus liabilities and divided by the number of shares or units outstanding.

Contributions and Direct Benefit Payments

It is the company's general practice to fund amounts for pensions sufficient to meet the minimum requirements set forth in applicable employee benefits laws and local tax laws. From time to time, the company contributes additional amounts as it deems appropriate.

The following table presents the contributions made to the non-U.S. DB plans, nonpension postretirement benefit plans, multi-employer plans, DC plans and direct payments for 2019 and 2018. The cash contributions to the multi-employer plans represent the annual cost included in the net periodic (income)/cost recognized in the Consolidated Income Statement. The company's participation in multi-employer plans has no material impact on the company's financial statements.

(\$ in millions)	2019	2018
For the year ended December 31:		
Non-U.S. DB plans	\$ 243	\$ 325
Nonpension postretirement benefit plans	304	335
Multi-employer plans	32	38
DC plans	1,040	1,024
Direct benefit payments	559	567
Total	\$2,177	\$2,288

In 2019 and 2018, \$635 million and \$598 million, respectively, was contributed in U.S. Treasury securities, which is considered a non-cash transaction (includes the Active Medical Trust).

Defined Benefit Pension Plans

In 2020, the company is not legally required to make any contributions to the U.S. defined benefit pension plans. However, depending on market conditions, or other factors, the company may elect to make discretionary contributions to the Qualified PPP during the year.

In 2020, the company estimates contributions to its non-U.S. defined benefit and multi-employer plans to be approximately \$300 million, the largest of which will be contributed to defined benefit pension plans in Spain and Japan. This amount generally represents legally mandated minimum contributions.

Financial market performance in 2020 could increase the legally mandated minimum contribution in certain countries which require monthly or daily remeasurement of the funded status. The company could also elect to contribute more than the legally mandated amount based on market conditions or other factors.

Expected Benefit Payments

Defined Benefit Pension Plan Expected Payments

The following table presents the total expected benefit payments to defined benefit pension plan participants. These payments have been estimated based on the same assumptions used to measure the plans' PBO at December 31, 2019 and include benefits attributable to estimated future compensation increases, where applicable.

(\$ in millions)

	Qualified U.S. Plan Payments	Nonqualified U.S. Plans Payments	Qualified Non-U.S. Plans Payments	Nonqualified Non-U.S. Plans Payments	Total Expected Benefit Payments
2020	\$ 3,533	\$122	\$ 1,937	\$ 320	\$ 5,913
2021	3,523	122	1,951	317	5,912
2022	3,494	122	1,990	327	5,932
2023	3,441	120	2,012	336	5,909
2024	3,394	119	2,030	345	5,887
2025–2029	15,680	557	10,015	1,864	28,115

The 2020 expected benefit payments to defined benefit pension plan participants not covered by the respective plan assets (underfunded plans) represent a component of compensation and benefits, within current liabilities, in the Consolidated Balance Sheet.

Nonpension Postretirement Benefit Plan Expected Payments
The following table presents the total expected benefit payments to nonpension postretirement benefit plan participants. These payments have been estimated based on the same assumptions used to measure the plans' APBO at December 31, 2019.

(\$ in millions)

	U.S. Plan Payments	Qualified Non-U.S. Plans Payments	Nonqualified Non-U.S. Plans Payments	Total Expected Benefit Payments
2020	\$ 354	\$ 19	\$ 23	\$ 395
2021	381	20	23	424
2022	388	21	23	432
2023	379	23	23	425
2024	359	24	24	407
2025–2029	1,449	146	116	1,712

The 2020 expected benefit payments to nonpension postretirement benefit plan participants not covered by the respective plan assets represent a component of compensation

and benefits, within current liabilities, in the Consolidated Balance Sheet.

Other Plan Information

The following table presents information for defined benefit pension plans with accumulated benefit obligations (ABO) in excess of plan assets. For a more detailed presentation of the funded status of the company's defined benefit pension plans, see the table on page 129.

(\$ in millions)

	2019		2018	
	Benefit Obligation	Plan Assets	Benefit Obligation	Plan Assets
At December 31:				
Plans with PBO in excess of plan assets	\$31,714	\$18,398	\$30,059	\$16,783
Plans with ABO in excess of plan assets	30,882	18,127	29,312	16,522
Plans with plan assets in excess of PBO	66,842	73,705	63,524	68,190

The following table presents information for the nonpension postretirement benefit plan with APBO in excess of plan assets. For a more detailed presentation of the funded status of the company's nonpension postretirement benefit plans, see the table on page 129.

(\$ in millions)

	2019		2018	
	Benefit Obligation	Plan Assets	Benefit Obligation	Plan Assets
At December 31:				
Plans with APBO in excess of plan assets	\$4,685	\$47	\$4,616	\$94
Plans with plan assets in excess of APBO	19	21	—	—

NOTE W. SUBSEQUENT EVENTS

On January 28, 2020, the company announced that the Board of Directors approved a quarterly dividend of \$1.62 per common share. The dividend is payable March 10, 2020 to shareholders of record on February 10, 2020.

On January 30, 2020, the company announced that Arvind Krishna has been elected Chief Executive Officer and a member of the IBM Board of Directors, effective April 6, 2020. Mr. Krishna is presently IBM Senior Vice President for Cloud & Cognitive Software. Jim Whitehurst, IBM Senior Vice President and CEO of Red Hat, will become IBM President, also effective April 6, 2020. Virginia M. Rometty will continue as IBM Executive Chairman through year-end 2020.

On February 3, 2020, the company announced that it elected to redeem on March 6, 2020 \$2.9 billion of outstanding fixed-rate debt due in 2021. The notes are expected to be redeemed at a price equal to 100 percent of the \$2.9 billion aggregate principal plus a make-whole premium and accrued interest. The company expects to incur a loss of approximately \$41 million upon redemption which will be recorded in other (income) and expense in the Consolidated Income Statement.

On February 11, 2020, the company issued \$4.1 billion of Euro fixed-rate notes in multiple tranches with maturities ranging from 8 to 20 years and coupons ranging from 0.3 to 1.2 percent.

(\$ in millions except per share amounts)

For the year ended December 31:	2019*	2018	2017	2016	2015
Revenue	\$ 77,147	\$ 79,591	\$ 79,139	\$ 79,919	\$ 81,741
Income from continuing operations	\$ 9,435	\$ 8,723	\$ 5,758	\$ 11,881	\$ 13,364
Income/(loss) from discontinued operations, net of tax	\$ (4)	\$ 5	\$ (5)	\$ (9)	\$ (174)
Net income	\$ 9,431	\$ 8,728	\$ 5,753	\$ 11,872	\$ 13,190
Operating (non-GAAP) earnings**	\$ 11,436	\$ 12,657	\$ 12,807	\$ 12,880	\$ 14,519
Earnings/(loss) per share of common stock:					
Assuming dilution:					
Continuing operations	\$ 10.57	\$ 9.51	\$ 6.14	\$ 12.39	\$ 13.60
Discontinued operations	\$ (0.01)	\$ 0.01	\$ 0.00	\$ (0.01)	\$ (0.18)
Total	\$ 10.56	\$ 9.52	\$ 6.14	\$ 12.38	\$ 13.42
Basic:					
Continuing operations	\$ 10.63	\$ 9.56	\$ 6.17	\$ 12.44	\$ 13.66
Discontinued operations	\$ 0.00	\$ 0.01	\$ 0.00	\$ (0.01)	\$ (0.18)
Total	\$ 10.63	\$ 9.57	\$ 6.17	\$ 12.43	\$ 13.48
Diluted operating (non-GAAP)**	\$ 12.81	\$ 13.81	\$ 13.66	\$ 13.44	\$ 14.77
Cash dividends paid on common stock	\$ 5,707	\$ 5,666	\$ 5,506	\$ 5,256	\$ 4,897
Investment in property, plant and equipment	\$ 2,286	\$ 3,395	\$ 3,229	\$ 3,567	\$ 3,579
Return on IBM stockholders' equity	52.6%	48.0%	31.1%	74.0%	101.1%

At December 31:	2019*	2018	2017	2016	2015
Total assets	\$152,186	\$123,382	\$125,356	\$117,470	\$110,495
Net investment in property, plant and equipment	\$ 10,010	\$ 10,792	\$ 11,116	\$ 10,830	\$ 10,727
Working capital	\$ 718 ⁺	\$ 10,918	\$ 12,373	\$ 7,613	\$ 8,235
Total debt	\$ 62,899	\$ 45,812	\$ 46,824	\$ 42,169	\$ 39,890
Total equity	\$ 20,985	\$ 16,929	\$ 17,725	\$ 18,392	\$ 14,424

* The company acquired Red Hat on July 9, 2019, impacting 2019 results.

**Refer to the table below for the reconciliation of non-GAAP financial information for 2017, 2016 and 2015.

Also see "GAAP Reconciliation," on page 46 for the reconciliation of non-GAAP financial information for 2019 and 2018.

⁺ Refer to "IBM Working Capital" on page 43 for additional information.

GAAP Reconciliations

The table below provides a reconciliation of the company's income and diluted earnings per share from continuing operations as reported under GAAP to its operating earnings presentation which is a non-GAAP measure. The company's calculation of operating (non-GAAP) earnings, as presented, may differ from similarly titled measures reported by other companies. Please refer to the "Operating (non-GAAP) Earnings" section for management's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the year ended December 31:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	Tax Reform Charge	Operating (non-GAAP)
2017					
Income from continuing operations	\$ 5,758	\$ 718	\$ 856	\$ 5,475	\$ 12,807
Diluted earnings per share from continuing operations	\$ 6.14	\$ 0.77	\$ 0.91	\$ 5.84	\$ 13.66
2016					
Income from continuing operations	\$11,881	\$ 735	\$ 265	—	\$12,880
Diluted earnings per share from continuing operations	\$ 12.39	\$ 0.77	\$ 0.28	—	\$ 13.44
2015					
Income from continuing operations	\$13,364	\$ 562	\$ 593	—	\$14,519
Diluted earnings per share from continuing operations	\$ 13.60	\$ 0.57	\$ 0.60	—	\$ 14.77

The following presents a reconciliation of annualized revenue, excluding divestitures and currency from 2012 to 2019:

(\$ in billions)

2011 Revenue	Approximate Impact From:			Total Impact	2019 Revenue
	Divestitures	Currency	Performance		
\$106.9	-1.3 pts.	-2.2 pts.	-0.5 pts.	-4.0 pts.	\$77.1

Selected Quarterly Data

International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

2019	First Quarter	Second Quarter	Third Quarter*	Fourth Quarter*	Full Year
Revenue	\$18,182	\$19,161	\$18,028	\$21,777	\$77,147
Gross profit	\$ 8,043	\$ 9,010	\$ 8,336	\$11,100	\$36,488
Income from continuing operations	\$ 1,593	\$ 2,499	\$ 1,673	\$ 3,669	\$ 9,435
Income/(loss) from discontinued operations, net of tax	\$ (2)	\$ (1)	\$ (1)	\$ 0	\$ (4)
Net income	\$ 1,591	\$ 2,498	\$ 1,672	\$ 3,670	\$ 9,431
Operating (non-GAAP) earnings**	\$ 2,009	\$ 2,827	\$ 2,394	\$ 4,206	\$11,436
Earnings per share of common stock—continuing operations ⁺					
Assuming dilution	\$ 1.78	\$ 2.81	\$ 1.87	\$ 4.11	\$ 10.57
Basic	\$ 1.79	\$ 2.82	\$ 1.89	\$ 4.14	\$ 10.63
Earnings per share of common stock—total ⁺					
Assuming dilution	\$ 1.78	\$ 2.81	\$ 1.87	\$ 4.11	\$ 10.56
Basic	\$ 1.79	\$ 2.82	\$ 1.89	\$ 4.14	\$ 10.63
Diluted operating (non-GAAP)**	\$ 2.25	\$ 3.17	\$ 2.68	\$ 4.71	\$ 12.81

(\$ in millions except per share amounts)

2018	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
Revenue	\$19,072	\$20,003	\$18,756	\$21,760	\$79,591
Gross profit	\$ 8,247	\$ 9,199	\$ 8,803	\$10,687	\$36,936
Income from continuing operations	\$ 1,675	\$ 2,402	\$ 2,692	\$ 1,954	\$ 8,723
Income/(loss) from discontinued operations, net of tax	\$ 4	\$ 1	\$ 2	\$ (2)	\$ 5
Net income	\$ 1,679	\$ 2,404	\$ 2,694	\$ 1,951	\$ 8,728
Operating (non-GAAP) earnings**	\$ 2,272	\$ 2,834	\$ 3,134	\$ 4,417	\$12,657
Earnings per share of common stock—continuing operations ⁺					
Assuming dilution	\$ 1.81	\$ 2.61	\$ 2.94	\$ 2.15	\$ 9.51
Basic	\$ 1.82	\$ 2.63	\$ 2.95	\$ 2.17	\$ 9.56
Earnings per share of common stock—total ⁺					
Assuming dilution	\$ 1.81	\$ 2.61	\$ 2.94	\$ 2.15	\$ 9.52
Basic	\$ 1.82	\$ 2.63	\$ 2.95	\$ 2.17	\$ 9.57
Diluted operating (non-GAAP)**	\$ 2.45	\$ 3.08	\$ 3.42	\$ 4.87	\$ 13.81

* The company acquired Red Hat on July 9, 2019, impacting third- and fourth-quarter results.

** Refer to page 74 of the company's first-quarter 2019 Form 10-Q filed on April 30, 2019, page 98 of the company's second-quarter 2019 Form 10-Q filed on July 30, 2019, page 102 of the company's third-quarter 2019 Form 10-Q filed on October 29, 2019, and page 52 under the heading "GAAP Reconciliation" for the reconciliation of non-GAAP financial information for the quarterly periods of 2019 and 2018. Also see "GAAP Reconciliation," on page 46 for the reconciliation of non-GAAP financial information for full-year 2019 and 2018.

+ Earnings Per Share (EPS) in each quarter is computed using the weighted-average number of shares outstanding during that quarter while EPS for the full year is computed using the weighted-average number of shares outstanding during the year. Thus, the sum of the four quarters' EPS does not equal the full-year EPS.

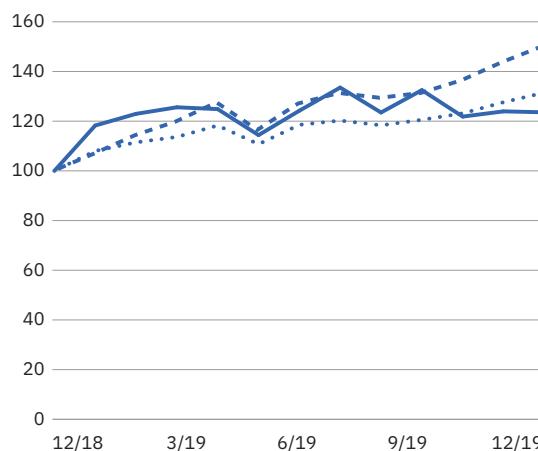
**COMPARISON OF ONE- AND FIVE-YEAR CUMULATIVE
TOTAL RETURN FOR IBM,
S&P 500 STOCK INDEX AND S&P INFORMATION
TECHNOLOGY INDEX**

The following graphs compare the one- and five-year cumulative total returns for IBM common stock with the comparable cumulative returns of certain Standard & Poor's (S&P) indices. Due to the fact that IBM is a company included in the S&P 500 Stock Index, the SEC's rules require the use of that index for the

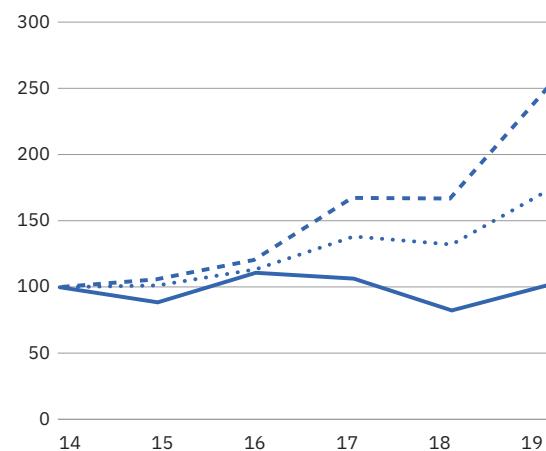
required five-year graph. Under those rules, the second index used for comparison may be a published industry or line-of-business index. The S&P Information Technology Index is such an index. IBM is also included in this index.

Each graph assumes \$100 invested on December 31 (of the initial year shown in the graph) in IBM common stock and \$100 invested on the same date in each of the S&P indices. The comparisons assume that all dividends are reinvested.

One-Year



Five-Year



One-Year

(U.S. Dollar)	12/2018	3/2019	6/2019	9/2019	12/2019
— International Business Machines	\$100.00	\$125.59	\$124.22	\$132.50	\$123.57
··· S&P 500	100.00	113.65	118.54	120.55	131.49
- - - S&P Information Technology	100.00	119.86	127.13	131.37	150.29

Five-Year

(U.S. Dollar)	2014	2015	2016	2017	2018	2019
— International Business Machines	\$100.00	\$ 88.59	\$110.90	\$106.49	\$ 82.49	\$101.93
··· S&P 500	100.00	101.38	113.51	138.29	132.23	173.86
- - - S&P Information Technology	100.00	105.92	120.59	167.42	166.94	250.89

Stockholder Information

International Business Machines Corporation and Subsidiary Companies

IBM Stockholder Services

Stockholders with questions about their accounts should contact:

Computershare Trust Company, N.A., P.O. Box 505005, Louisville, Kentucky 40233-5005, (888) IBM-6700.

Investors residing outside the United States, Canada and Puerto Rico should call (781) 575-2727.

Stockholders can also reach Computershare Trust Company, N.A. via e-mail at: ibm@computershare.com

Hearing-impaired stockholders with access to a telecommunications device (TDD) can communicate directly with Computershare Trust Company, N.A., by calling (800) 490-1493. Stockholders residing outside the United States, Canada and Puerto Rico should call (781) 575-2694.

IBM on the Internet

Topics featured in this Annual Report can be found online at www.ibm.com. Financial results, news on IBM products, services and other activities can also be found at that website.

IBM files reports with the Securities and Exchange Commission (SEC), including the annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and any other filings required by the SEC.

IBM's website (www.ibm.com/investor) contains a significant amount of information about IBM, including the company's annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934 as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. These materials are available free of charge on or through IBM's website.

The SEC maintains a website (www.sec.gov) that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC.

Computershare Investment Plan (CIP)

(formerly IBM Investor Services Program)

The Computershare Investment Plan brochure outlines a number of services provided for IBM stockholders and potential IBM investors, including the reinvestment of dividends, direct purchase and the deposit of IBM stock certificates for safekeeping. Call (888) IBM-6700 for a copy of the brochure. Investors residing outside the United States, Canada and Puerto Rico should call (781) 575-2727.

Investors with other requests may write to: IBM Stockholder Relations, New Orchard Road, M/D 325, Armonk, New York 10504.

IBM Stock

IBM common stock is listed on the New York Stock Exchange and the Chicago Stock Exchange under the symbol "IBM".

Stockholder Communications

Stockholders can get quarterly financial results, a summary of the Annual Meeting remarks, and voting results from the meeting by calling (914) 499-7777, by sending an e-mail to infoibm@us.ibm.com, or by writing to IBM Stockholder Relations, New Orchard Road, M/D 325, Armonk, New York 10504.

Annual Meeting

The IBM Annual Meeting of Stockholders will be held on Tuesday, April 28, 2020, at 10 a.m. at the Louisville Marriott Downtown Hotel, 280 W. Jefferson Street, Louisville, Kentucky.

Literature for IBM Stockholders

The literature mentioned below on IBM is available without charge from:

Computershare Trust Company, N.A., P.O. Box 505005, Louisville, Kentucky 40233-5005 (888) IBM-6700.

Investors residing outside the United States, Canada and Puerto Rico should call (781) 575-2727.

The company's annual report on Form 10-K and the quarterly reports on Form 10-Q provide additional information on IBM's business. The 10-K report is released by the end of February; 10-Q reports are released by early May, August and November.

An audio recording of the 2019 Annual Report will be available for sight-impaired stockholders in June 2020.

The IBM Corporate Responsibility Report highlights IBM's values and its integrated approach to corporate responsibility, including its innovative strategies to transform communities through global citizenship. Highlights from the Corporate Responsibility Report are available online at www.ibm.org/responsibility/2018. The full Corporate Responsibility Report is available in printed form by downloading the report at <https://www.ibm.org/responsibility/reports>.

General Information

Stockholders of record can receive account information and answers to frequently asked questions regarding stockholder accounts online at www.ibm.com/investor. Stockholders of record can also consent to receive future IBM Annual Reports and Proxy Statements online through this site.

For answers to general questions about IBM from within the continental United States, call (800) IBM-4YOU. From outside the United States, Canada and Puerto Rico, call (914) 499-1900.

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Royal Dutch Shell plc
Chairman
ABB Ltd.

Frederick H. Waddell
Retired Chairman and
Chief Executive Officer
Northern Trust Corporation

* Term on the Board begins on April 28, 2020
** Term on the Board ends on April 28, 2020
*** Term on the Board begins on April 6, 2020

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Senior Vice President, IBM,
and Chief Executive Officer,
Red Hat

Juan A. Zufiria Zatarain
Senior Vice President
Global Technology Services

* Dr. Krishna will become the Chief Executive Officer on April 6, 2020

** Mrs. Rometty will become the Executive Chairman on April 6, 2020

*** Mr. Whitehurst will become the President on April 6, 2020



International Business Machines Corporation
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