

2018
Annual
Report

The IBM logo, consisting of the letters 'IBM' in a stylized, striped font.

Dear IBM Investor:

2018 was a defining year for IBM and our clients. Your company returned to growth, just as businesses readied to enter Chapter 2 of their digital reinventions.

For years, we have focused on building the tools businesses need in the 21st century. Our investments have reshaped IBM to lead in the emerging, high-value segments of the IT market, including analytics, artificial intelligence, cloud, security, blockchain and quantum computing. At the same time, we have deepened our longstanding commitment to the responsible stewardship of technology.

IBM is now ready to help our clients advance their business transformations.

In my letter to you this year, I will describe IBM's performance in 2018. I will outline how clients are poised to enter Chapter 2 of their digital reinventions, with help from IBM, and how this translates to growth for IBM, for businesses and for the world.

2018: Return to Growth

In 2018, IBM achieved \$79.6 billion in revenue and operating earnings per share of \$13.81. For the full year, we returned to revenue growth, grew earnings per share and stabilized margins.

Our strategic and continued investment in innovative technology drove our improved competitive position and profit dynamics. Offerings that address data, AI, cloud, analytics and cybersecurity now represent more than half of our revenue—up from a quarter just four years ago—accounting for approximately \$40 billion in revenue in 2018.

Our investment of more than \$5 billion in research and development produced thousands of breakthrough innovations, which led to IBM's 26th consecutive year of U.S. patent leadership. Of the 9,100 patents granted to IBM in 2018, more than 1,600 were related to AI and 1,400 to cybersecurity—more than any other company in either area.

This focus on breakthrough innovation has created IBM's strongest portfolio ever and has driven results:

- Total cloud revenues were more than \$19 billion in 2018, up 12 percent. In the fourth quarter alone, IBM signed 16 client services agreements worth more than \$100 million to help optimize business performance on the IBM Cloud. Today, 47 of the Fortune 50 depend on the IBM Cloud.
- IBM is the world's enterprise AI leader. Solutions enabled by IBM Watson are helping produce better decision-making and business outcomes through more than 20,000 client engagements, across 20 industries to date. IDC ranked IBM number one in AI market share. We continue to pioneer innovations in natural language processing, speech processing, computer vision and machine learning.
- IBM Blockchain is the global leader in improving trust and transparency across business networks by creating a new way for clients to share and secure data. IBM Blockchain now powers more than 500 client projects, with more than 85 active networks transforming supply chains, global shipping and cross-border finance.
- IBM Security, the world's largest cybersecurity enterprise, has 8,000 subject matter experts serving more than 17,000 clients in more than 130 countries. The industry's leading AI and cloud-based security solutions include IBM Security Connect, launched in 2018, which allows clients to gather, integrate and analyze security data across multiple applications and tools, in a vendor-agnostic way.
- IBM Systems produces innovative infrastructure for AI and hybrid cloud. The z14 is one of IBM's most successful mainframe programs in history, with broad global adoption across 27 different industry segments. In addition, the U.S. Department of Energy's POWER9-based supercomputers, Summit and Sierra, were ranked the most powerful supercomputers in the world in 2018.
- IBM Services was a key driver of IBM's performance in 2018. Forty-seven engagements worth more than \$100 million each helped major clients—like Bank of the Philippine Islands, Juniper Networks, Nordea, Westpac and Aditya Birla Retail—move to the next stage of their digital transformations.

New IBM investments are further energizing our portfolio. In late 2018, we announced plans to acquire Red Hat, the world's leading open source technology provider for the enterprise. With this acquisition, which is expected to close in the second half of 2019, IBM will enhance our position as the world's number one hybrid cloud provider, helping clients unlock the full business value of the cloud.

We also continued to divest stand-alone software and services assets that are no longer strategic for IBM.

At the same time, we remained committed to returning capital to our shareholders. In 2018, we returned more than \$10 billion to you, our shareholders, including dividends of \$5.7 billion and gross share repurchases of \$4.4 billion. We raised our dividend for the 23rd consecutive year—IBM's 103rd straight year of providing one.

Moving Clients to the Next Chapter of Digital Reinvention

For the past several years, businesses around the world have been driving their digital reinventions to take advantage of data, their most powerful source of competitive advantage.

This first chapter has been defined largely by experimenting with narrow and disparate AI applications and moving simple workloads—typically consumer and customer-facing applications—to the cloud.

Now, we are beginning to see the contours of Chapter 2 among pioneering businesses: moving from experimentation to true business transformation at scale with AI and hybrid cloud.

This next chapter of digital reinvention will be enterprise-driven. It will be characterized first by scaling AI and embedding it everywhere in business. Second, in cloud, it will be characterized by moving mission-critical applications to hybrid cloud—using a combination of multiple public clouds, private clouds, and on-premise IT capabilities, so businesses can create the environment most suitable for their enterprise workloads. Underpinning it all is the growing importance of trust, both in technologies and in their impact on the world.

Scaling AI throughout the Enterprise

In Chapter 2 of their digital reinventions, businesses will begin to scale AI across the enterprise, as some first movers are already demonstrating.

Take the world's leading banks, for example. While many have been applying AI to specific challenges, some first movers are scaling AI across the enterprise. Orange Bank, one of the fastest growing mobile banks in France, now manages all customer

service through IBM Watson. Similarly, Banco Bradesco is now using IBM Watson to assist every member of its services team—resolving customer inquiries in seconds with nearly 95 percent accuracy.

IBM brought AI for business into the mainstream with the introduction of our Watson platform in 2014. Today, IBM Watson is the most open and trusted AI for business, available to run on any environment—on premise, and in private and public clouds. Businesses can apply Watson to data wherever it is hosted and infuse AI into their applications, regardless of where they reside.

With Watson Studio, Watson Machine Learning and Watson OpenScale, IBM delivers a suite of tools that allow enterprises to build, deploy and manage their AI models in a hybrid cloud environment. IBM Watson OpenScale, a first-of-a-kind platform introduced in 2018, also enables businesses to manage their AI—no matter where it was built or where it runs—with transparency, explainability and bias mitigation. Addressing these factors, which traditionally have held businesses back, is critical for scaling AI throughout an enterprise.

Through IBM Services, we are helping our clients around the world apply AI to core business processes and workflows, infusing their businesses with automation, intelligence and continuous learning to transform everything from supply chains and HR to finance and operations.

In 2018, we also launched a new service called IBM Talent and Transformation that addresses the often overlooked cultural aspects of AI. This service helps our clients ensure their teams have the right skills and talent—and the supporting culture and work environment—to support a new way of working that is critical to scaling AI for business.

Moving Mission-Critical Work to Hybrid Cloud

In the first chapter of digital reinvention, cloud deployments largely focused on easily portable workloads for productivity and commodity computing. This primarily was driven by user-facing applications inspired by advances in consumer technology. As a result, only 20 percent of enterprise workloads today have moved to the cloud.

The remaining 80 percent of enterprise workloads provides the real value opportunity for business—transforming mission-critical workloads and applications for the cloud. The challenge is that most businesses have unique regulatory or data requirements and anywhere from five to 15 clouds across multiple providers.

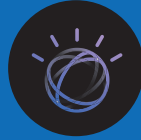


Virginia M. Rometty
Chairman, President and
Chief Executive Officer

IBM Leadership

#1 AI for business

20,000+ IBM Watson client engagements across 20 industries.



#1 in hybrid cloud

47 of the Fortune 50 rely on IBM Cloud. Revenue for IBM Cloud topped \$19 billion in 2018.



#1 in enterprise services

IBM Services, with end-to-end cloud and AI capabilities, closed 47 client agreements worth more than \$100 million each in 2018.



#1 in enterprise security

IBM Security manages 70 billion cybersecurity events per day for clients in more than 130 countries.



#1 in enterprise systems

IBM Z is at the heart of world commerce with 30 billion transactions per day, including 87 percent of all credit card transactions.



#1 in blockchain

IBM Blockchain Platform was ranked number one by analyst firms Juniper Research and Everest Group.



#1 in U.S. patents for the 26th consecutive year

IBM inventors received a record 9,100 patents, including more than 3,000 in AI, cloud and quantum computing.



#1 and #2 fastest supercomputers in the world

Built by IBM for the U.S. Department of Energy, based on IBM POWER9 CPUs tuned for AI workloads.



That is why businesses moving to Chapter 2 will need to embrace a new, hybrid cloud approach. It is one that will allow them to more easily move data and scale AI and other applications across public, private and on-premise IT in their enterprises, with consistent management and security protocols, using open source technology.

For example, BNP Paribas, a leading European bank, is working with IBM to speed and scale the launch of new digital and AI customer services across the cloud, while protecting the security and confidentiality of customer data. Similarly, global telecom leader Vodafone Business is partnering with IBM to innovate the way it delivers

multicloud and digital capabilities—including AI, edge computing, 5G and software-defined networking solutions—to its customers.

IBM Services provides end-to-end cloud integration capabilities and is helping thousands of businesses migrate, integrate and manage applications and workloads seamlessly and

securely across any cloud environment. Industry experts from IBM Services are co-creating cloud-enabled solutions with clients in our IBM Garages. Using design thinking and agile methods, we are helping clients implement new ways of working, such as rapid prototyping and iteration to more quickly move technology projects from pilot to production at scale.

We are ready for this moment of moving clients to Chapter 2 of their digital reinventions with our unique integration of innovative technology, industry expertise and a reputation for trust and security earned over decades. IBM is now moving the world's major enterprises to the next era, an effort that will be enhanced by our planned acquisition of Red Hat.

“We are ready for this moment of moving clients to Chapter 2 of their digital reinventions with our unique integration of innovative technology, industry expertise and a reputation for trust and security earned over decades.”

Chapter 2 of Trust and Responsible Stewardship

We recognize that our clients and the consumers they serve expect more than groundbreaking innovation and industry expertise. They want to work with technology partners they can trust to protect their data and handle it responsibly.

They want to work with partners who know how to bring new technologies into the world safely and help society benefit from them. And they want their partners to create inclusive workplaces and communities where diversity thrives.

These expectations are linked by a common theme: responsibility. Responsibility has been a hallmark of IBM's culture for 107 years—from our labs to our boardroom. IBMers' unwavering global commitment to the responsible stewardship of data and powerful new technologies has earned us the trust of clients and society as a whole.

In 2018, as trust in technology came under heightened global scrutiny, we published our IBM Principles for Trust and Transparency, which have long guided our company. They stress our belief that the purpose of new technologies is to augment—not replace—human intelligence, and that the data and insights derived from technology belong to the businesses who own them. The principles also emphasize that new technologies brought into the world must be open, transparent, explainable and free of bias.

We know that AI, like other transformative technologies before it, will have a profound impact on peoples' jobs and the workplace. That is why, in 2018, IBM further expanded access to the pathways through which students and professionals can build skills for today's technology era. That includes "new collar" jobs, where having the right skills matters more than having a specific degree. Through our work in 11 U.S. states and 13 countries, there will be 200 Pathways in Technology Early College High Schools—or P-TECHs—serving a pipeline of 125,000 students in the 2019 school year.

2018 also saw the rapid growth of our IBM Apprenticeship Program, which trains people in 21st-century skills ranging from blockchain and digital design to cybersecurity—and which expanded nearly twice as fast as we had projected in its first year.

Yet skills are only part of today's workforce opportunity. In 2018, fueled by record diverse hiring, promotion and retention, we achieved our greatest progress in a decade on diversity representation among global executive women and underrepresented minorities. We also continued advocating with governments around the world for policies that help ensure workplaces are as inclusive and diverse as the world we live in.

Recognizing that responsible stewardship should not be confined within IBM's walls, we also are working aggressively to empower others to do lasting good. We are, for example, a founding partner in Call for Code, a global initiative that works with software developers to create solutions that can help save lives. Last year, 100,000 open source developers from 156 countries responded to the call, creating more than 2,500 applications to help communities recover from natural disasters.

As IBM sees it, the promise of technology is to empower people to do good, access new opportunities and make the world better, safer and smarter—for the many, not just the few.

IBM Poised to Lead

In summary, we have returned your company to growth. We have positioned IBM's products, services and people to enable clients to write the next chapter of their digital reinventions. And we have done it all while reaffirming IBM's longstanding reputation for trust, integrity and responsibility.

Our work ahead is to build on this progress and bring these capabilities to life for our clients. I want to thank all of our clients for partnering with us while we reinvented IBM, and for choosing us for their own journeys of transformation.

I also would like to thank our investors for their confidence in IBM. Finally, I would like to thank the hundreds of thousands of IBMers whose expertise has prepared us to lead in this new chapter of digital reinvention.

I am honored to steward this great company, and I am filled with optimism about what we can achieve in partnership with our clients and society. Together, we are changing work and business—and ultimately, the world.



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 and operating pre-tax income. The rationale for management's use of this non-GAAP information is included on pages 18 and 19 of the company's 2018 Annual Report, which is Exhibit 13 to the Form 10-K submitted with the SEC on February 26, 2019. For reconciliation of these non-GAAP financial measures to GAAP and other information, please refer to page 41 of the company's 2018 Annual Report.

**Leading
businesses
are reinventing
themselves with
IBM Services
and Solutions
across AI, cloud,
blockchain,
quantum
and more.**

IBM Services

United Airlines: Reinvention takes flight

To ignite a major business transformation, United Airlines turned to IBM iX—the business design arm of IBM Services—and a set of business applications from a global partnership between IBM and Apple called IBM MobileFirst for iOS. These applications combine the power of enterprise data and analytics with an elegant user experience, allowing United to broadly rethink how its crews work and how its work flows.

United and IBM used the IBM Garage method to design apps for the airline's growing deployment of iOS devices.

The IBM Garage method, used by IBM Services with clients around the world, emphasizes co-creation and frequent iteration. It has allowed United to build complete, integrated mobile platforms that start with a user's experience and extend to all the airline's core business processes. United is now able to foster better and faster collaboration across diverse teams and time zones, enabling it to focus on its core mission of transporting customers to their destinations on time. The apps are also giving flight attendants like Deb Winchell new ways to help customers enjoy their flights, which makes everyday travel just a little less stressful for everyone involved.

Frontline crews know that many factors can contribute to delays. "Most challenges stem from things I can't control," Deb says. "But when I can make a difference in a customer's travel experience, it can be huge." That's why it's important to resolve issues before they affect customers. Deb can now be more proactive with apps co-designed by United and IBM iX. Deb can

With new mobile tools, United staff can quickly report and resolve issues that previously required multiple steps.



Flight attendant Deb Winchell knows better than most how stressful a delay can be—for customers and staff alike.



More than 60%
savings in app development
costs, compared to a
traditional approach

even report an issue while a plane is still in the air, so the ground crew can get to work as soon as the plane lands. Customers on the next flight are far less likely to be affected because the app streamlines communication. "It's been a game changer for us," Deb says. "It lets us care for our customers right in the moment—and nothing's better than that."

The agile IBM Garage method helps organizations think beyond their existing systems and focus on what customers actually need. When combined with IBM Cloud and IBM Watson, it's nothing less than a way for organizations to reinvent themselves—an approach that's being adopted by enterprises around the world as they move to the next stage of digital reinvention. For example, it has helped create a startup culture in Banco Bradesco, one of Brazil's largest banks. Bradesco can now quickly respond to the rising demand from its 75 million mobile banking customers. It has also showed East Carolina University new value in discarded data that enabled the school to predict possible outcomes, report strengths, weaknesses and deficits, and enable advisors to better assist students and improve educational programs. Digital reinvention isn't just a product or a platform. And it's certainly more than just a buzzword. It's a promise: a new way to innovate and rethink a company from the ground up and help customers and businesses alike.

IBM Blockchain

Walmart: Linked by safer food

It starts with a single report of severe food-borne illness.

Then more reports pour in from around the country and from them, a culprit emerges: a common type of lettuce. But where, specifically, did the tainted lettuce come from? The work of Walmart and IBM, powered by IBM Blockchain, is giving us a better way to answer this question.

Until recently, tracing food hasn't been easy or fast.

And the risk that represents is significant. The World Health Organization has estimated that there are 600 million cases of foodborne illness each year, leading to 420,000 deaths. And it can be daunting to trace how food goes through the supply chain. For example, four days of a farm's production of red- and green-leaf lettuce and cauliflower can generate more than 200 separate tracking numbers that are printed onto cartons and pallets for shipping to buyers. Finding individual boxes of particular at-risk produce in this environment means searching through a haystack of paper records. IBM Food Trust—using blockchain technology—connects growers, processors, distributors and retailers through a permissioned, permanent and shared record of food-system data that drastically cuts the time needed to trace produce from farm to store. In a pilot program,



With the IBM Food Trust, Walmart's food safety professionals can trace produce back to its source in just seconds.

tracing time was reduced from seven days to just 2.2 seconds. "With blockchain, all the trace media's already there," explains Tejas Bhatt, senior director, Food Safety, for Walmart.

Blockchain technology is also changing the way companies like Walmart collaborate with their supply chains—even with potential competitors. The IBM Food Trust ecosystem connects supply chains like Walmart's and also those of other major retailers and global companies such as Carrefour, Dole, Golden State Foods, Driscoll's and Nestlé—all without sharing any information they don't want to share. Beyond safety, consumers increasingly value the kind of information that a system built on IBM Blockchain can provide. With blockchain, growers, distributors and retailers can provide consumers digitized certifications of existing organic or fair trade products along with detailed documentation from different points in the process, from farm to table. Ed Treacy, vice president, Supply Chain and Sustainability at the Produce Marketing Association, says blockchain "can speed up investigations into contaminated food, authenticating the origin of food and providing insights about the conditions and pathway through which the food traveled."

As more companies adopt a digital, end-to-end traceability protocol, the IBM Food Trust's goal is to make the world's food supply safer—something that is sorely needed. In 2018, the U.S. Food and Drug Administration and U.S. Department of Agriculture issued more than 300 food recalls. In addition to the societal and business impact, these recalls waste huge stocks of food and erode consumer trust. And if outbreaks multiply and answers are slow in coming, customers can become desensitized and begin to ignore overly broad warnings such as "throw away all lettuce in your refrigerator." Work by companies like Walmart and other participants in the IBM Food Trust are laying the foundation for better management of our global food supply: rapid insight into what's happened when something goes wrong, reducing waste, and a safer journey from the farm to our local markets and, ultimately, to our dinner table.



From
7 days



Down to
2.2 seconds

IBM Blockchain adds new transparency to the global food supply chain.





Watson eliminates distractions that come between branch director Fran ois-Xavier Maille and his clients.

IBM Cloud · IBM Watson

Cr dit Mutuel: A bank thinks bigger

When Cr dit Mutuel embarked on its “together#newworld” initiative—a five-year project to become a leading digital bank—it brought in IBM to help it reinvent itself.

Cr dit Mutuel’s goal: to engage with customers more deeply, both online and offline, while providing new products and the fastest service—all in an environment of trust and security. To do that, the bank is infusing IBM Watson into the applications its advisors use and is embracing IBM Cloud as a platform for innovation, trust and security.

Fran ois-Xavier Maille, director of one of the premier branches of Cr dit Mutuel bank in Paris, was the first to deploy the initial AI solution: a Watson virtual assistant that helps employees answer customers’ questions. “The application has liberated our people from a few recurring tasks so they can devote their time and talents to understanding our clients’ aspirations, challenges, and circumstances,” says Fran ois-Xavier. Today, 23,000 Cr dit Mutuel advisors across France rely on the Watson tool, which helps employees answer business-related questions 60% faster. The bank intends to use Watson across all of its business lines.

Experts from
Cr dit Mutuel and
IBM Services are
working together in
a “Cognitive Factory.”

But that’s just the start. Cr dit Mutuel is making important decisions—about data, compliance and regulation, cybersecurity, and managing applications across the enterprise. To achieve digital banking at scale, IBM and Cr dit Mutuel are crafting a hybrid cloud strategy that encompasses multiple clouds and on-premise systems, including the mainframe. At the same time, experts from Cr dit Mutuel and IBM Services are working together in a “Cognitive Factory” that provides a fertile environment for identifying, building and deploying new AI solutions. With many internal IT teams involved, IBM and Cr dit Mutuel are also creating industrial tools and training assets to efficiently expand cognitive solutions to 100% of the business lines of the company.

Cr dit Mutuel’s reinvention represents a synthesis of human and machine that gives banking new power. Employees can find the optimal blend of talent and data, use their talents to the fullest, delve more deeply into clients’ financial challenges and develop smarter, more creative solutions. Extrapolate IBM’s immediate impact on Cr dit Mutuel to the entire world of financial services,



60%
faster responses to
business inquiries



175,000
daily emails routed
and prioritized

and you can see the implications for how banking consumers experience and engage with their financial institutions: More relevant innovation for customers. Lower client turnover for banks. Greater confidence in asset management for consumers. Higher employee engagement and contributions. Growing customer satisfaction. And more predictable performance for institutions. AI accelerates access to relevant information and liberates people to provide a human touch.



Christina English is helping to lead DeKalb Medical's fight against sepsis.

IBM Watson Health

DeKalb Medical: Stronger medicine

DeKalb Medical takes a systems-based, data-intensive approach to fighting dangerous infections with the help of IBM Watson Health. One of the lesser-known challenges it faces is sepsis, which is caused by an infection that triggers an inflammatory immune response. Sepsis is notoriously difficult to diagnose and treat, making it the third-leading cause of death in the U.S.

Nurses see it all, and sepsis requires them to race against the clock. But with the intelligent use of data, delivered by IBM Watson Health and deployed by a team led by Christina English, a quality management specialist and former bedside nurse, clinicians at DeKalb are getting a step ahead to help patients get better, faster. Previously, Christina and her team had to fight sepsis with siloed and sometimes subjective information. "We knew what to look for, but we didn't understand the importance of the symptoms, how they worked together and how a clearly defined set of treatment measures is critical to success," she says. Using IBM CareDiscovery, part of Watson Health's set of performance-improvement solutions for healthcare providers, Christina and her team were able to gather and analyze industry benchmarks as well as their own performance metrics in order to identify sepsis "flags" and pinpoint where DeKalb could take proactive measures.

DeKalb is shifting to a systems-based approach to care.

The IBM Watson Health solution helped Ellen Hargett, executive director of DeKalb's Quality Institute, and her team change the way they measure system-wide performance by organizing data and analysis into a usable dashboard. For each key performance metric on the dashboard, Ellen established tactical teams to fully understand the metrics, determine the "why" behind them and recommend tactics for improvement. Across healthcare, a systems-based approach can also produce a significant positive impact on resources. For example, sepsis is not only a medical challenge for hospitals. It's also the most costly reason for hospitalization, consuming \$24 billion each year in the U.S. alone. DeKalb's efforts to quantify, analyze and shift the diagnosis and treatment of sepsis have not only led to a lower mortality rate but also significantly reduced the length of stay for patients.

Individual treatments are now based on data informed by large-scale findings across large populations. Historically, doctors diagnosed through trained intuition. In recent decades, however, this approach has been replaced by "empirical medicine" that's based on data. The result is more standardized treatments and improved outcomes. At DeKalb, data is shared with healthcare professionals, providing them with information to spot large patterns or gaps. Watson Health's data-driven tools allow healthcare institutions to organize and visualize data and take fast action to address weaknesses or roll out improvements. A data-driven approach to challenges like sepsis also helps doctors expand their understanding of the syndrome, improving diagnosis and treatment. This trajectory will eventually create a new era of healthcare. As medical professionals tap data at both the systemic and individual levels, an age of "precision medicine" will arise. It will be a time when understanding derived from the many can be tailored and applied to the needs of the individual.

This data-driven approach will eventually create a new era of healthcare.



30%
fewer lives lost
to sepsis

IBM Watson

Hydro One: Outsmarting the storm

Another late spring storm was rolling toward the Canadian utility Hydro One. But in its ongoing battle with ice, snow, wind and thunderstorms, this time the utility found calm in the predictive power of The Weather Company and IBM Watson.

Derek Roles, director, Emergency Preparedness and Restoration, is Hydro One's first line of defense for a service area that covers most of Ontario. Twenty years of experience and an encyclopedic knowledge of winter storms have helped him manage through many major disruptions, so Derek can usually plan for the worst. Now, though, he can predict it. And that changes everything. In the past, recovery teams were deployed only after the weather had passed. Now, however, Derek doesn't just keep up with the weather—he stays ahead of it. This shift was made possible because Derek and his team put data and AI to work: they trained Watson to predict outages using five years of Hydro One historical outage data and a massive amount of Ontario's historical weather information. Derek's new predictive tools help him paint a clearer picture of how a storm will affect the utility's electrical distribution network.

Hydro One has committed itself to a more proactive approach, and the utility has not only gained a new way to fight storms, but has also changed its basic business operations to strengthen its customers' experience and service quality. The predictive power of AI enables Hydro One to activate its emergency organization structure in advance and create detailed team deployment plans, positioning some crews in the storm's predicted path while making sure other crews are well rested. The utility is also able to staff call centers more effectively and notify customers of a storm's potential impact on their service. So when a storm hits, restoration plans are already in motion and work crews can spring into action faster than ever before, quickly and safely scaling repairs from the main transmission grid to smaller circuits to individual customer locations in remote areas.



With Watson, Hydro One's Derek Roles, director, Emergency Preparedness and Restoration, can restore power more quickly after a storm.

Predictive intelligence is starting to create new options that can make extreme weather more manageable and less disruptive.



33%
faster electricity
restoration than
similar storms



**Emergency
Recovery Award**
from the Edison
Electric Institute

Weather exerts a tremendous influence on the economy.

It affects productivity, sales and energy consumption, and it can disrupt supply chains and transportation systems. Severe weather can upend lives and businesses for hours, weeks, years or even forever. So there's a logic behind the expression "ride out the storm"—that's often been the only option. But predictive intelligence is starting to create new options that can make extreme weather more manageable and less disruptive. This is especially critical at a time when severe weather is the leading cause of power disruptions in many countries. Global economic losses resulting from weather disasters totaled \$215 billion last year. By putting the power of data and Watson to work, Hydro One is modeling new solutions for previously intractable weather problems everywhere—problems that can now be better understood and managed, along with human risks that can now be met head-on with artificial intelligence.

IBM Quantum

ExxonMobil: Quantum understanding

Every energy company's dual challenge:



Provide access to scalable, affordable energy



Reduce the risks of climate change

Vijay Swarup, ExxonMobil vice president for Research and Development, says energy research requires curiosity, optimism, patience and dissatisfaction. Dissatisfaction because he believes things can be better. But what, exactly, can be better? Nothing less than our understanding of the world.

Researchers now have a new tool to explore new ways to solve problems: quantum computing. And Vijay's quite precise about the trouble with our current understanding. "There are some problems so big, all we can do is approximate," he says. Whether he's in a business suit or the lab coat he wears at ExxonMobil's expansive New Jersey research facility, Vijay clearly enjoys trying to solve what he calls today's pressing dual challenge: ensuring that people have access to scalable, affordable energy, and doing so in the context of climate change and the need for sustainable solutions. This is where IBM Q comes into the picture. Quantum computers have long been considered theoretical. But today, they're becoming a reality, with huge potential for energy companies like ExxonMobil. That said, using a quantum computer also calls for significant change in how researchers think about approaching their work. "Computation has always been an integral part of the research we've done here, but quantum's radically different," Vijay explains. "Now, we must first figure out which problems are most suited to a quantum approach and only then can we answer a more interesting question: How can you program a quantum computer to solve energy problems?"

ExxonMobil joins a group of global corporations partnering with IBM to work side-by-side on IBM's fully functional quantum computers. As Vijay says, quantum's a priority that requires pairing the "best minds with the best minds." So ExxonMobil has a team that will meet regularly with IBM's quantum researchers. Barclays has its own team working



ExxonMobil's vice president for Research and Development, Vijay Swarup, is leading the company's exploration of quantum computing.

on quantum, as do Samsung and Daimler. Working as part of the IBM Q Network alongside global universities and national research labs, these corporations see the potential of a massive shift in how computers can help solve some of the most enduring challenges—issues that, once solved, could transform entire industries. "IBM Q System One is the world's first integrated universal quantum computing system designed for scientific and commercial use," says Dario Gil, director, IBM Research. "We are at the beginning of an exciting journey. Our research, systems and business teams—along with our IBM Q Network partners—have a bold vision. They are thinking big. These are the true pioneers."

Nature is no longer estimated but predicted and understood. That's the goal. So when IBM unveiled its quantum machines, companies like ExxonMobil saw great promise. But when you talk to Vijay about promise, his thoughts turn to the great needs that are facing the world. "Our global population is increasing from 7 billion to 9 billion and, all across the world, a growing middle class requires more resources and, especially, more energy." Quantum might be well suited to solve super-complex problems, such as advanced models which could lead to better approaches to carbon capture and lower emissions sources of energy. But what excites Vijay most is that the collaboration with IBM researchers could lead to a fresh ability to predict and anticipate how nature operates—which could lead to an understanding of what's *actually* happening, as opposed to an approximation of what *might* be happening. "With a little curiosity, patience and not settling for the status quo, I know we can get there," he says.

IBM Q System One is the world's first integrated quantum computing system for commercial use.



More clients are partnering with IBM to write the next chapters of their digital reinventions.



▼ **Belron** applied **IBM Watson** Visual Recognition to its Autoglass Body Repair business to speed up insurance processing, move repairs along quickly and help its customers get back on the road fast.

Thought Machine, a London-based fintech startup, has built Vault, a new, cloud-native core banking infrastructure launching on **IBM Cloud**. It has also partnered with **IBM Services** to provide advisory and delivery capabilities to its clients.



▼ **Travelport**, a travel commerce platform, is working with **IBM Watson** to integrate disparate information sources and make stronger corporate travel recommendations. As a result, finding the lowest travel costs for a company will be quicker and easier.



▼ **Japan Airlines** is using an **IBM Watson**-powered chatbot, Makana-chan, to answer customers' questions about its popular Tokyo-to-Honolulu flights. Makana-chan eases the burden on live agents and is very popular with passengers.



▼ **Maersk**, the container logistics giant, is using **IBM Blockchain** to create Tradelens, a global blockchain solution for the shipping ecosystem. This global transformation will lead to faster delivery times, lower costs and a noticeable difference in the way we get the things we use every day.

KMD, Denmark's largest technology company, is dedicated to connecting its clients to the latest technologies. The company is using **IBM Services** to provide a critical foundation of servers, networks and other technologies that help it handle large volumes of data with high levels of security.



▼ **Bausch + Lomb** simplified the service and maintenance process for its high-tech Stellaris Elite Vision Enhancement System for cataract and retina surgery. Using **IBM Cloud**, the company can now pinpoint or respond to technical and service requests and limit or minimize downtime.



▼ **Fluor Corporation** builds mega-projects across the globe. Data generated by these projects has been harnessed by working with **IBM Research** and **IBM Services**. Fluor recently introduced two new AI-powered systems to uncover and predict how unmitigated trends could affect key project indicators.

BNP Paribas is accelerating its digital transformation and improving its operational efficiency. The bank will now integrate **IBM Cloud**-hosted data centers dedicated to the bank, and will strengthen its hybrid cloud "as a service" capabilities while ensuring the security and confidentiality of their customers' data—including not using public clouds for hosting any customer or other production environments with sensitive information.



▼ **Whirlpool Corporation** is using **IBM Cloud** to help manage all the data from its manufacturing of connected home appliances. Whirlpool will be using the cloud to manage critical enterprise applications, which will give it more flexibility to scale and innovate.



▼ **Telefónica** turned to **IBM Blockchain** to capture call data in real time and save it in a format that's trusted, traceable and accessible to network providers and carriers worldwide, making international phone calls feel seamless despite all the technological leaps they require.



▼ **Smart Dubai**, working with **IBM Blockchain** and **IBM Cloud**, has launched the region's first government-endorsed blockchain service: Dubai Blockchain Platform. It is designed to make the technology more accessible to the Dubai government, the UAE national government and private companies.



▼ **Suunto**, creator of the Movesense microsensor, launched a Movesense development community enabled in the **IBM Cloud**. This let Suunto dramatically scale its offerings. Today, more than 800 developers are working with Movesense, helping Suunto bring the device to new customers all over the world.

KPMG is using **IBM Watson** to power a contract analysis solution for its clients. The solution examines contracts, breaks them into their component parts and interprets each part with a high degree of accuracy. It's faster and less expensive than manual methods, while freeing up skilled resources to perform more productive tasks.



▼ **Krungsi Bank**, one of Thailand's largest financial institutions, is working with **IBM Services** to lay the foundation for its future. An **IBM Blockchain** pilot is in progress, and the bank is planning to develop new services for its customers.



▼ **Profility**, a post-surgery rehabilitation solutions provider, needed to integrate large volumes of data as well as meet stringent HIPAA regulations. They chose **IBM Cloud** because of its flexible software and secure, dedicated hardware. Their system is widely used and has resulted in shorter rehab stays and fewer hospital readmissions.



▼ **The Australian Federal Government** has set its sights on being one of the world's top three digital governments by 2025. In July 2018, it announced a five-year agreement that covers solutions from **IBM Cloud**, **IBM Watson**, **IBM Security**, **IBM Research** and the **IBM Q** quantum computing initiative.

View these stories and more at ibm.com/annualreport

Responsible stewardship and trust have been hallmarks of IBM's culture—from our labs to the boardroom—for more than a century.

IBM is recognized as one of the World's Most Ethical Companies by the Ethisphere Institute, highlighting our influence in driving positive change in business and society around the world.

Data Responsibility

At IBM, we've always followed straightforward principles to act responsibly and earn trust. Today, our principles include:

- The purpose of new technologies is to augment—not replace—human intelligence.
- Data and insights belong to their owner.
- New technology, including AI, must be transparent and explainable.

Recent actions demonstrate our principles at work, including:

- **Advocating for public policies to protect the privacy and security of data** and working with governments worldwide on strategies that will ensure privacy and responsible handling of data, without undermining innovation.
- **Partnering with STOP THE TRAFFIK**, law enforcement and financial services institutions to stop human trafficking by using IBM software analytics to identify suspicious trends, hotspots and financial transactions.



Modern slavery, a \$150 billion business, has a new foe: an AI data hub on the IBM Cloud.

- **Launching AI Fairness 360**, an open source software toolkit to help developers actively detect and reduce bias in datasets and AI.
- **Releasing Diversity in Faces**, a first-of-its-kind dataset, to help reduce bias in facial recognition systems, making them fairer and more accurate.

1 million annotated human facial images



Jobs and Skills

In the 1940s, IBM partnered with Columbia University to create a new discipline: computer science. In 2018, we continued this tradition by expanding training and education for the growing number of “new collar” jobs for today’s era of data and AI. Recent examples include:

- **Developing new talent with our 12-month IBM Apprenticeship Program** in areas including cybersecurity, digital design, mainframe administration and software development. Hundreds of apprentices—ranging in age from 18 to 59—have joined the program, which includes training and on-the-job experience guided by an IBM mentor.



Brandon Whittington, IBM Blockchain Solutions support engineer and graduate of the IBM's Apprenticeship Program

- **Launching Skills Build, an IBM volunteer initiative** that helps more than three million primary and secondary school students learn about new technologies.
- **Continuing to transform education via P-TECH**—Pathways to Technology Early College High School. In the 2019 school year, there will be:
 - 200** P-TECH schools serving a pipeline of
 - 125,000** students across
 - 13** countries and **11** U.S. states



P-TECH students at a graduation ceremony

Diversity and Inclusion

In 2018, fueled by record diverse hiring, promotion and retention, IBM achieved our greatest progress in a decade on diversity representation among global executive women and underrepresented minorities. We also continued advocating with governments around the world for policies that help ensure workplaces are as inclusive and diverse as the world we live in. We received widespread recognition in 2018 for this leadership, including:

- **Being honored with a 2018 Catalyst Award** for leadership in advancing women in business, becoming the first company to win the award four times and the only tech company so honored in the last 20 years.
- **Being named a 2018 Diversity Best Practices Leading Inclusion Index Company** by *Working Mother*.
- **Scoring a perfect 100 percent for the 15th consecutive year** in the Human Rights Campaign Corporate Equality Index.



IBMers at the Pride March in New York

Financial Highlights

International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

For the year ended December 31:	2018	2017
Revenue	\$ 79,591	\$ 79,139
Net Income	\$ 8,728*	\$ 5,753*
Income from continuing operations	\$ 8,723*	\$ 5,758*
Operating (non-GAAP) earnings**	\$ 12,657	\$ 12,807***
Earnings per share of common stock—continuing operations		
Assuming dilution	\$ 9.51*	\$ 6.14*
Basic	\$ 9.56*	\$ 6.17*
Diluted operating (non-GAAP)**	\$ 13.81	\$ 13.66***
Net cash provided by operating activities	\$ 15,247	\$ 16,724
Capital expenditures, net	\$ 3,716	\$ 3,312
Share repurchases	\$ 4,443	\$ 4,340
Cash dividends paid on common stock	\$ 5,666	\$ 5,506
Per share of common stock	\$ 6.21	\$ 5.90
At December 31:		
Cash, cash equivalents, restricted cash and marketable securities	\$ 12,222	\$ 12,842****
Total assets	\$123,382	\$125,356
Working capital	\$ 10,918	\$ 12,373
Total debt	\$ 45,812	\$ 46,824
Total equity	\$ 16,929	\$ 17,725
Common shares outstanding (in millions)	892	922
Stock price per common share	\$ 113.67	\$ 153.42

* Includes charges of \$2.0 billion in 2018 and \$5.5 billion in 2017 associated with U.S. tax reform.

** See page 41 for a reconciliation of net income to operating earnings.

*** Recast to reflect adoption of the FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs.

****Recast to reflect adoption of the FASB guidance on restricted cash.

MANAGEMENT DISCUSSION		NOTES TO CONSOLIDATED FINANCIAL STATEMENTS	
Overview	18	A Significant Accounting Policies	76
Forward-Looking and Cautionary Statements	19	B Accounting Changes	89
Management Discussion Snapshot	19	C Acquisitions/Divestitures	91
Description of Business	22	D Financial Instruments	95
Year in Review	27	E Inventories	103
Prior Year in Review	48	F Financing Receivables	103
Other Information	59	G Property, Plant and Equipment	106
Looking Forward	59	H Investments and Sundry Assets	107
Liquidity and Capital Resources	60	I Intangible Assets Including Goodwill	107
Critical Accounting Estimates	63	J Borrowings	108
Currency Rate Fluctuations	66	K Other Liabilities	111
Market Risk	66	L Equity Activity	111
Cybersecurity	67	M Contingencies and Commitments	115
Employees and Related Workforce	67	N Taxes	117
		O Revenue Recognition	120
Report of Management	68	P Research, Development and Engineering	122
Report of Independent Registered Public Accounting Firm	69	Q Earnings Per Share of Common Stock	123
		R Rental Expense and Lease Commitments	124
		S Stock-Based Compensation	124
		T Retirement-Related Benefits	127
CONSOLIDATED FINANCIAL STATEMENTS		U Segment Information	141
Earnings	70	V Subsequent Events	146
Comprehensive Income	71		
Financial Position	72	Five-Year Comparison of Selected Financial Data	147
Cash Flows	73	Selected Quarterly Data	148
Changes in Equity	74	Performance Graphs	149
		Stockholder Information	150
		Board of Directors and Senior Leadership	151

OVERVIEW

The financial section of the International Business Machines Corporation (IBM or the company) 2018 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 the company's financial results and certain factors that may affect its future prospects from the perspective of the company's management. The "Management Discussion Snapshot," beginning on page 19, presents an overview of the key performance drivers in 2018.
- Beginning with the "Year in Review" on page 27, the Management Discussion contains the results of operations for each reportable segment of the business and a discussion of the company's financial position and cash flows. Other key sections within the Management Discussion include: "Looking Forward" on page 59, and "Liquidity and Capital Resources" on page 60, which includes a description of management's definition and use of free cash flow.
- The Consolidated Financial Statements are presented on pages 70 through 75. These statements provide an overview of the company's income and cash flow performance and its financial position.
- The Notes follow the Consolidated Financial Statements. Among other items, the Notes contain the company's accounting policies (pages 76 to 88), acquisitions and divestitures (pages 91 to 94), certain contingencies and commitments (pages 115 to 117), revenue (pages 120 to 122) and retirement-related plans information (pages 127 to 141).
- The Consolidated Financial Statements and the Notes have been prepared in accordance with accounting principles generally accepted in the United States (GAAP).
- On December 22, 2017, the Tax Cuts and Jobs Act (U.S. tax reform) was enacted in the U.S. This Act resulted in the company recording a charge of \$5.5 billion in the fourth-quarter 2017. For the full-year 2018, the company recorded additional charges of \$2.0 billion, including \$1.9 billion in the fourth quarter, primarily related to the election to include Global Intangible Low-Taxed Income (GILTI) in measuring deferred taxes. Refer to note N, "Taxes," on pages 117 to 119 for additional information.
- Effective January 1, 2018, the company adopted the Financial Accounting Standards Board (FASB) guidance on presentation of net periodic pension and nonpension postretirement benefit costs (net benefit cost). The guidance is primarily a change in financial statement presentation, but it did impact the consolidated and reportable segment gross profit margins and expense and other income. As a result, the company aligned its presentation of operating (non-GAAP) earnings to conform to the FASB presentation of these costs in the Consolidated Statement of Earnings. The periods presented in this Annual Report are reported on a comparable basis.

- 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 the company refers to growth rates at constant currency or adjusts 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 its 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" on page 66 for additional information.
- 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, the company 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, discontinued operations and related tax impacts. Due to the unique, non-recurring nature of the enactment of U.S. tax reform, the company characterizes the one-time provisional charge recorded in the fourth quarter of 2017 and all 2018 adjustments to that charge as non-operating. Adjustments include true-ups, accounting elections, any changes to regulations, laws, audit adjustments, etc. 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 restructuring and related expenses, tax charges related to acquisition integration and pre-closing charges. For the 2019 operating (non-GAAP) earnings per share expectation, acquisition-related charges associated with the Red Hat, Inc. (Red Hat) acquisition exclude 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 dependent on 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 and Analysis, the impact of acquisitions over the prior 12-month period may be a driver of higher expense year to year. For retirement-related costs, the company characterizes certain items as operating and others as non-operating, consistent with GAAP. The company includes defined benefit plan and nonpension postretirement benefit plan service cost, 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 cost, interest cost, expected return on plan

assets, amortized actuarial gains/losses, the impacts of any plan curtailments/settlements, 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, the company believes that 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. The company's reportable segment financial results reflect operating earnings from continuing operations, consistent with the company's management and measurement system.

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; the company assumes no obligation to update or revise any such statements. Forward-looking statements are based on the company'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 the company's 2018 Form 10-K filed on February 26, 2019.

MANAGEMENT DISCUSSION SNAPSHOT

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

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent/Margin Change
Revenue	\$ 79,591	\$ 79,139	0.6%*
Gross profit margin	46.4%	46.7%**	(0.3) pts.
Total expense and other (income)	\$ 25,594	\$ 25,543**	0.2%
Total expense and other (income)-to-revenue ratio	32.2%	32.3%**	(0.1) pts.
Income from continuing operations before income taxes	\$ 11,342	\$ 11,400	(0.5)%
Provision for income taxes from continuing operations	\$ 2,619 ⁺	\$ 5,642 ⁺	(53.6)%
Income from continuing operations	\$ 8,723 ⁺	\$ 5,758 ⁺	51.5%
Income from continuing operations margin	11.0%	7.3%	3.7 pts.
Income/(loss) from discontinued operations, net of tax	\$ 5	\$ (5)	NM
Net income	\$ 8,728 ⁺	\$ 5,753 ⁺	51.7%
Earnings per share from continuing operations:			
Assuming dilution	\$ 9.51 ⁺	\$ 6.14 ⁺	54.9%
Consolidated earnings per share—assuming dilution	\$ 9.52 ⁺	\$ 6.14 ⁺	55.0%
Weighted-average shares outstanding			
Assuming dilution	916.3	937.4	(2.2)%
Assets ⁺⁺	\$123,382	\$125,356	(1.6)%
Liabilities ⁺⁺	\$106,452	\$107,631	(1.1)%
Equity ⁺⁺	\$ 16,929	\$ 17,725	(4.5)%

* 0.0 percent adjusted for currency.

** Recast to reflect adoption of FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs.

⁺ Includes charges of \$2.0 billion or \$2.23 of diluted earnings per share in 2018 and \$5.5 billion or \$5.84 of diluted earnings per share in 2017 associated with U.S. tax reform.

⁺⁺At December 31

NM—Not meaningful

Management Discussion

International Business Machines Corporation and Subsidiary Companies

The following table provides the company's operating (non-GAAP) earnings for 2018 and 2017.

(\$ in millions except per share amounts)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
Net income as reported	\$ 8,728 ⁺	\$ 5,753 ⁺	51.7%
Income/(loss) from discontinued operations, net of tax	5	(5)	NM
Income from continuing operations	\$ 8,723 ⁺	\$ 5,758 ⁺	51.5%
Non-operating adjustments (net of tax)			
Acquisition-related charges	649	718	(9.7)
Non-operating retirement-related costs/(income)	1,248	856 ^{**}	45.9
U.S. tax reform charge	2,037	5,475	NM
Operating (non-GAAP) earnings*	\$12,657	\$12,807 ^{**}	(1.2)%
Diluted operating (non-GAAP) earnings per share	\$ 13.81	\$ 13.66 ^{**}	1.1%

* See page 41 for a more detailed reconciliation of net income to operating (non-GAAP) earnings.

**Recast to reflect adoption of FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs.

⁺ Includes charges of \$2.0 billion in 2018 and \$5.5 billion in 2017 associated with U.S. tax reform.

NM—Not meaningful

In 2018, the company reported \$79.6 billion in revenue and \$8.7 billion in income from continuing operations, which included charges of \$2.0 billion associated with U.S. tax reform. Operating (non-GAAP) earnings were \$12.7 billion, which excludes the tax reform charges. Diluted earnings per share from continuing operations were \$9.51 as reported and \$13.81 on an operating (non-GAAP) basis. The company generated \$15.2 billion in cash from operations, \$11.9 billion in free cash flow and delivered shareholder returns of \$10.1 billion in gross common stock repurchases and dividends.

Total consolidated revenue in 2018 increased 0.6 percent as reported and was flat adjusted for currency compared to the prior year. Cognitive Solutions increased 0.2 percent as reported and was essentially flat adjusted for currency. Solutions Software grew 0.8 percent as reported (essentially flat adjusted for currency), while Transaction Processing Software declined 1.2 percent as reported (2 percent adjusted for currency). Global Business Services (GBS) increased 2.9 percent as reported and 2 percent adjusted for currency led by growth in Consulting. Technology Services & Cloud Platforms (TS&CP) grew 0.5 percent as reported and was flat adjusted for currency, with growth in Infrastructure Services and Integration Software offset by declines in Technical Support Services. Within TS&CP, there was continued strong growth in cloud revenue which increased 23 percent year to year as reported and adjusted for currency. Systems decreased 2 percent as reported and adjusted for currency, with IBM Z declining year to year reflecting product cycle dynamics. Storage Systems also decreased in a competitive environment with ongoing pricing pressures, while Power Systems grew as reported and adjusted for currency, with strong performance in Power9-based processors and Linux throughout the year.

In 2018, the company delivered solid strategic imperatives revenue growth, generating \$39.8 billion of revenue and growing 9 percent as reported and adjusted for currency, with double-digit growth in cloud and security. Cloud revenue of \$19.2 billion increased 12 percent as reported and adjusted for currency, with as-a-Service revenue up 22 percent as reported and adjusted for currency. The annual exit run rate for as-a-Service revenue increased to \$12.2 billion in 2018 compared to \$10.3 billion in 2017.

From a geographic perspective, Americas revenue declined 1.7 percent year to year as reported (1 percent adjusted for currency) with a decline in the U.S. of 2.4 percent. Europe/Middle East/Africa (EMEA) increased 4.5 percent (1 percent adjusted for currency). Asia Pacific was essentially flat year to year as reported and adjusted for currency.

The consolidated gross margin of 46.4 percent decreased 0.3 points year to year and reflects the impacts of portfolio mix and investment, partially offset by benefits from productivity and improving services margins through the year. The operating (non-GAAP) gross margin of 46.9 percent decreased 0.4 points versus the prior year primarily driven by the same factors.

Total expense and other (income) increased 0.2 percent in 2018 compared to the prior year. The year-to-year performance was driven by decline in intellectual property (IP) income (2 points) and a higher level of workforce rebalancing charges (1 point), offset by continued focus on efficiency resulting in lower spending (3 points). Total operating (non-GAAP) expense and other (income) decreased 0.4 percent year to year, driven primarily by the same factors.

Pre-tax income from continuing operations of \$11.3 billion decreased 0.5 percent and the pre-tax margin was 14.3 percent, a decrease of 0.2 points versus 2017. The continuing operations effective tax rate for 2018 was 23.1 percent, including charges of \$2.0 billion associated with U.S. tax reform. This is compared to an effective tax rate of 49.5 percent in 2017 which included a \$5.5 billion charge associated with U.S. tax reform. Without these impacts, the continuing operations tax rate for 2018 would have been 5.4 percent, compared to a 2017 rate of 1.5 percent. Net income of \$8.7 billion increased 51.7 percent year to year as a result of the lower tax reform charges in 2018. Operating (non-GAAP) pre-tax income from continuing operations of \$13.7 billion was flat year to year and the operating (non-GAAP) pre-tax margin from continuing operations decreased 0.1 points to 17.3 percent. Operating (non-GAAP) income from continuing operations of \$12.7 billion decreased 1.2 percent with an operating (non-GAAP) income margin from continuing operations of 15.9 percent, down 0.3 points year to year. The operating (non-GAAP) effective tax rate from continuing operations in 2018 was 7.9 percent, compared to 6.8 percent in the prior year.

Diluted earnings per share from continuing operations of \$9.51 in 2018 increased 54.9 percent year to year, which included lower year-to-year charges associated with U.S. tax reform. Operating (non-GAAP) diluted earnings per share of \$13.81 increased 1.1 percent versus 2017. In 2018, the company repurchased 32.9 million shares of its common stock at a cost of \$4.4 billion and had \$3.3 billion remaining in the current share repurchase authorization at December 31, 2018.

At December 31, 2018, the balance sheet remains strong and the company continues to be committed to maintaining a strong investment grade rating. Cash, restricted cash and marketable securities at December 31, 2018 were \$12.2 billion, a decrease of \$0.6 billion from December 31, 2017. Key drivers in the balance sheet and total cash flows were:

Total assets decreased \$2.0 billion (increased \$1.2 billion adjusted for currency) from December 31, 2017 driven by:

- A decline in receivables of \$1.6 billion (\$0.6 billion adjusted for currency) driven by a decline in trade receivables of \$1.5 billion, and
- A decrease in net intangibles and goodwill of \$1.2 billion (\$0.6 billion adjusted for currency) resulting from currency impacts and intangibles amortization; partially offset by
- An increase in deferred costs of \$1.0 billion (\$1.2 billion adjusted for currency) driven primarily by capitalized sales commissions costs due to the adoption of the new revenue standard.

Total liabilities decreased \$1.2 billion (increased \$1.3 billion adjusted for currency) from December 31, 2017 driven by:

- Decreases in total debt (\$1.0 billion), deferred income (\$0.7 billion) and compensation and benefits (\$0.5 billion); partially offset by
- Increases in taxes (\$1.1 billion).

Total equity of \$16.9 billion decreased \$0.8 billion from December 31, 2017 as a result of:

- Decreases from dividends (\$5.7 billion) and treasury stock (\$4.6 billion) primarily due to share repurchases; partially offset by
- Increases from net income (\$8.7 billion) and the transition adjustment related to the adoption of the new revenue standard (\$0.6 billion).

The company generated \$15.2 billion in cash flow provided by operating activities, a decrease of \$1.5 billion compared to 2017, driven primarily by a decrease in cash provided by financing receivables (\$0.8 billion), a decrease in cash sourced from sales cycle working capital (\$0.2 billion) and an increase in cash income tax payments (\$0.1 billion). Net cash used in investing activities of \$4.9 billion was \$2.2 billion lower than the prior year, primarily driven by decreases in cash used for net non-operating receivables (\$1.5 billion) and lower net purchases of marketable securities and other investments (\$0.5 billion). Net cash used in financing activities of \$10.5 billion increased \$4.1 billion compared to 2017, driven primarily by a decrease in net cash sourced from debt transactions (\$3.7 billion), with a lower level of issuances and a higher level of maturities in the current year.

In January 2019, the company disclosed that it is expecting GAAP earnings per share from continuing operations of at least \$12.45 and operating (non-GAAP) earnings of at least \$13.90 per diluted share for 2019. The company expects free cash flow to be approximately \$12 billion in 2019. Free cash flow realization is expected to be approximately 100 percent of GAAP net income. Refer to page 61 in the Liquidity and Capital Resources section for additional information on this non-GAAP measure. Refer to the Looking Forward section on pages 59 and 60 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 26, 2019 for Item 1A, entitled "Risk Factors."

The company creates 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 is wholly focused on the needs of its clients. IBM is a technology company, but first and foremost it is an enterprise company. IBM serves enterprises of all sizes, and IBM's longest-standing clients are leaders in their industries—the world's leading financial services institutions, airlines, manufacturers, consumer goods and retail companies. IBM's mission is to help its clients transform their companies and lead in their industries.

One of the biggest priorities for IBM clients is to derive competitive advantage through insights and the latest digital technologies. Better insight about the wants and needs of their customers will help them distinguish themselves in the marketplace. Data-driven insight will also influence how they design and produce their own products, as well as help them identify opportunities in new markets.

However, most companies are harnessing only a small percent of the valuable data they collect. As IBM clients embark on the next chapter of their digital journey, the proper collection, use, safeguarding and management of data is of paramount importance. Choosing the right digital technologies to analyze the data is also necessary.

IBM helps clients harness the power of their data through technologies like AI, analytics and blockchain; on a hybrid cloud that connects data across traditional and new environments; with services that put a client's data and insight to use in and for their business. Underpinning all of this, IBM safeguards client data with world-class technologies and approaches to security.

By reinventing themselves digitally around insight, clients become what IBM calls Cognitive Enterprises.

What IBM Brings to Clients

Businesses are choosing IBM because they want to partner with a company that can uniquely integrate three core capabilities:

1. They want the most **innovative technology**, like AI, blockchain, cybersecurity and quantum delivered in a hybrid cloud environment.
2. They want **industry expertise**—from a partner that deeply understands their industry and can apply innovation to their business processes to drive transformation and competitive advantage.
3. And, finally, they want a total commitment to **trust and security**. Clients want to partner with a company that will protect their valuable data and insights, and one that develops and deploys new innovations with a commitment to do so responsibly.

IBM is unique in that it can integrate all three core capabilities for clients.

Innovative Technology

IBM has a long history of bringing innovative technology to the world. For 26 years, IBM has led the world in U.S. patents; six IBMers are Nobel Laureates; and IBM engineers have developed innumerable first-of-its-kind products and services. Current examples of IBM's innovative technology include:

- **Analytics and AI:** IBM's long-standing leadership in managing and extracting insights from data starts with a portfolio of analytics and database offerings. A few years ago, IBM brought AI into the mainstream with the Watson platform, which to date has been the foundation of many Enterprise AI implementations in production. Recently, IBM augmented its Watson platform with a set of AI tools that enable clients to trace the origins of the data their AI models use, explain what is behind their recommendations and ensure that bias has not crept into results. These innovations are making AI more consumable by everyday users—not just data scientists.
- **Security:** Businesses built around data require an unparalleled level of data security. IBM is the leader in information security for enterprises—with leadership in both security software and services. Security is embedded inside all of IBM's products and services. For example, IBM Z offers pervasive security by building data encryption directly in its computing processor. In addition, IBM's services businesses are world class in embedding security into the solutions they build and run for IBM clients.
- **Blockchain** is an exciting technology that is just beginning to transform business processes. IBM's platform has been rated number one by leading analyst firms such as Juniper Research and Everest Group. Blockchain technology enables multiple parties to conduct business with each other on a single, unified distributed system, eliminating the costly and time-consuming hand-offs of fragmented systems. IBM is deploying blockchain technology with clients to transform how global trade is transacted, how food safety is tracked and how supply chains are managed.

- **Cloud:** Enterprise clients are in the very early stages of the move to cloud. IBM estimates that only 20 percent of workloads have moved to the cloud—with work ahead for the remaining 80 percent. The first part was to move business workloads that exist as a layer over core processes. The hard part is ahead: moving the mission-critical systems that run banking, retail, telecom and other industries. Some of these workloads will remain in traditional IT systems, some will move to a private cloud inside the safety of a client’s firewall, others will move to public clouds, and some will surge between all of these. Wherever a workload may reside, it will need to share its data across environments. All of this requires an approach that is open, highly interoperable between environments, and even interoperable between different public clouds. This is what IBM has long called hybrid cloud—and this describes the solution for the 80 percent of the workloads that is to come. With in-depth experience across all three environments, IBM brings the strongest hybrid cloud solution to the market for enterprises—which will be strengthened through the acquisition of Red Hat.

Industry Expertise

Changing a business requires in-depth understanding of how a business works and how technology can make it work differently.

IBM brings both industry expertise and innovative technology to clients through the IBM services and products businesses. This combination makes IBM unique and essential.

A few examples of this capability are highlighted below:

- **Global Business Services:** the IBM GBS business is one of the world’s largest professional services businesses. Its mission is to help clients along the journey to becoming a Cognitive Enterprise.
- **Global Technology Services:** the IBM GTS business runs some of the world’s largest data centers—and thereby some of the world’s most mission-critical workflows and franchises. GTS helps clients along their journey to the hybrid cloud—leveraging the best of their existing systems in the context of the regulatory, security and workflow of their industry.
- **Industry and Domain-Specific Solutions:** augmenting IBM’s services businesses are software and solutions designed for specific industries and domains. For example:

Health: IBM has become a leader in applying advanced digital technologies to healthcare, including the application of AI and data analytics to the diagnosis and treatment of patients, bringing smart decisions to Health Care payers, and helping Life Sciences companies develop innovative products and services.

Financial Services: IBM is a leading provider in the Financial Services industry; with IBM’s Promontory Financial Group, a leading advisor in Financial Regulation and Compliance, IBM offers an advanced set of solutions for managing Risk and Compliance, a critical workflow in the Financial Services industry.

Trust and Security

Data and AI—together, they are both the opportunity and the issue of current times. They can make the world a better, healthier and more productive place; but only if businesses and consumers trust the companies putting data and AI to work.

IBM is a 107-year old business—and the reason it has been successful for so long is because it has earned the trust of its clients. IBM has 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. IBM’s principles make clear that:

- The purpose of new technologies is to augment—not replace—human expertise;
- Data and insights derived from AI belong to their owners and creators (not their IT partners); and,
- New technologies must be transparent and explainable.

There are many companies in the IT industry who bring technology products to the marketplace. Many bring technology services to the marketplace. A few companies do both, but no one can do it as well as IBM when it comes to meeting the needs of clients. By bringing together technology and workflow, combining it with industry expertise, innovation and deployment, IBM helps clients and industries truly transform themselves.

This is what truly sets IBM apart.

Business Model

The company’s business model is built to support two principal goals: helping enterprise clients to move from one era to the next by bringing together innovative technology and industry expertise, and providing long-term value to shareholders. 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 company’s global capabilities include services, software, systems, fundamental research and related financing. The broad mix of businesses and capabilities are combined to provide integrated solutions and platforms to the company’s clients.

The business model is dynamic, adapting to the continuously changing industry and economic environment, including the company’s transformation into cloud and as-a-Service delivery models. The company continues to strengthen its position through strategic organic investments and acquisitions in higher-value areas, broadening its industry expertise and integrating AI into more of what the company offers. In addition, the company is 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. The company also regularly evaluates its portfolio and proactively maximizes shareholder value of non-strategic assets by bringing products to end of life, engaging in IP partnerships or executing divestitures.

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

Business Segments and Capabilities

The company's major operations consist of five business segments: Cognitive Solutions, Global Business Services, Technology Services & Cloud Platforms, Systems and Global Financing.

Cognitive Solutions comprises a broad portfolio of primarily software capabilities that help IBM's clients to identify actionable new insights and inform decision-making for competitive advantage. Leveraging IBM's research, technology and industry expertise, this business delivers a full spectrum of capabilities, from descriptive, predictive and prescriptive analytics to artificial intelligence. Cognitive Solutions includes Watson, the first enterprise AI platform that specializes in driving value and knowledge from the 80 percent of the world's data that sits behind company firewalls. It enables businesses to reimagine their workflows across a variety of industries and professions and gives organizations complete control of their insights, data, training and IP.

Additionally, Cognitive Solutions includes the new Watson OpenScale technology—a first of a kind, open technology platform that addresses key challenges of AI adoption. It enables companies to manage AI transparently throughout the full AI lifecycle, irrespective of where their AI applications were built or in which environment they currently run.

IBM's solutions are provided through the most contemporary delivery methods including through cloud environments and as-a-Service models. Cognitive Solutions consists of Solutions Software and Transaction Processing Software.

Cognitive Solutions Capabilities

Solutions Software: provides the basis for many of the company's strategic areas. IBM has established the world's deepest portfolio of enterprise AI, including analytics and data management platforms, cloud data services, talent management solutions, and solutions tailored by industry. Watson Platform, Watson Health and Watson Internet of Things (IoT) are certain capabilities included in Solutions Software. IBM's world-class security platform weaves in AI to deliver integrated security intelligence across clients' entire operations, including their cloud, applications, networks and data, helping them to prevent, detect and remediate potential threats.

Transaction Processing Software: includes software that primarily runs mission-critical systems in industries such as banking, airlines and retail.

Global Business Services (GBS) provides clients with consulting, application management and business process 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 from IBM units including IBM Watson, IBM Cloud, IBM Research, and Global Technology Services.

In 2018, focused on digital reinvention, GBS assisted clients on their journeys to becoming Cognitive Enterprises, helping them engage their customers with new digital value propositions, transform workflows using AI, and build hybrid, open cloud infrastructures. This was delivered by the operating model rolled out in 2017—Digital Strategy and iX, Cognitive Process Transformation and Cloud Application Innovation, cross industry and globally.

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 legacy 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.

Technology Services & Cloud Platforms (TS&CP) provides comprehensive IT infrastructure and platform services that create business value for clients. Clients gain access to leading-edge, high-quality services, flexibility and economic value. This is enabled through leverage of 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.

TS&CP Capabilities

Infrastructure Services: delivers a portfolio of project services, managed and outsourcing services, and cloud-delivered services focused on clients' enterprise IT infrastructure environments to enable digital transformation and deliver improved quality, flexibility and economic value. The portfolio includes a comprehensive set of hybrid cloud services and solutions to assist enterprise clients in building and running contemporary IT environments. These offerings integrate long-standing expertise in service management and technology with the ability to utilize the power of new technologies, drawn from across IBM's businesses and ecosystem partners. The portfolio is built using the IBM Services Platform with Watson, designed to augment human intelligence with cognitive technologies, and addresses hybrid cloud, digital workplace, business resiliency, network, managed applications, cloud and security. The company's capabilities, including IBM Cloud, cognitive computing and hybrid cloud implementation, provide high-performance, end-to-end innovation and an improved ability for clients to achieve business objectives.

Technical 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 vendor software and solution support, drawing on innovative technologies and leveraging the IBM Services Platform with Watson capabilities.

Integration Software: delivers industry-leading hybrid cloud solutions that empower clients to achieve rapid innovation, hybrid integration and process transformation with choice and consistency across public, dedicated and local cloud environments, leveraging the IBM Platform-as-a-Service solution. Integration Software offerings and capabilities help clients address the digital imperatives to create, connect and optimize their applications, data and infrastructure on their journey to become cognitive businesses.

Systems provides clients with innovative infrastructure platforms to help meet the new requirements of hybrid cloud and enterprise AI workloads. More than one-third of Systems Hardware's server and storage sales transactions are through the company's business partners, with the balance direct to end-user clients. IBM Systems also designs advanced semiconductor and systems technology in collaboration with IBM Research, primarily for use in the company's systems.

Systems Capabilities

Systems Hardware: includes IBM's servers: IBM Z, Power Systems 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, a trusted enterprise platform 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, and delivering open innovation with OpenPOWER.

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 the company has expertise. The financing arrangements are predominantly for products or services that are critical to the end users' business operations. The company 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 the company'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 the company has expertise. Internal financing is predominantly in support of Technology Services & Cloud Platforms' 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 and Original Equipment Manufacturer (OEM) products and services. The OEM portion will begin winding down starting in the second quarter of 2019 and continuing throughout the calendar year. Commercial Financing also includes internal activity where Global Financing factors a selected portion of the company's accounts receivable primarily for cash management purposes, at arm's-length rates.

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 or 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 Systems and Technology Services & Cloud Platforms. 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 has a global presence, operating in more than 175 countries with a broad-based geographic distribution of revenue. The company's Global Markets organization manages IBM's global footprint, working closely with dedicated country-based operating units to serve clients locally. These country teams have client relationship managers who lead integrated teams of consultants, solution specialists and delivery professionals to enable clients' growth and innovation.

By complementing local expertise with global experience and digital capabilities, IBM builds deep and broad-based client relationships. This local management focus fosters speed in supporting clients, addressing new markets and making investments in emerging opportunities. The Global Markets organization serves clients with expertise in their industry as well as through the products and services that IBM and partners supply. IBM continues to expand its reach to new and existing clients through digital marketplaces, digital sales and local Business Partner resources.

Research, Development and Intellectual Property

IBM's research and development (R&D) operations differentiate the company from its competitors. IBM annually invests approximately 7 percent of total revenue for R&D, focusing on high-growth, high-value opportunities. IBM Research works with clients and the company's business units through global labs on near-term and mid-term innovations. It delivers many new technologies to IBM's portfolio every year and helps clients address their most difficult challenges. IBM Research scientists are conducting pioneering work in artificial intelligence, quantum computing, blockchain, security, cloud, nanotechnology, silicon and post-silicon computing architectures and more—applying these technologies across industries including financial services, healthcare, blockchain and IoT.

In 2018, for the 26th consecutive year, IBM was awarded more U.S. patents than any other company. IBM's 9,100 patents awarded in 2018 represent a diverse range of inventions in strategic growth areas for the company, including more than 3,000 patents related to work in artificial intelligence, cloud, cybersecurity and quantum computing.

The company actively continues to seek IP protection for its innovations, while increasing emphasis on other initiatives designed to leverage its IP leadership. Some of IBM's 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 its business model, the company licenses certain of its intellectual property 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 the company both upon licensing, and with any ongoing royalty arrangements between it and the licensee. While the company's various proprietary IP rights are important to its success, IBM believes its 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.

YEAR IN REVIEW

Results of Continuing Operations

Segment Details

The following is an analysis of the 2018 versus 2017 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:	2018	2017	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Revenue				
Cognitive Solutions	\$18,481	\$18,453	0.2%	(0.4)%
Gross margin	77.5%	78.6%*	(1.1) pts.	
Global Business Services	16,817	16,348	2.9%	2.0%
Gross margin	26.7%	24.9%*	1.7 pts.	
Technology Services & Cloud Platforms	34,462	34,277	0.5%	(0.1)%
Gross margin	40.5%	40.3%*	0.2 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	207	171	21.0%	19.9%
Gross margin	(140.7)%	(173.9)%*	33.2 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 adjustments				
Amortization of acquired intangible assets	372	449	(17.2)%	
Retirement-related costs/(income)	—	—*	—%	
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 adoption of the FASB guidance on presentation of net benefit cost.

Cognitive Solutions

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Cognitive Solutions external revenue	\$18,481	\$18,453	0.2%	(0.4)%
Solutions Software	\$12,903	\$12,806	0.8%	0.3%
Transaction Processing Software	5,578	5,647	(1.2)	(1.9)

Cognitive Solutions revenue of \$18,481 million was essentially flat as reported and adjusted for currency in 2018 compared to the prior year. On an as-reported and constant currency basis, there was growth in Solutions Software, while Transaction Processing Software declined year to year.

Solutions Software revenue of \$12,903 million grew 0.8 percent as reported (essentially flat adjusted for currency) compared to the prior year, led by the company's analytics and security platforms. Within analytics, the company had broad-based growth across the Db2 portfolio, including analytics appliances and increasing demand for IBM Cloud Private for Data, which accelerated in the fourth quarter of 2018. The company continued to have solid demand for integrated security and services solutions with strong growth in security intelligence and orchestration offerings. Across the industry verticals, Watson Health and Watson Media & Weather grew revenue as reported and adjusted for currency compared to the prior year. Certain Solutions Software offerings which address horizontal domains, specifically collaboration, commerce and talent, have been impacted by secular shifts in the market. In December 2018, the company announced its intent to divest its collaboration and on-premise marketing and commerce products to HCL. This transaction is expected to close by mid-year 2019.

Transaction Processing Software revenue of \$5,578 million decreased 1.2 percent as reported (2 percent adjusted for currency) in 2018 compared to the prior year. There was 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 and predictability in spending.

Cognitive Solutions total strategic imperatives revenue of \$12.3 billion grew 3 percent as reported and 2 percent adjusted for currency year to year. Cloud revenue of \$2.6 billion grew 2 percent as reported and adjusted for currency, with an as-a-Service exit run rate of \$2.0 billion.

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent/ Margin Change
Cognitive Solutions			
External gross profit	\$14,319	\$14,503	(1.3)%
External gross profit margin	77.5%	78.6%	(1.1) pts.
Pre-tax income	\$ 7,154	\$ 6,795	5.3%
Pre-tax margin	33.8%	32.2%	1.5 pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Cognitive Solutions gross profit margin decreased 1.1 points to 77.5 percent in 2018 compared to the prior year. The gross profit margin decline was driven by an increasing mix toward SaaS and increased royalty cost associated with IP licensing agreements in 2018 compared to the prior year.

Pre-tax income of \$7,154 million increased 5.3 percent compared to the prior year with a pre-tax margin improvement of 1.5 points to 33.8 percent, 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	Yr.-to-Yr. Percent Change Adjusted for Currency
Global Business Services external revenue	\$16,817	\$16,348	2.9%	2.0%
Consulting	\$ 7,705	\$ 7,262	6.1%	5.1%
Global Process Services	1,259	1,265	(0.5)	(0.5)
Application Management	7,852	7,821	0.4	(0.5)

Global Business Services revenue of \$16,817 million increased 2.9 percent as reported and 2 percent adjusted for currency in 2018 compared to the prior year. This performance reflects the progress the company has made to reposition this business, with strong growth in Consulting, led by key offerings in digital and cloud application, where the business is bringing together technology and industry expertise to help clients on their digital journey.

Consulting revenue of \$7,705 million increased 6.1 percent as reported (5 percent adjusted for currency) compared to the prior year. The improvement was driven by the company's digital strategy, including Digital Commerce and CRM offerings and accelerated growth in next generation enterprise applications, led by strong demand for consulting and implementation services. GPS revenue of \$1,259 million was essentially flat year to year as reported and decreased 1 percent adjusted for currency. GPS performance improved during the second half of 2018 on a year-to-year basis as reported and adjusted for currency, as the business has been reinventing industry workflows by leveraging automation and infusing AI. In January 2019, the company announced the intent to divest its Seterus mortgage servicing platform business (reported within GPS), which is expected to close in the first quarter of 2019. Application Management revenue of \$7,852 million was flat as reported and declined 1 percent adjusted for currency compared to 2017. The company continues to help clients move to the cloud with offerings such as Cloud Migration Factory and cloud application development. The business continued to decline in the more traditional application management engagements.

Within GBS, total strategic imperatives revenue of \$10.8 billion grew 10 percent year to year as reported (9 percent adjusted for currency). Cloud revenue of \$4.7 billion grew 19 percent as reported and adjusted for currency, with an as-a-Service exit run rate of \$2.1 billion.

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent/ Margin Change
Global Business Services			
External gross profit	\$4,484	\$4,077	10.0%
External gross profit margin	26.7%	24.9%	1.7 pts.
Pre-tax income	\$1,676	\$1,362	23.0%
Pre-tax margin	9.8%	8.2%	1.6 pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

GBS gross profit margin increased 1.7 points to 26.7 percent year to year and pre-tax income of \$1,676 million increased 23.0 percent year to year. The pre-tax margin increased 1.6 points to 9.8 percent. The year-to-year improvements in margins and pre-tax income are 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.

Technology Services & Cloud Platforms

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Technology Services & Cloud Platforms external revenue	\$34,462	\$34,277	0.5%	(0.1)%
Infrastructure Services	\$23,007	\$22,690	1.4%	0.7%
Technical Support Services	6,961	7,196	(3.3)	(3.5)
Integration Software	4,493	4,390	2.3	1.9

Technology Services & Cloud Platforms revenue of \$34,462 million increased 0.5 percent as reported (flat adjusted for currency) in 2018 compared to the prior year, with growth in Infrastructure Services and Integration Software, offset by a decline in Technical Support Services. Cloud revenue grew double-digits as reported and adjusted for currency. New and existing clients are engaging IBM to manage their critical infrastructure and deliver innovation, including migrating their operations to an open hybrid cloud environment, while simultaneously achieving predictable spending.

Infrastructure Services revenue of \$23,007 million increased 1.4 percent as reported (1 percent adjusted for currency) compared to the prior year. In Infrastructure Services, the business has prioritized the portfolio to deliver high-value solutions that bring productivity to clients and allow for expanding workloads, while exiting some lower-value offerings. Technical Support Services revenue of \$6,961 million decreased 3.3 percent as reported (3 percent adjusted for currency) year to year. This business was impacted by the hardware product cycle dynamics in 2018, but continued to grow its multi-vendor services offerings which provide clients with an integrated approach by bringing expertise and access to different vendor solutions. Integration Software revenue of \$4,493 million grew 2.3 percent as reported (2 percent adjusted for currency) compared to the prior year. There was strong double-digit growth year to year in SaaS offerings, with continued strong adoption of IBM Cloud Private, which helps clients modernize their traditional workloads and provides access to over 100 integrated IBM software offerings including blockchain, Watson, IoT and analytics.

Within Technology Services & Cloud Platforms, strategic imperatives revenue of \$12.2 billion increased 18 percent year to year as reported and adjusted for currency. Cloud revenue of \$8.8 billion grew 23 percent as reported and adjusted for currency, with an as-a-Service exit run rate of \$8.0 billion.

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent/ Margin Change
Technology Services & Cloud Platforms			
External Technology Services gross profit	\$10,307	\$10,215	0.9%
External Technology Services gross profit margin	34.4%	34.2%	0.2 pts.
External Integration Software gross profit	\$ 3,651	\$ 3,587	1.8%
External Integration Software gross profit margin	81.3%	81.7%	(0.4) pts.
External total gross profit	\$13,958	\$13,802	1.1%
External total gross profit margin	40.5%	40.3%	0.2 pts.
Pre-tax income	\$ 3,786	\$ 4,286	(11.7)%
Pre-tax margin	10.7%	12.3%	(1.5) pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Technology Services & Cloud Platforms gross profit margin of 40.5 percent was essentially flat year to year. The 2018 margin reflects benefits from productivity initiatives, including automation of delivery processes infused with AI and global workforce optimization. Pre-tax income of \$3,786 million decreased 11.7 percent. The pre-tax margin declined 1.5 points year to year to 10.7 percent, reflecting the company's continued investment to expand its go-to-market capabilities and develop new offerings for the hybrid market.

Services Backlog and Signings

(\$ in billions)

At December 31:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total backlog	\$116.1	\$121.0	(4.1)%	(0.6)%

The estimated total services backlog at December 31, 2018 was \$116 billion, a decrease of 4.1 percent as reported (1 percent adjusted for currency).

Total services backlog includes Infrastructure Services, Consulting, Global Process Services, Application Management and Technical Support Services (TSS). Total backlog is intended to be a statement of overall work under contract which is either noncancellable, 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 Services, Consulting, GPS 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:	2018	2017	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total signings	\$44,700	\$42,869	4.3%	4.9%

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)

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 the prior year and continuing price pressures impacting Storage Systems. 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). Systems Hardware revenue of \$6,363 million declined 2.0 percent as reported (2 percent adjusted for currency). Operating Systems Software revenue of \$1,671 million decreased 1.7 percent as reported (2 percent adjusted for currency) compared to the prior year.

Within Systems Hardware, IBM Z revenue decreased 5.4 percent as reported (6 percent adjusted for currency) year to year, driven by the strong performance in 2017 of the z14 mainframe which was launched in the third quarter of 2017. The z14 continues to be one of the most successful programs within IBM Z history, and the company continued to grow the install base by adding new clients and new mission-critical workloads to the platform.

Power Systems revenue increased 8.8 percent as reported (9 percent adjusted for currency) year to year. As reported and adjusted for currency, there was double-digit revenue growth in both the low-end and high-end portfolio, mitigated by a decline in the midrange products. Overall performance was driven by Linux and continued strong adoption of the new POWER9-based architecture. In the fourth quarter of 2018, the business released the next generation POWER9 processors in the high-end. These systems are designed for handling advanced analytics, cloud environments and data-intensive workloads in AI, HANA and UNIX markets. In 2018, the company delivered the most powerful commercially available supercomputers built with POWER9 technology to the U.S. Department of Energy labs.

Storage Systems revenue decreased 5.5 percent as reported (6 percent adjusted for currency) year to year, with declines in midrange products, mitigated by continued strong growth in flash array offerings. The storage market remains very competitive, with ongoing pricing pressures. The company continues to introduce new innovative products with enhanced functionality into its products, such as the extension of the next-generation NVMe technology into its midrange products in December 2018. This technology is expected to be extended across the storage portfolio in the first half of 2019.

Within Systems, total strategic imperatives revenue of \$4.5 billion grew 4 percent year to year as reported (3 percent adjusted for currency). Cloud revenue of \$3.1 billion declined 10 percent as reported and adjusted for currency, reflecting IBM Z product cycle dynamics.

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent/Margin Change
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	\$4,002	\$4,362	(8.2)%
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.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

The Systems gross profit margin decreased 3.4 points to 49.8 percent in 2018 compared to the prior year. The overall decrease year to year was driven by the mix away from IBM Z and margin declines in Power Systems and Storage Systems.

Pre-tax income of \$904 million declined 19.9 percent and pre-tax margin decreased 2.4 points year to year to 10.2 percent driven by the strong performance in IBM Z in the prior year, and the continued investment in innovation across the Systems portfolio.

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 the IBM 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

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
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%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

In 2018, Global Financing delivered external revenue of \$1,590 million and total revenue of \$3,200 million, with an increase in gross margin of 1.0 points. Total pre-tax income of \$1,361 million increased 6.5 percent compared to 2017 and return on equity decreased 2.0 points to 30.8 percent.

In 2018, Global Financing total revenue increased 1.0 percent compared to the prior year. This was due to an increase in internal revenue of 9.5 percent, driven by an increase in internal financing (up 17.6 percent to \$424 million), and an increase in internal used equipment sales (up 6.8 percent to \$1,187 million). External revenue declined 6.3 percent due to a decrease in external used equipment sales (down 30.8 percent to \$366 million), partially offset by an increase in external financing (up 4.9 percent to \$1,223 million).

The increase in external financing revenue was due to the increase in the average asset balances, partially offset by lower asset yields. The increase in internal financing revenue was primarily due to higher asset yields and average asset balances.

Total sales of used equipment represented 48.5 percent and 51.8 percent of Global Financing's revenue for the years ended December 31, 2018 and December 31, 2017, respectively. The decrease in 2018 was due to lower volume of external used equipment sales, partially offset by increases in internal transactions. The gross profit margin on used sales was 54.2 percent and 47.4 percent for the years ended December 31, 2018 and December 31, 2017, respectively. The increase in the gross profit margin was driven by a shift toward higher margin internal equipment sales.

Geographic Revenue

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

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total revenue	\$79,591	\$79,139	0.6%	0.0%
Americas	\$36,994	\$37,641	(1.7)%	(0.7)%
Europe/Middle East/Africa	25,491	24,397	4.5	1.3
Asia Pacific	17,106	17,102	0.0	(0.4)

* Recast to conform to current period presentation.

Total revenue of \$79,591 million in 2018 increased 0.6 percent as reported (flat adjusted for currency) compared to the prior year.

Global Financing pre-tax income increased 6.5 percent year to year primarily driven by an increase in gross profit (\$52 million) and a decrease in total expense (\$32 million).

The decrease in return on equity from 2017 to 2018 was primarily due to lower net income. Refer to page 40 for the details of the after-tax income and return on equity calculations.

Total unguaranteed residual value of leases, including operating leases, at December 31, 2018 and 2017 was \$699 million and \$724 million, respectively. In addition to the unguaranteed residual value, on a limited basis, Global Financing will obtain guarantees of the future value of the equipment to be returned at end of lease.

Third-party residual value guarantees increase the minimum lease payments as provided for by accounting standards that are utilized in determining the classification of a lease as a sales-type lease, direct financing lease or operating lease. The aggregate asset values associated with the guarantees of sales-type leases were \$231 million and \$716 million for the financing transactions originated during the years ended December 31, 2018 and December 31, 2017, respectively. In 2018, the residual value guarantee program resulted in the company recognizing approximately \$148 million of revenue that would otherwise have been recognized in future periods as operating lease revenue. If the company had chosen to not participate in a residual value guarantee program in 2018 and prior years, the 2018 impact would be substantially mitigated by the effect of prior year asset values being recognized as operating lease revenue in the current year. The aggregate asset values associated with the guarantees of direct financing leases were \$163 million and \$154 million for the financing transactions originated during the years ended December 31, 2018 and 2017, respectively. The associated aggregate guaranteed future values at the scheduled end of lease were \$18 million and \$45 million for the financing transactions originated during the years ended December 31, 2018 and 2017, respectively. The cost of guarantees was \$2 million and \$4 million for the years ended December 31, 2018 and 2017, respectively.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Americas revenue decreased 1.7 percent year to year as reported (1 percent adjusted for currency) with a decline in North America, as reported and adjusted for currency, and a decline in Latin America as reported, but growth adjusted for currency. Within North America, the U.S. decreased 2.4 percent and Canada increased 1.4 percent (2 percent adjusted for currency). In Latin America, Brazil decreased 0.9 percent as reported, but grew 8 percent adjusted for currency, and Mexico increased 2.8 percent (4 percent adjusted for currency).

EMEA revenue increased 4.5 percent as reported and 1 percent adjusted for currency. Germany increased 8.0 percent (4 percent adjusted for currency) and the UK increased 6.2 percent (3 percent adjusted for currency). Spain increased 15.4 percent (11 percent adjusted for currency) and France grew 3.4 percent as reported, but declined 1 percent adjusted for currency. Italy increased 4.0 percent as reported (flat adjusted for currency).

Asia Pacific revenue was essentially flat year to year as reported and adjusted for currency. Japan increased 3.0 percent as reported (1 percent adjusted for currency). Australia grew 2.0 percent as reported (5 percent adjusted for currency). China decreased 7.8 percent (9 percent adjusted for currency) and India decreased 10.1 percent (6 percent adjusted for currency).

Total Expense and Other (Income)

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent/ Margin Change
Total consolidated expense and other (income)	\$25,594	\$25,543*	0.2%
Non-operating adjustments			
Amortization of acquired intangible assets	(437)	(496)	(11.9)
Acquisition-related charges	(16)	(52)	(70.2)
Non-operating retirement-related (costs)/income	(1,572)	(1,341)*	17.3
Operating (non-GAAP) expense and other (income)	\$23,569	\$23,654*	(0.4)%
Total consolidated expense-to-revenue ratio	32.2%	32.3%*	(0.1) pts.
Operating (non-GAAP) expense-to-revenue ratio	29.6%	29.9%*	(0.3) pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

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:	2018	2017	Yr.-to-Yr. Percent Change
Selling, general and administrative expense			
Selling, general and administrative—other	\$16,438	\$17,100*	(3.9)%
Advertising and promotional expense	1,466	1,445	1.5
Workforce rebalancing charges	598	199	202.2
Amortization of acquired intangible assets	435	496	(12.2)
Stock-based compensation	361	384	(6.0)
Bad debt expense	67	55	(20.9)
Total consolidated selling, general and administrative expense	\$19,366	\$19,680*	(1.6)%
Non-operating adjustments			
Amortization of acquired intangible assets	(435)	(496)	(12.2)
Acquisition-related charges	(15)	(13)	17.6
Non-operating retirement-related (costs)/income	—	—*	—
Operating (non-GAAP) selling, general and administrative expense	\$18,915	\$19,170*	(1.3)%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Total selling, general and administrative (SG&A) expense decreased 1.6 percent in 2018 versus 2017, driven primarily by the following factors:

- Lower spending (4 points); partially offset by
- Higher workforce rebalancing charges (2 points).

Operating (non-GAAP) SG&A expense decreased 1.3 percent year to year driven primarily by the same factors.

Bad debt expense increased \$12 million in 2018 compared to 2017. The receivables provision coverage was 1.6 percent at December 31, 2018, unchanged from December 31, 2017.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Research, Development and Engineering Expense

(\$ in millions)

For the year ended December 31:	2018	2017*	Yr.-to-Yr. Percent Change
Total consolidated research, development and engineering	\$5,379	\$5,590	(3.8)%
Non-operating adjustment			
Non-operating retirement-related (costs)/income	—	—	—
Operating (non-GAAP) research, development and engineering	\$5,379	\$5,590	(3.8)%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Research, development and engineering (RD&E) expense was 6.8 percent of revenue in 2018 and 7.1 percent of revenue in 2017.

RD&E expense decreased 3.8 percent in 2018 versus 2017 primarily driven by the company's leveraging of development partnerships consistent with its IP licensing strategy and lower spending year to year.

Intellectual Property and Custom Development Income

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
Licensing of intellectual property including royalty-based fees	\$ 723	\$1,193	(39.4)%
Custom development income	275	252	9.3
Sales/other transfers of intellectual property	28	21	35.0
Total	\$1,026	\$1,466	(30.0)%

Licensing of intellectual property including royalty-based fees decreased 39.4 percent in 2018 compared to 2017. The company entered into new partnership agreements in 2018, which included three transactions with period income greater than \$100 million. There were also three transactions greater than \$100 million in 2017. The company licenses IP to partners who allocate their skills to extend the value of assets that are high value, but may be in mature markets. 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)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
Other (income) and expense			
Foreign currency transaction losses/(gains)	\$ (427)	\$ 405	NM
(Gains)/losses on derivative instruments	434	(341)	NM
Interest income	(264)	(144)	83.7%
Net (gains)/losses from securities and investment assets	(101)	(20)	404.2
Retirement-related costs/(income)	1,572	1,341*	17.3%
Other	(63)	(116)	(46.0)
Total consolidated other (income) and expense	\$1,152	\$1,125*	2.5%
Non-operating adjustments			
Amortization of acquired intangible assets	(2)	—	NM
Acquisition-related charges	0	(39)	(99.2)%
Non-operating retirement-related costs/(income)	(1,572)	(1,341)*	17.3
Operating (non-GAAP) other (income) and expense	\$ (422)	\$ (255)	65.3%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Total consolidated other (income) and expense was expense of \$1,152 million in 2018 compared to \$1,125 million in 2017. The increase in expense of \$28 million year over year was primarily driven by:

- Higher retirement-related costs (\$232 million); partially offset by
- Higher interest income (\$120 million); and
- Higher gains from securities and investment assets (\$81 million).

Interest Expense

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
Interest expense			
Total	\$723	\$615	17.6%

Interest expense increased \$108 million compared to 2017. Interest expense is presented in cost of financing in the Consolidated Statement of Earnings only if the related external borrowings are to support the Global Financing external business. Overall interest expense (excluding capitalized interest) in 2018 was \$1,480 million, an increase of \$207 million year to year, driven by higher average interest rates and higher average debt levels.

Stock-Based Compensation

Pre-tax stock-based compensation cost of \$510 million decreased \$24 million compared to 2017. This was due primarily to decreases related to the conversion of stock-based awards previously issued by acquired entities (\$4 million), performance share units (\$7 million) and restricted stock units (\$13 million). Stock-based compensation cost, and the year-to-year change, was reflected in the following categories: Cost: \$82 million, down \$9 million; SG&A expense: \$361 million, down \$23 million; and RD&E expense: \$67 million, up \$8 million.

Retirement-Related Plans

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

(\$ in millions)

For the year ended December 31:	2018	2017	Yr.-to-Yr. Percent Change
Retirement-related plans—cost			
Service cost	\$ 431	\$ 429	0.4%
Multi-employer plans	38	40*	(5.4)
Cost of defined contribution plans	1,024	1,046	(2.1)
Total operating costs/(income)	\$ 1,494	\$ 1,516*	(1.5)%
Interest cost	\$ 2,726	\$ 2,961	(7.9)%
Expected return on plan assets	(4,049)	(4,346)	(6.8)
Recognized actuarial losses	2,941	2,871	2.5
Amortization of prior service costs/(credits)	(73)	(88)*	(16.6)
Curtailments/settlements	11	19	(39.9)
Other costs	16	(76)*	NM
Total non-operating costs/(income)	\$ 1,572	\$ 1,341*	17.3%
Total retirement-related plans—cost	\$ 3,066	\$ 2,857	7.3%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Total pre-tax retirement-related plan cost increased by \$209 million compared to 2017, primarily driven by lower expected return on plan assets (\$296 million), an increase in other costs (\$93 million) related to benefits from pension litigation in the prior year and an increase in recognized actuarial losses (\$70 million); partially offset by lower interest costs (\$235 million).

As discussed in the “Operating (non-GAAP) Earnings” section on pages 18 and 19, the company characterizes certain retirement-related costs as operating and others as non-operating. Utilizing this characterization, operating retirement-related costs in 2018 were \$1,494 million, a decrease of \$22 million compared to 2017, primarily driven by lower defined contribution plans cost (\$22 million). Non-operating costs of \$1,572 million increased \$232 million in 2018 compared to 2017, driven primarily by lower expected return on plan assets (\$296 million), an increase in other costs (\$93 million) related to benefits from pension litigation in the prior year and an increase in recognized actuarial losses (\$70 million); partially offset by lower interest costs (\$235 million).

Income Taxes

The continuing operations effective tax rate for 2018 was 23.1 percent, a decrease of 26.4 points versus the prior year. In 2018, the accounting for impacts of U.S. tax reform was completed and the effects of measurement period adjustments were recognized as a net full-year 2018 charge of \$2.0 billion (17.7 points). This is compared to a charge of \$5.5 billion (48.0 points) in 2017 related to the impact of the enactment of U.S. tax reform, a year-to-year decrease of 30.4 points. Without these impacts, the continuing operations tax rate for 2018 would have been 5.4 percent, compared to a 2017 rate of 1.5 percent. The adjusted year-to-year increase of 3.9 points is primarily driven by the following factors:

- A lower benefit year to year in the utilization of foreign tax credits of 5.9 points;
- Benefits in 2017 related to an intra-entity asset transfer of 5.1 points and the tax write down of an investment of 1.7 points;
- A year-to-year increase in tax charges related to intercompany payments of 1.3 points; partially offset by
- Benefits in 2018 related to domestic and foreign audit activity (6.8 points), geographic mix of pre-tax earnings in 2018 (2.1 points) and the re-assessment of valuation allowances (1.2 points).

The continuing operations operating (non-GAAP) effective tax rate was 7.9 percent in 2018, an increase of 1.1 points versus 2017, principally driven by the same factors described above.

For more information on U.S. tax reform impacts, see note N, “Taxes,” on pages 117 to 119.

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:	2018	2017	Yr.-to-Yr. Percent Change
Earnings per share of common stock from continuing operations			
Assuming dilution	\$ 9.51*	\$ 6.14*	54.9%
Basic	\$ 9.56	\$ 6.17	54.9%
Diluted operating (non-GAAP)	\$13.81	\$13.66**	1.1%
Weighted-average shares outstanding (in millions)			
Assuming dilution	916.3	937.4	(2.2)%
Basic	912.0	932.8	(2.2)%

* Includes a charge of \$2.0 billion or \$2.23 of diluted earnings per share in 2018 and \$5.5 billion or \$5.84 of diluted earnings per share in 2017 associated with U.S. tax reform.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Actual shares outstanding at December 31, 2018 and 2017 were 892.5 million and 922.2 million, respectively. The average number of common shares outstanding assuming dilution was 21.1 million shares lower in 2018 versus 2017. The decrease was primarily the result of the common stock repurchase program.

Financial Position

Dynamics

At December 31, 2018, the company continued to have the financial flexibility to support the business over the long term. Cash, restricted cash and marketable securities at year end were \$12,222 million. During the year, the company continued to manage the investment portfolio to meet its capital preservation and liquidity objectives.

Total debt of \$45,812 million decreased \$1,012 million from prior year-end levels. The commercial paper balance at December 31, 2018 was \$2,995 million, an increase of \$1,499 million from the prior year end. Within total debt, \$31,227 million is in support of the Global Financing business which is leveraged at a 9 to 1 ratio. The company continues to have substantial flexibility in the debt markets. During 2018, the company completed bond issuances totaling \$4,000 million, with terms ranging from 2 to 5 years, and interest rates ranging from 2.65 to 3.60 percent depending on maturity. The company has consistently generated strong cash flow from operations and continues to have access to additional sources of liquidity through the capital markets and its Credit Facilities.

Consistent with accounting standards, the company remeasured the funded status of its retirement and postretirement plans at December 31. At December 31, 2018, the overall net underfunded position was \$13,133 million, an increase of \$243 million from December 31, 2017 driven by lower asset returns, partially offset by lower interest cost and an increase in discount rates. At year end, the company's qualified defined benefit plans were well funded and the cash requirements related to these plans is expected to be approximately \$400 million in 2019 and in the \$350 million to \$400 million range in 2020. In 2018, the return on the U.S. Personal Pension Plan assets was (1.8) percent and the plan was 104 percent funded at December 31. Overall, global asset returns were (1.9) percent and the qualified defined benefit plans worldwide were 99 percent funded at December 31, 2018.

During 2018, the company generated \$15,247 million in cash from operations, a decrease of \$1,477 million compared to 2017. In addition, the company generated \$11,876 million in free cash flow, a decrease of \$1,117 million versus the prior year. See page 61 for additional information on free cash flow. The company returned \$10,109 million to shareholders in 2018, with \$5,666 million in dividends and \$4,443 million in gross share repurchases. In 2018, the company repurchased 32.9 million shares and had \$3.3 billion remaining in share repurchase authorization at year end. The company's cash generation permits the company 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:	2018	2017
Cash and cash equivalents	\$ 1,833	\$ 2,696
Net investment in sales-type and direct financing leases ⁽¹⁾	6,924	7,253
Equipment under operating leases—external clients ⁽²⁾	444	477
Client loans	12,802	12,450
Total client financing assets	20,170	20,180
Commercial financing receivables	11,838	11,590
Intercompany financing receivables ⁽³⁾⁽⁴⁾	4,873	5,056
Total assets	\$41,320	\$41,096
Debt	31,227	31,434
Total equity	\$ 3,470	\$ 3,484

⁽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 on page 72.

⁽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, 2018, substantially all financing assets were IT-related assets, and approximately 55 percent of the total external portfolio was with investment-grade clients with no direct exposure to consumers. This investment-grade percentage is based on the credit ratings of the companies in the portfolio. Additionally, the company takes actions to transfer exposure to third parties. On that basis, the investment-grade content would increase by 16 points to 71 percent, a slight increase year to year.

The company has 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.

IBM Working Capital

(\$ in millions)

At December 31:	2018	2017
Current assets	\$49,146	\$49,735
Current liabilities	38,227	37,363
Working capital	\$10,918	\$12,373
Current ratio	1.29:1	1.33:1

Working capital decreased \$1,454 million from the year-end 2017 position. The key changes are described below:

Current assets decreased \$590 million (increased \$1,009 million adjusted for currency) due to:

- A decline in receivables of \$1,067 million (\$261 million adjusted for currency) driven by a decline in trade receivables of \$1,496 million; partially offset by
- An increase of \$519 million (\$598 million adjusted for currency) in prepaid expenses and other current assets primarily due to the reclassification of certain trade receivables due to the adoption of the new revenue standard.

Current liabilities increased \$865 million (\$2,076 million adjusted for currency) as a result of:

- An increase in short-term debt of \$3,220 million (\$3,284 million adjusted for currency) primarily as a result of reclassifications of \$7,252 million from long-term debt to reflect upcoming maturities and an increase in commercial paper of \$1,499 million; partially offset by maturities of \$5,586 million. The increase in short-term debt was partially offset by
- A decrease in taxes payable of \$1,173 million (\$1,099 million adjusted for currency) principally driven by the resolution in the first-quarter 2018 of certain matters related to the ongoing U.S. tax audit of the company's 2013-2014 tax returns; and

- A decrease in other accrued expenses and liabilities of \$569 million driven by currency-related decreases of \$502 million; and
- A decrease in deferred income of \$387 million (\$44 million adjusted for currency).

Receivables and Allowances

Roll Forward of Total IBM Receivables Allowance for Credit Losses

(\$ in millions)

January 1, 2018	Additions*	Write-offs**	Other ⁺	December 31, 2018
\$668	\$66	\$(64)	\$(31)	\$639

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

**Refer to note A, "Significant Accounting Policies," on pages 76 to 88 for additional information regarding Allowance for Credit Loss write-offs.

⁺ Primarily represents translation adjustments.

The total IBM receivables provision coverage was 1.6 percent at December 31, 2018, unchanged compared to December 31, 2017.

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)

At December 31:	2018	2017
Recorded investment⁽¹⁾	\$31,182	\$30,892
Specific allowance for credit losses	220	258
Unallocated allowance for credit losses	72	78
Total allowance for credit losses	292	336
Net financing receivables	\$30,890	\$30,556
Allowance for credit losses coverage	0.9%	1.1%

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

The percentage of Global Financing receivables reserved was 0.9 percent at December 31, 2018, compared to 1.1 percent at December 31, 2017. In 2018, write-offs of \$41 million of receivables previously reserved resulted in a 14 percent reduction in the specific reserves, from \$258 million at December 31, 2017, to \$220 million at December 31, 2018. See note F, "Financing Receivables," on pages 103 to 106 for additional information. Unallocated reserves decreased 10 percent from \$78 million at December 31, 2017, to \$72 million at December 31, 2018.

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

(\$ in millions)

January 1, 2018	Additions*	Write-offs**	Other [†]	December 31, 2018
\$336	\$14	\$(41)	\$(17)	\$292

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

**Refer to note A, "Significant Accounting Policies," on pages 76 to 88 for additional information regarding Allowance for Credit Loss write-offs.

[†] Primarily represents translation adjustments.

Global Financing's bad debt expense was \$14 million in 2018, compared to \$17 million in 2017. The year-to-year decrease in bad debt expense was primarily due to lower specific reserve requirements in 2018.

Noncurrent Assets and Liabilities

(\$ in millions)

At December 31:	2018	2017
Noncurrent assets	\$74,236	\$75,621
Long-term debt	\$35,605	\$39,837
Noncurrent liabilities (excluding debt)	\$32,621	\$30,432

The decrease in noncurrent assets of \$1,385 million (an increase of \$177 million adjusted for currency) was driven by:

- A decrease in net intangibles and goodwill of \$1,178 million resulting from intangibles amortization and currency impacts of \$553 million.

Long-term debt decreased \$4,232 million (\$3,994 million adjusted for currency) primarily driven by:

- Reclassifications to short-term debt of \$7,252 million to reflect upcoming maturities; and
- Early retirement of long-term debt of \$942 million; partially offset by
- Issuances of \$4,673 million.

Noncurrent liabilities (excluding debt) increased \$2,189 million (\$3,236 million adjusted for currency) primarily driven by:

- An increase in other liabilities of \$2,209 million, primarily driven by the company's election to include GILTI in measuring deferred taxes (\$1,927 million).

Debt

The company's funding requirements are continually monitored and strategies are executed to manage the overall asset and liability profile. Additionally, the company maintains sufficient flexibility to access global funding sources as needed.

(\$ in millions)

At December 31:	2018	2017
Total company debt	\$45,812	\$46,824
Total Global Financing segment debt	\$31,227	\$31,434
Debt to support external clients	27,536	27,556
Debt to support internal clients	3,690	3,878
Non-Global Financing debt	14,585	15,390

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

Non-Global Financing debt of \$14,585 million declined \$805 million from prior year-end levels.

At December 31:	2018	2017
Global Financing debt-to-equity ratio	9.0x	9.0x

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.

Global Financing provides financing predominantly for the company's external client assets, as well as for assets under contract by other IBM units. As previously stated, the company measures 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" on page 33 and in note U, "Segment Information," on pages 141 to 146. In the company's Consolidated Statement of Earnings, the external debt-related interest expense supporting Global Financing's internal financing to the company is reclassified from cost of financing to interest expense.

Equity

Total equity decreased by \$795 million from December 31, 2017 primarily due to decreases from dividends (\$5,666 million), and treasury stock (\$4,564 million) primarily due to share repurchases; partially offset by increases from net income (\$8,728 million) and transition adjustments related to the adoption of the new revenue standard (\$580 million).

Cash Flow

The company's cash flows from operating, investing and financing activities, as reflected in the Consolidated Statement of Cash Flows on page 73 are summarized in the table below. These amounts include the cash flows associated with the Global Financing business.

(\$ in millions)

For the year ended December 31:	2018	2017
Net cash provided by/(used in) continuing operations		
Operating activities	\$ 15,247	\$16,724
Investing activities	(4,913)	(7,081)*
Financing activities	(10,469)	(6,418)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(495)	937
Net change in cash, cash equivalents and restricted cash	\$ (630)	\$ 4,161*

* Recast to reflect adoption of the FASB guidance on restricted cash.

Net cash provided by operating activities decreased \$1,477 million in 2018 driven by the following key factors:

- A decrease in cash provided by financing receivables of \$764 million driven by an increase in client financing receivables due to higher volumes;
- A decrease in cash sourced from sales cycle working capital of \$240 million; and
- An increase in cash income tax payments of \$148 million.

Net cash used in investing activities decreased \$2,167 million driven by:

- A decrease from net non-operating financing receivables of \$1,525 million; and
- A decrease in net purchases of marketable securities and other investments of \$485 million.

Net cash used in financing activities increased \$4,051 million driven by the following factors:

- A decrease in net cash sourced from debt transactions of \$3,746 million primarily driven by a lower level of issuances and a higher level of maturities in the current year.

Global Financing Return on Equity Calculation

(\$ in millions)

At December 31:	2018	2017 ⁺
Numerator		
Global Financing after-tax income ^{(1)*}	\$1,065	\$1,114
Denominator		
Average Global Financing equity ^{(2)**}	\$3,460	\$3,393
Global Financing return on equity ^{(1)/(2)}	30.8%	32.8%

* 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.

⁺ Recast to reflect the adoption of the FASB guidance on presentation of net benefit cost.

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 on pages 18 and 19 for the company's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the year ended December 31, 2018:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	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)
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.

(\$ in millions except per share amounts)

For the year ended December 31, 2017:	GAAP**	Acquisition-Related Adjustments	Retirement-Related Adjustments**	Tax Reform Charge	Operating (non-GAAP)**
Gross profit	\$36,943	\$ 449	\$ —	\$ —	\$37,392
Gross profit margin	46.7%	0.6 pts.	— pts.	— pts.	47.2%
SG&A	\$19,680	\$(509)	\$ —	\$ —	\$19,170
RD&E	5,590	—	—	—	5,590
Other (income) and expense	1,125	(39)	(1,341)	—	(255)
Total expense and other (income)	25,543	(548)	(1,341)	—	23,654
Pre-tax income from continuing operations	11,400	997	1,341	—	13,738
Pre-tax margin from continuing operations	14.4%	1.3 pts.	1.7 pts.	— pts.	17.4%
Provision for income taxes*	\$ 5,642	\$ 279	\$ 485	\$(5,475)	\$ 931
Effective tax rate	49.5%	(1.6) pts.	(1.3) pts.	(39.9) pts.	6.8%
Income from continuing operations	\$ 5,758	\$ 718	\$ 856	\$ 5,475	\$12,807
Income margin from continuing operations	7.3%	0.9 pts.	1.1 pts.	6.9 pts.	16.2%
Diluted earnings per share from continuing operations	\$ 6.14	\$0.77	\$ 0.91	\$ 5.84	\$ 13.66

* 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.

**Recast to reflect adoption of the FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Consolidated Fourth-Quarter Results

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

	2018	2017	Yr.-to-Yr. Percent/ Margin Change
For the fourth quarter:			
Revenue	\$21,760	\$22,543	(3.5)%*
Gross profit margin	49.1%	49.0%**	0.1 pts.
Total expense and other (income)	\$ 6,253	\$ 6,580**	(5.0)%
Total expense and other (income)-to-revenue ratio	28.7%	29.2%**	(0.5)pts.
Income from continuing operations before income taxes	\$ 4,434	\$ 4,469	(0.8)%
Provision for income taxes from continuing operations	\$ 2,481 ⁺	\$ 5,522 ⁺	(55.1)
Income/(loss) from continuing operations	\$ 1,954 ⁺	\$ (1,053) ⁺	NM
Income/(loss) from continuing operations margin	9.0%	(4.7)%	13.6 pts.
Loss from discontinued operations, net of tax	\$ (2)	\$ (1)	70.7%
Net income/(loss)	\$ 1,951 ⁺	\$ (1,054) ⁺	NM
Earnings/(loss) per share from continuing operations:			
Assuming dilution	\$ 2.15 ⁺	\$ (1.14) ⁺	NM
Consolidated earnings/(loss) per share—assuming dilution	\$ 2.15 ⁺	\$ (1.14) ⁺	NM
Weighted-average shares outstanding			
Assuming dilution	905.2	924.5	(2.1)%

* (1.2) percent adjusted for currency.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

⁺ Includes a charge of \$1.9 billion or \$2.15 of diluted earnings per share in 2018 and \$5.5 billion or \$5.90 of diluted earnings per share in 2017 associated with U.S. tax reform.

NM—Not meaningful

The following table provides the company's operating (non-GAAP) earnings for the fourth quarter of 2018 and 2017.

(\$ in millions except per share amounts)

	2018	2017	Yr.-to-Yr. Percent Change
For the fourth quarter:			
Net income/(loss) as reported	\$1,951 ⁺	\$(1,054) ⁺	NM
Loss from discontinued operations, net of tax	(2)	(1)	70.7%
Income/(loss) from continuing operations	1,954 ⁺	(1,053) ⁺	NM
Non-operating adjustments (net of tax)			
Acquisition-related charges	171	181	(5.3)
Non-operating retirement-related costs/(income)	348	174**	99.5
U.S. tax reform charge	1,944	5,475	NM
Operating (non-GAAP) earnings*	\$4,417	\$ 4,777**	(7.5)%
Diluted operating (non-GAAP) earnings per share	\$ 4.87	\$ 5.14**	(5.3)%

* See page 47 for a more detailed reconciliation of net income to operating (non-GAAP) earnings.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

⁺ Includes a charge of \$1.9 billion in 2018 and \$5.5 billion in 2017 associated with U.S. tax reform.

NM—Not meaningful

Snapshot

In the fourth quarter of 2018, the company reported \$21.8 billion in revenue and net income from continuing operations of \$2.0 billion, which included a charge of \$1.9 billion associated with U.S. tax reform. Fourth-quarter operating (non-GAAP) earnings were \$4.4 billion, which excludes the tax charge. Fourth-quarter diluted earnings per share from continuing operations was \$2.15 and operating (non-GAAP) diluted earnings per share from continuing operations was \$4.87. The company generated \$4.1 billion in cash from operations and \$6.5 billion in free cash flow in the fourth quarter of 2018 and delivered shareholder returns of \$3.5 billion through gross common stock repurchases and dividends.

In the fourth quarter, revenue decreased 3.5 percent as reported and 1 percent adjusted for currency. Cognitive Solutions was flat as reported, but grew 2 percent adjusted for currency, with growth in Solutions Software, 1 percent as reported and 3 percent adjusted for currency, led by analytics and AI offerings. Transaction Processing Software decreased 1 percent year to year as reported, but grew 1 percent adjusted for currency reflecting strong transactional performance in the quarter. GBS increased 4.1 percent as reported, and 6 percent adjusted for currency, led by Consulting. There was growth across all GBS lines of business as reported and adjusted for currency as the company focuses on clients' digital transformation. Technology Services & Cloud Platforms decreased 2.9 percent as reported, but was flat adjusted for currency. Infrastructure Services declined year to year as reported, but was flat adjusted for currency. There was strong growth in signings reflecting demand for hybrid cloud implementations and productivity solutions. Within TS&CP, Integration Software grew year to year driven by continued strong adoption of IBM Cloud Private and improved transactional volumes. Systems decreased 21.3 percent as reported and 20 percent adjusted for currency, reflecting the impact of the IBM Z product cycle dynamics. Growth in Power Systems, as reported and adjusted for currency was more than offset by declines in IBM Z and Storage Systems.

The company continued to deliver solid strategic imperatives revenue growth, generating \$11.5 billion of revenue and growing 3 percent as reported and 5 percent adjusted for currency. Strategic imperatives revenue growth was impacted by the IBM Z cycle. Excluding IBM Z, strategic imperatives growth would have been 9 percent as reported and 11 percent adjusted for currency. There was strong growth across analytics, cloud and security, excluding IBM Z. Total Cloud revenue of \$5.7 billion increased 3 percent as reported and 6 percent adjusted for currency, and was also impacted by the IBM Z cycle. Total Cloud revenue growth, excluding IBM Z, would have been 15 percent as reported and 19 percent adjusted for currency. Cloud-as-a-Service revenue was up 18 percent (21 percent adjusted for currency) and the annual exit run rate for as-a-Service revenue increased to \$12.2 billion in the fourth quarter of 2018 compared to \$11.4 billion in the third quarter of 2018. Analytics revenue of \$6.4 billion increased 6 percent as reported (8 percent adjusted for currency).

From a geographic revenue perspective, Americas decreased 5.3 percent (4 percent adjusted for currency) year to year, with declines in the U.S. and Canada, partially offset by growth in Latin America. EMEA decreased 1.3 percent as reported, but grew 2 percent adjusted for currency. Germany grew as reported and adjusted for currency and the UK declined as reported, but grew

adjusted for currency. However, there were declines in France and other countries. Asia Pacific decreased 2.7 percent as reported (1 percent adjusted for currency). There was growth in Japan as reported and adjusted for currency. Australia declined as reported, but grew adjusted for currency, and China decreased year to year as reported and adjusted for currency.

The consolidated gross profit margin of 49.1 percent and operating (non-GAAP) gross margin of 49.5 percent both increased 0.1 points compared to the prior year, with margin expansion in the services businesses, offset by a decline in the Systems gross margin and an impact from mix.

Total expense and other (income) decreased 5.0 percent in the fourth quarter compared to the prior year. The year-to-year decrease was driven by the effects of currency (4 points) and lower spending (3 points), partially offset by lower intellectual property income (2 points). The expense dynamics reflect the company's focus on driving productivity in the business and new ways of working, including using agile methodologies, leveraging automation and infusing AI into its processes. Total operating (non-GAAP) expense and other (income) decreased 5.2 percent year to year driven primarily by the same factors.

Pre-tax income from continuing operations of \$4.4 billion in the fourth quarter decreased 0.8 percent year to year, however, the pre-tax margin of 20.4 percent increased 0.6 points. The continuing operations effective tax rate for the fourth quarter was 55.9 percent, which included a \$1.9 billion charge related to U.S. tax reform. Normalized for this charge, the continuing operations effective tax rate for the quarter would have been 12.9 percent. Income from continuing operations in the fourth quarter was \$2.0 billion compared to a loss from continuing operations of \$1.1 billion in 2017, which included a \$5.5 billion charge related to U.S. tax reform. Operating (non-GAAP) pre-tax income from continuing operations of \$5.0 billion decreased 1.1 percent year to year. Operating (non-GAAP) pre-tax margin from continuing operations increased 0.5 points to 23.1 percent. Operating (non-GAAP) income from continuing operations of \$4.4 billion decreased 7.5 percent. The operating (non-GAAP) effective tax rate from continuing operations in the fourth quarter of 2018 was 12.2 percent versus 6.1 percent in the prior year.

Diluted earnings per share from continuing operations was \$2.15 in the fourth quarter compared to a loss per share of \$(1.14) in the prior year, with both years including charges associated with U.S. tax reform. Operating (non-GAAP) diluted earnings per share of \$4.87 decreased 5.3 percent versus the fourth quarter of 2017. In the fourth quarter, the company repurchased 17.0 million shares of its common stock at a cost of \$2.1 billion and had \$3.3 billion remaining in the share repurchase authorization at December 31, 2018.

Results of Continuing Operations

Segment Details

The following is an analysis of the fourth quarter of 2018 versus the fourth quarter of 2017 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)

For the fourth quarter:	2018	2017	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Revenue				
Cognitive Solutions	\$ 5,455	\$ 5,432	0.4%	2.2%
Gross margin	79.4%	79.2%*	0.2 pts.	
Global Business Services	4,322	4,152	4.1%	6.5%
Gross margin	27.6%	24.6%*	3.0 pts.	
Technology Services & Cloud Platforms	8,929	9,198	(2.9)%	0.0%
Gross margin	42.3%	40.8%*	1.5 pts.	
Systems	2,621	3,332	(21.3)%	(20.1)%
Gross margin	50.8%	55.7%*	(4.9) pts.	
Global Financing	402	450	(10.7)%	(8.6)%
Gross margin	29.1%	29.5%	(0.3) pts.	
Other	32	(20)	NM	NM
Gross margin	(186.2)%	70.2%*	(256.5) pts.	
Total consolidated revenue	\$21,760	\$22,543	(3.5)%	(1.2)%
Total consolidated gross profit	\$10,687	\$11,049*	(3.3)%	
Total consolidated gross margin	49.1%	49.0%*	0.1 pts.	
Non-operating adjustments				
Amortization of acquired intangible assets	89	99	(10.4)%	
Retirement-related costs/(income)	—	—*	—%	
Operating (non-GAAP) gross profit	\$10,776	\$11,149*	(3.3)%	
Operating (non-GAAP) gross margin	49.5%	49.5%*	0.1 pts.	

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Cognitive Solutions

Cognitive Solutions revenue of \$5,455 million grew 0.4 percent as reported and 2 percent adjusted for currency in the fourth quarter of 2018 compared to the prior year, with growth in Solutions Software as reported and adjusted for currency. The company continued to deliver innovation to clients and scale platforms and solutions, driving growth in transactional revenue and SaaS signings. Although Transaction Processing Software declined as reported, it grew adjusted for currency as the business capitalized on a strong pipeline of larger transactions driven by client buying cycles.

In the fourth quarter, Solutions Software revenue of \$3,823 million grew 0.9 percent as reported and 3 percent adjusted for currency. Within Solutions Software, high-value areas such as analytics and AI drove growth as clients use IBM solutions to leverage their data for competitive advantage. Certain analytics platforms, such as the Db2 portfolio including analytics appliances, and Data Science offerings had broad-based growth in the fourth quarter as the company continues to innovate and enhance functionality within these offerings. In addition, client

demand for IBM Cloud Private for Data has accelerated with over 100 clients adopting the platform in the first six months since its launch. There was also solid demand for integrated security and services solutions, as well as growth in key areas within Watson Health and Watson IoT offerings.

Transaction Processing Software revenue of \$1,632 million decreased 0.6 percent as reported, but grew 1 percent adjusted for currency compared to the prior year. There was strong transactional performance in the quarter reflecting clients' continued commitment to IBM's platform for the long-term given the value the company provides in managing mission-critical workloads and for predictability in spending.

Cognitive Solutions total fourth-quarter strategic imperatives revenue of \$3.7 billion increased 7 percent as reported and 9 percent adjusted for currency. Cloud revenue of \$0.7 billion grew 4 percent as reported and 5 percent adjusted for currency, with an as-a-Service exit run rate of \$2.0 billion.

Cognitive Solutions gross profit margin of 79.4 percent in the fourth quarter of 2018 was essentially flat compared to the prior year. Pre-tax income of \$2,437 million increased 7.2 percent compared to the prior year. The pre-tax margin grew 2.9 points, to 40.3 percent driven by operating leverage from growth in revenue, operational efficiencies and a mix toward software, with continued investment in key strategic areas.

Global Business Services

Global Business Services revenue of \$4,322 million increased 4.1 percent as reported (6 percent adjusted for currency) in the fourth quarter of 2018 compared to the prior year with growth as reported and adjusted for currency across all three lines of business. GBS' performance reflects the repositioning of this business and the value clients recognize when combining the company's technology and industry expertise as they integrate their digital initiatives and internal process transformation.

Consulting revenue of \$2,008 million increased 7.5 percent as reported (10 percent adjusted for currency). The growth during the fourth quarter was led by the company's digital strategy and next generation Enterprise Applications. GPS revenue of \$325 million increased 2.4 percent as reported (5 percent adjusted for currency) driven by Cognitive Process Services offerings, which leverage automation and AI to reinvent industry workflows. Application Management revenue of \$1,989 million increased 1.1 percent as reported (4 percent adjusted for currency). This return to growth was driven by strong performance in Cloud Migration Factory and cloud application development, while traditional application management engagements declined as clients continue to migrate to the cloud. The growth also reflects the achievement of significant milestones across a few accounts.

GBS strategic imperatives revenue of \$2.9 billion grew 11 percent as reported (14 percent adjusted for currency) year to year. Cloud revenue of \$1.4 billion grew 30 percent as reported (34 percent adjusted for currency), with an as-a-Service exit run rate of \$2.1 billion.

GBS fourth-quarter gross profit margin increased 3.0 points year to year to 27.6 percent. Pre-tax income of \$566 million increased 73.4 percent year to year. The pre-tax margin increased 5.2 points to 12.9 percent. The strong growth in margins reflects operating leverage as a result of revenue growth driven by a mix to higher-value offerings, as well as benefits from currency, given GBS' global delivery model, and the yield from productivity and utilization initiatives.

Technology Services & Cloud Platforms

Technology Services & Cloud Platforms revenue of \$8,929 million decreased 2.9 percent as reported, but was flat adjusted for currency in the fourth quarter of 2018 compared to the prior year. There was continued strong growth in cloud revenue, as new and existing clients turn to IBM to manage their critical infrastructure and help deliver innovation in an open hybrid cloud environment.

Infrastructure Services revenue of \$5,819 million declined 2.9 percent as reported (flat adjusted for currency) compared to the prior year. As the company prioritizes the offerings within its portfolio, it is moving away from certain lower-value offerings, which will impact revenue performance in the near term, but will improve margin growth in the longer term. Technical Support Services revenue of \$1,722 million decreased 6.4 percent as reported (3 percent adjusted for currency), driven primarily by the dynamics of the Systems hardware product cycle. Integration Software revenue of \$1,387 million increased 1.8 percent as reported (4 percent adjusted for currency) compared to the prior year. There was continued strong adoption of IBM Cloud Private, an innovative platform that assists clients in modernizing their traditional workloads, and improved transactional performance in the quarter. The company continues to enable clients in the open hybrid cloud environment through innovative new offerings.

Technology Services & Cloud Platforms strategic imperatives revenue of \$3.2 billion grew 10 percent year to year as reported (13 percent adjusted for currency). Cloud revenue of \$2.4 billion grew 19 percent as reported (22 percent adjusted for currency), with an as-a-Service exit run rate of \$8.0 billion.

Technology Services & Cloud Platforms gross profit margin increased 1.5 points to 42.3 percent, driven primarily by service delivery improvements resulting from infusing AI and automation into business processes and leveraging productivity and talent optimization efforts. Pre-tax income of \$1,392 million decreased 3.4 percent. The pre-tax margin of 15.2 percent was flat year to year and improved sequentially compared to the third quarter of 2018. The company continues to invest in developing new offerings to capture the hybrid market opportunities.

Systems

Systems revenue of \$2,621 million declined 21.3 percent year to year as reported (20 percent adjusted for currency) in the fourth quarter of 2018. Systems Hardware revenue of \$2,175 million decreased 24.1 percent as reported (23 percent adjusted for currency). The year-to-year revenue decline was driven primarily by IBM Z product cycle dynamics and a decrease in Storage Systems (as reported and adjusted for currency), partially offset by growth in Power Systems (as reported and adjusted for currency). Operating Systems Software revenue of \$446 million decreased 4.4 percent as reported (3 percent adjusted for currency) compared to the prior year.

Within Systems Hardware, fourth-quarter IBM Z revenue declined 45.2 percent as reported (44 percent adjusted for currency) year to year as a result of the IBM Z product cycle and strong demand for z14 in the prior year. Since launching the z14 six quarters ago, this platform continues to track ahead of prior programs, and the install base grew as new clients and new workloads continued to be added to the platform. Over 55 percent of installed MIPs inventory is in emerging workload areas.

Power Systems revenue grew 8.6 percent as reported (10 percent adjusted for currency) year to year driven by Linux and continued strong performance of the new POWER9-based processors. The low-end and high-end portfolios had double-digit growth in the quarter. The release of the next generation POWER9 processor was completed during the quarter, with HANA certification extended to high-end processors. Power Systems are designed for handling advanced analytics and data-intensive workloads in cloud environments within AI, HANA and UNIX markets.

Storage Systems revenue decreased 8.0 percent as reported (7 percent adjusted for currency) with declines in midrange, and the market remains very competitive with price pressure. There was double-digit growth (as reported and adjusted for currency) in high-end hardware products and in all-flash array offerings.

Systems strategic imperatives revenue of \$1.6 billion declined 23 percent year to year as reported (22 percent adjusted for currency). Cloud revenue of \$1.1 billion decreased 32 percent as reported (31 percent adjusted for currency). Both reflected IBM Z product cycle dynamics.

The Systems gross profit margin decreased 4.9 points to 50.8 percent in the fourth quarter of 2018 compared to the prior year. The overall decrease year to year was driven primarily by product cycle dynamics with a mix away from IBM Z and margin declines in Power Systems and Storage Systems, partially offset by Operating Systems Software margin improvement. In the fourth quarter of 2018, pre-tax income of \$551 million declined 39.2 percent and pre-tax margin decreased 6.5 points year to year to 19.3 percent driven by the strong fourth-quarter 2017 performance in Systems Hardware. The company continues to develop next-generation technology and deliver new innovative functionality across its Systems portfolio.

Global Financing

Global Financing revenue of \$402 million decreased 10.7 percent year to year. Global Financing fourth-quarter pre-tax income decreased 27.9 percent to \$319 million and the pre-tax margin of 41.3 percent decreased 3.1 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 and financing receivable provisions.

Geographic Revenue

Total revenue of \$21,760 million decreased 3.5 percent as reported and 1 percent adjusted for currency in the fourth quarter of 2018 compared to the prior year. Americas revenue of \$10,222 million decreased 5.3 percent as reported and 4 percent adjusted for currency. EMEA fourth-quarter revenue of \$7,081 million decreased 1.3 percent as reported, but increased 2 percent adjusted for currency. Asia Pacific revenue of \$4,458 million declined 2.7 percent and 1 percent adjusted for currency.

Within Americas, revenue in the U.S. decreased 7.0 percent year to year, driven primarily by the strong IBM Z performance in the prior year. Canada decreased 4.1 percent as reported, but was flat adjusted for currency. Latin America increased 4.8 percent as reported and 17 percent adjusted for currency. Within Latin America, Brazil increased 8.1 percent as reported and 20 percent adjusted for currency. Mexico increased 12.6 percent as reported and 16 percent adjusted for currency.

In the fourth quarter, EMEA revenue performance by country varied. The UK decreased 0.9 percent as reported, but increased 3 percent adjusted for currency. France decreased 14.2 percent as reported and 11 percent adjusted for currency. Italy decreased 1.2 percent as reported, but increased 2 percent adjusted for currency. Germany increased 7.9 percent as reported and 12 percent adjusted for currency. Spain increased 12.7 percent as reported and 17 percent adjusted for currency. Russia grew 4.0 percent as reported and adjusted for currency.

Within Asia Pacific, China decreased 25.0 percent as reported and 23 percent adjusted for currency primarily due to strong performance in the financial sector in the prior year. India decreased 10.4 as reported, but was essentially flat adjusted for currency. Australia decreased 1.6 percent as reported, but grew 5 percent adjusted for currency. Japan increased 5.6 percent as reported and 5 percent adjusted for currency.

Total Expense and Other (Income)

(\$ in millions)

	2018	2017*	Yr.-to-Yr. Percent/ Margin Change
For the fourth quarter:			
Total consolidated expense and other (income)	\$6,253	\$6,580	(5.0)%
Non-operating adjustments			
Amortization of acquired intangible assets	(106)	(115)	(7.1)
Acquisition-related charges	(13)	(33)	(61.1)
Non-operating retirement-related (costs)/income	(387)	(371)	4.2
Operating (non-GAAP) expense and other (income)	\$5,746	\$6,061	(5.2)%
Total consolidated expense-to-revenue ratio	28.7%	29.2%	(0.5)pts.
Operating (non-GAAP) expense-to-revenue ratio	26.4%	26.9%	(0.5)pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Total expense and other (income) decreased 5.0 percent in the fourth quarter with an expense-to-revenue ratio of 28.7 percent compared to 29.2 percent in the fourth quarter of 2017. Total operating (non-GAAP) expense and other (income) decreased 5.2 percent year to year. The year-to-year decrease in total expense and other (income) was primarily the result of the effects of currency (4 points) and lower spending (3 points), partially offset by lower intellectual property income (2 points). The expense dynamics reflected the impacts from currency and the continued efficiency in the underlying spending, offset by continued investment to build and reinvent new solutions and platforms.

Cash Flow

The company generated \$4.1 billion in cash flow from operating activities in the fourth quarter of 2018, a decrease of \$1.6 billion compared to the fourth quarter of 2017, primarily due to a decline from financing receivables. Net cash sourced from investing activities of \$0.5 billion was \$4.3 billion higher than the prior year's net use of cash, primarily driven by an increase in cash from net proceeds from disposition of marketable securities and other investments (\$2.3 billion) and an increase from net non-operating financing receivables (\$1.6 billion). Net cash used in financing activities of \$4.6 billion increased \$3.7 billion compared to the prior year, primarily driven by higher net debt maturities (\$2.3 billion) and higher gross common stock repurchases (\$1.4 billion).

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. Refer to the "Operating (non-GAAP) Earnings" section on pages 18 and 19 for the company's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the fourth quarter 2018:	GAAP	Acquisition-Related Adjustments	Retirement-Related Adjustments	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)
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.

(\$ in millions except per share amounts)

For the fourth quarter 2017:	GAAP**	Acquisition-Related Adjustments	Retirement-Related Adjustments**	Tax Reform Charge	Operating (non-GAAP)**
Gross profit	\$11,049	\$ 99	\$ —	\$ —	\$11,149
Gross profit margin	49.0%	0.4 pts.	— pts.	— pts.	49.5%
SG&A	\$ 5,013	\$(116)	\$ —	\$ —	\$ 4,897
RD&E	1,378	—	—	—	1,378
Other (income) and expense	374	(32)	(371)	—	(30)
Total expense and other (income)	6,580	(148)	(371)	—	6,061
Pre-tax income from continuing operations	4,469	247	371	—	5,087
Pre-tax margin from continuing operations	19.8%	1.1 pts.	1.6 pts.	— pts.	22.6%
Provision for income taxes*	\$ 5,522	\$ 67	\$ 197	\$(5,475)	\$ 310
Effective tax rate	123.6%	(4.7) pts.	(5.1) pts.	(107.6) pts.	6.1%
Income/(loss) from continuing operations	\$ (1,053)	\$ 181	\$ 174	\$ 5,475	\$ 4,777
Income/(loss) margin from continuing operations	(4.7)%	0.8 pts.	0.8 pts.	24.3 pts.	21.2%
Diluted earnings/(loss) per share from continuing operations	\$ (1.14)	\$0.19	\$0.19	\$ 5.90	\$ 5.14

* 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.

**Recast to reflect adoption of the FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

PRIOR YEAR IN REVIEW

This section provides a summary of the company's financial performance in 2017 as compared to 2016. For additional information, see the company's 2017 Annual Report.

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

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent/ Margin Change
Revenue	\$ 79,139	\$ 79,919	(1.0)%*
Gross profit margin	46.7%**	48.2%**	(1.5) pts.
Total expense and other (income)	\$ 25,543**	\$ 26,186**	(2.5)%
Total expense and other (income)-to-revenue ratio	32.3%**	32.8%**	(0.5) pts.
Income from continuing operations before income taxes	\$ 11,400	\$ 12,330	(7.5)%
Provision for income taxes from continuing operations	\$ 5,642 ⁺	\$ 449	NM
Income from continuing operations	\$ 5,758 ⁺	\$ 11,881	(51.5)%
Income from continuing operations margin	7.3%	14.9%	(7.6) pts.
Loss from discontinued operations, net of tax	\$ (5)	\$ (9)	(44.7)%
Net income	\$ 5,753 ⁺	\$ 11,872	(51.5)%
Earnings per share from continuing operations:			
Assuming dilution	\$ 6.14 ⁺	\$ 12.39	(50.4)%
Consolidated earnings per share—assuming dilution	\$ 6.14 ⁺	\$ 12.38	(50.4)%
Weighted-average shares outstanding			
Assuming dilution	937.4	958.7	(2.2)%
Assets ⁺⁺	\$125,356	\$117,470	6.7%
Liabilities ⁺⁺	\$107,631	\$ 99,078	8.6%
Equity ⁺⁺	\$ 17,725	\$ 18,392	(3.6)%

* (1.3) percent adjusted for currency.

** Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

⁺ Includes a charge of \$5.5 billion associated with U.S. tax reform, or \$5.84 of diluted earnings per share in 2017.

⁺⁺ At December 31

NM—Not meaningful

The following table provides the company's operating (non-GAAP) earnings for 2017 and 2016.

(\$ in millions except per share amounts)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Net income as reported	\$ 5,753 ⁺	\$11,872	(51.5)%
Loss from discontinued operations, net of tax	(5)	(9)	(44.7)
Income from continuing operations	\$ 5,758 ⁺	\$11,881	(51.5)%
Non-operating adjustments (net of tax)			
Acquisition-related charges	718	735	(2.3)
Non-operating retirement-related costs/(income)	856**	265**	223.3
U.S. tax reform charge	5,475	—	NM
Operating (non-GAAP) earnings*	\$12,807**	\$12,880**	(0.6)%
Diluted operating (non-GAAP) earnings per share	\$ 13.66**	\$ 13.44**	1.6%

* See page 58 for a more detailed reconciliation of net income to operating (non-GAAP) earnings.

** Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

⁺ Includes a charge of \$5.5 billion associated with U.S. tax reform.

NM—Not meaningful

Snapshot

In 2017, the company reported \$79.1 billion in revenue and \$5.8 billion in income from continuing operations, which included a charge of \$5.5 billion associated with the enactment of U.S. tax reform. Operating (non-GAAP) earnings were \$12.8 billion, which excluded the tax reform charge. Diluted earnings per share from continuing operations were \$6.14 as reported and \$13.66 on an operating (non-GAAP) basis. The company generated \$16.7 billion in cash from operations, \$13.0 billion in free cash flow and delivered shareholder returns of \$9.8 billion in gross common stock repurchases and dividends.

Total consolidated revenue in 2017 decreased 1.0 percent as reported and 1 percent year to year adjusted for currency. The company returned to revenue growth in the fourth quarter with an increase of 3.6 percent as reported and 1 percent adjusted for currency. Year-to-year revenue performance improved sequentially in the second half of 2017 compared to first-half performance. Contributors to the second-half improvement included: momentum in cloud and as-a-Service offerings, strong Systems growth across IBM Z, Power Systems and Storage Systems, improved software transactional performance and improved growth in Consulting.

Cognitive Solutions increased 1.5 percent as reported and 1 percent adjusted for currency with growth in Solutions Software and Transaction Processing Software as reported and adjusted for currency. Solutions Software performance included growth in annuity revenue, led by as-a-Service solutions. Global Business Services decreased 2.1 percent as reported and 2 percent adjusted for currency with declines across all lines of business. GBS strategic imperatives revenue increased 10 percent as reported and adjusted for currency year to year as the business shifted resources and moved into the high-value strategic areas of digital, cloud and analytics. Technology Services & Cloud Platforms decreased 3.0 percent as reported and 3 percent adjusted for currency, primarily driven by a decline in Infrastructure Services. Technology Services & Cloud Platforms strategic imperatives revenue was up 19 percent as reported and 18 percent adjusted for currency year to year, driven by hybrid cloud services, security and mobile. Systems increased 6.2 percent as reported and 5 percent adjusted for currency driven by strong contribution from the z14 mainframe in the second half of 2017 and growth in Storage Systems.

The company continued to deliver solid growth in its strategic imperatives which generated \$36.5 billion of revenue and grew 11 percent as reported and adjusted for currency. Total Cloud revenue of \$17.0 billion increased 24 percent as reported and adjusted for currency, with as-a-Service revenue up 31 percent as reported and adjusted for currency. The annual exit run rate for as-a-Service revenue increased to \$10.3 billion in 2017 compared to \$8.6 billion in 2016. Analytics revenue of \$20.6 billion increased 6 percent as reported and adjusted for currency. Mobile increased 19 percent as reported and adjusted for currency and Security increased 55 percent (54 percent adjusted for currency).

The consolidated gross margin of 46.7 percent decreased 1.5 points year to year and reflected investments and mix, partially offset by benefits from productivity. The operating (non-GAAP) gross margin of 47.2 percent decreased 1.6 points versus the prior year primarily driven by the same factors.

Total expense and other (income) decreased 2.5 percent in 2017 compared to the prior year. The year-to-year decrease was primarily the result of continued focus on efficiency in spending and reduced expenses for workforce transformation. This included a lower level of workforce rebalancing charges (3 points), lower operational spending (3 points) and a 2016 charge for real estate actions (1 point). The year-to-year decrease in total expense and other (income) was partially offset by higher retirement-related costs (3 points), spending related to acquisitions completed in the prior 12 months (1 point) and a decline in IP income (1 point). Total operating (non-GAAP) expense and other (income) decreased 6.2 percent year to year, driven primarily by the same factors, excluding the impact of higher non-operational retirement related costs.

Pre-tax income from continuing operations of \$11.4 billion decreased 7.5 percent and the pre-tax margin was 14.4 percent, a decrease of 1.0 points versus 2016. The continuing operations effective tax rate for 2017 was 49.5 percent, which included a charge of \$5.5 billion from the enactment of U.S. tax reform in December 2017, compared to 3.6 percent in 2016. The charge encompassed several elements, including taxes on accumulated overseas profits and the revaluation of certain deferred tax assets and liabilities. The low tax rate in 2016 was primarily the result of a refund (\$1.0 billion) of previously paid Japan taxes plus interest. Income from continuing operations of \$5.8 billion decreased 51.5 percent, impacted by the tax reform charge, and the net income margin was 7.3 percent, a decrease of 7.6 points versus 2016. Net income of \$5.8 billion decreased 51.5 percent

year to year. Operating (non-GAAP) pre-tax income from continuing operations of \$13.7 billion decreased 0.3 percent year to year and the operating (non-GAAP) pre-tax margin from continuing operations was 17.4 percent. Operating (non-GAAP) income from continuing operations of \$12.8 billion decreased 0.6 percent with an operating (non-GAAP) income margin from continuing operations of 16.2 percent, essentially flat year to year. The operating (non-GAAP) effective tax rate from continuing operations in 2017 was 6.8 percent, which included the effect of discrete tax benefits in the first and second quarters of 2017.

Diluted earnings per share from continuing operations of \$6.14 in 2017, which included the one-time charge associated with U.S. tax reform, decreased 50.4 percent year to year. Operating (non-GAAP) diluted earnings per share of \$13.66 increased 1.6 percent versus 2016. In 2017, the company repurchased 27.2 million shares of its common stock at a cost of \$4.3 billion.

At December 31, 2017, the balance sheet remained strong and well positioned to support the business over the long term. Cash, restricted cash and marketable securities at December 31, 2017 were \$12.8 billion, an increase of \$4.1 billion from December 31, 2016. Key drivers in the balance sheet and total cash flows were:

Total assets increased \$7.9 billion (\$3.0 billion adjusted for currency) from December 31, 2016 driven by:

- Increases in cash, restricted cash and marketable securities (\$4.1 billion), total receivables (\$2.9 billion), retirement plan assets (\$1.6 billion) and goodwill (\$0.6 billion); partially offset by
- Decreases in intangible assets (\$0.9 billion).

Total liabilities increased \$8.6 billion (\$4.0 billion adjusted for currency) from December 31, 2016 driven by:

- Increases in total debt (\$4.7 billion) and taxes (\$3.5 billion).

Total equity of \$17.7 billion decreased \$0.7 billion from December 31, 2016 as a result of:

- Decreases from dividends (\$5.5 billion) and share repurchases (\$4.3 billion); partially offset by
- Increases from net income (\$5.8 billion), retirement-related benefit plans (\$2.3 billion) and equity translation adjustments (\$0.8 billion).

The company generated \$16.7 billion in cash flow provided by operating activities, a decrease of \$0.4 billion compared to 2016, driven primarily by performance-related declines within net income and an increase in cash tax payments, partially offset by an increase in cash provided by receivables. Net cash used in investing activities of \$7.1 billion was \$3.8 billion lower than the prior year, primarily driven by a decrease in cash used for acquisitions (\$5.2 billion). Net cash used in financing activities of \$6.4 billion increased \$0.5 billion compared to 2016, driven primarily by increased gross common share repurchases (\$0.8 billion).

Results of Continuing Operations

Segment Details

The following is an analysis of the 2017 versus 2016 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:	2017	2016	Yr.-to-Yr. Percent/ Margin Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Revenue				
Cognitive Solutions	\$18,453	\$18,187	1.5%	1.0%
Gross margin	78.6%*	81.8%*	(3.2) pts.	
Global Business Services	16,348	16,700	(2.1)%	(1.8)%
Gross margin	24.9%*	26.7%*	(1.8) pts.	
Technology Services & Cloud Platforms	34,277	35,337	(3.0)%	(3.4)%
Gross margin	40.3%*	41.8%*	(1.5) pts.	
Systems	8,194	7,714	6.2%	5.4%
Gross margin	53.2%*	55.7%*	(2.5) pts.	
Global Financing	1,696	1,692	0.3%	(0.7)%
Gross margin	29.3%	38.7%	(9.4) pts.	
Other	171	289	(40.7)%	(41.1)%
Gross margin	(173.9)%*	(184.7)%*	10.8 pts.	
Total consolidated revenue	\$79,139	\$79,919	(1.0)%	(1.3)%
Total consolidated gross profit	\$36,943*	\$38,516*	(4.1)%	
Total consolidated gross margin	46.7%*	48.2%*	(1.5) pts.	
Non-operating adjustments				
Amortization of acquired intangible assets	449	494	(9.2)%	
Retirement-related costs/(income)	—*	—*	—%	
Operating (non-GAAP) gross profit	\$37,392*	\$39,010*	(4.1)%	
Operating (non-GAAP) gross margin	47.2%*	48.8%*	(1.6) pts.	

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Cognitive Solutions

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Cognitive Solutions external revenue	\$18,453	\$18,187	1.5%	1.0%
Solutions Software	\$12,806	\$12,589	1.7%	1.3%
Transaction Processing Software	5,647	5,598	0.9	0.3

The growth in Solutions Software revenue was led by key areas including security, industry platforms and Watson offerings, as the company continued to embed cognitive into its security offerings and drive vertical solutions. The company continued to expand the market for Watson Health which had strong double-digit revenue growth as reported and adjusted for currency compared to the prior year. There was year-to-year growth in annuity revenue as reported and at constant currency with strong double-digit growth in SaaS revenue as reported and adjusted

for currency. Transaction Processing Software revenue grew as reported, but was essentially flat adjusted for currency compared to the prior year.

Cognitive Solutions total strategic imperatives revenue of \$12.0 billion grew 2 percent year to year as reported and adjusted for currency. Cloud revenue of \$2.5 billion grew 19 percent as reported and adjusted for currency, with an as-a-Service exit run rate of \$2.1 billion.

Management Discussion

International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent/ Margin Change
Cognitive Solutions			
External gross profit	\$14,503	\$14,883	(2.6)%
External gross profit margin	78.6%	81.8%	(3.2)pts.
Pre-tax income	\$ 6,795	\$ 6,325	7.4%
Pre-tax margin	32.2%	30.4%	1.8pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Gross margin in Cognitive Solutions was impacted by continued investment and an increased mix toward SaaS. There was also a higher level of royalty cost associated with IP licensing agreements compared to the prior year.

Global Business Services

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Global Business Services external revenue	\$16,348	\$16,700	(2.1)%	(1.8)%
Consulting	\$ 7,262	\$ 7,332	(1.0)%	(0.4)%
Global Process Services	1,265	1,388	(8.8)	(9.0)
Application Management	7,821	7,980	(2.0)	(1.9)

Global Business Services revenue decreased in 2017 compared to the prior year, with declines across Consulting, GPS and Application Management. The company continued to transform this business and shift its practices to digital, cognitive and cloud. Total strategic imperatives revenue of \$9.8 billion grew 10 percent as reported and adjusted for currency year to year. Cloud revenue of \$4.0 billion grew 34 percent as reported (35 percent adjusted for currency), with an as-a-Service exit run rate of \$1.3 billion. However, this growth was more than offset by declines in the more traditional areas that the company has been shifting away from such as large ERP and on-premise enterprise application implementation.

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent/ Margin Change
Global Business Services			
External gross profit	\$4,077	\$4,457	(8.5)%
External gross profit margin	24.9%	26.7%	(1.8)pts.
Pre-tax income	\$1,362	\$1,683	(19.0)%
Pre-tax margin	8.2%	9.8%	(1.7)pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Profit performance for 2017 was impacted by investments to drive transformation and reflected pricing and profit pressure in the more traditional IT services. The company's continued focus is on improving productivity with a streamlined practice model and new project management approaches.

Technology Services & Cloud Platforms

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Technology Services & Cloud Platforms external revenue	\$34,277	\$35,337	(3.0)%	(3.4)%
Infrastructure Services	\$22,690	\$23,543	(3.6)%	(4.1)%
Technical Support Services	7,196	7,272	(1.0)	(1.5)
Integration Software	4,390	4,521	(2.9)	(3.4)

Technology Services & Cloud Platforms revenue decreased in 2017 compared to the prior year, with declines across all lines of business. The revenue decline in Infrastructure Services reflected the impact of contract conclusions at the end of 2016 and the shift away from lower-value work within the business. While Technical Support Services also declined year to year, the company focused on growing its multi-vendor support services providing clients a single source of expertise across different vendor solutions. Within Integration Software, although the annuity base remained relatively stable year to year in 2017, transactional revenue declined as the portfolio shifted to the IBM Cloud. Strategic imperatives revenue of \$10.4 billion grew 19 percent year to year as reported (18 percent adjusted for currency). Cloud revenue of \$7.1 billion grew 21 percent as reported (20 percent adjusted for currency), with an as-a-Service exit run rate of \$6.9 billion.

The TS&CP gross profit margin decline in 2017 was driven primarily by large contract conclusions, delays in productivity improvements, mix from Integration Software and investments in cloud, which were partially offset by savings from prior-year workforce rebalancing. Pre-tax income performance included a lower level of charges related to workforce and real estate actions in 2017 compared to 2016.

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent/ Margin Change
Technology Services & Cloud Platforms			
External Technology Services gross profit	\$10,215	\$10,927	(6.5)%
External Technology Services gross profit margin	34.2%	35.5%	(1.3) pts.
External Integration Software gross profit	\$ 3,587	\$ 3,830	(6.4)%
External Integration Software gross profit margin	81.7%	84.7%	(3.0) pts.
External total gross profit	\$13,802	\$14,757	(6.5)%
External total gross profit margin	40.3%	41.8%	(1.5) pts.
Pre-tax income	\$ 4,286	\$ 4,643	(7.7)%
Pre-tax margin	12.3%	12.9%	(0.6) pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Systems

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Systems external revenue	\$8,194	\$7,714	6.2%	5.4%
Systems Hardware	\$6,494	\$5,926	9.6%	8.6%
IBM Z			24.0	22.3
Power Systems			(3.7)	(4.3)
Storage Systems			7.7	7.0
Operating Systems Software	1,701	1,788	(4.9)	(5.3)

The year-to-year growth in Systems revenue was driven by a combination of strong z14 market acceptance following its successful launch in the third quarter of 2017 and growth in Storage Systems. In 2017, all-flash array offerings were a catalyst for Storage Systems growth, with strong double-digit growth throughout the year. Power Systems revenue decreased with declines in the mid-range and low-range products, partially offset by growth in the high-end. This performance reflected the company's shift to a growing Linux market while continuing to serve a high-value, but declining UNIX market. Total strategic imperatives revenue of \$4.3 billion grew 28 percent year to year as reported (26 percent adjusted for currency). Cloud revenue of \$3.4 billion grew 26 percent as reported (25 percent adjusted for currency).

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent/ Margin Change
Systems			
External Systems Hardware gross profit	\$2,893	\$2,719	6.4%
External Systems Hardware gross profit margin	44.6%	45.9%	(1.3)pts.
External Operating Systems Software gross profit	\$1,469	\$1,577	(6.9)%
External Operating Systems Software gross profit margin	86.4%	88.2%	(1.8)pts.
External total gross profit	\$4,362	\$4,296	1.5%
External total gross profit margin	53.2%	55.7%	(2.5)pts.
Pre-tax income	\$1,128	\$ 925	21.9%
Pre-tax margin	12.6%	10.9%	1.7pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

The Systems gross profit margin decrease was driven by margin declines across all product lines, partially offset by product mix primarily toward higher margin IBM Z, reflecting product cycle dynamics. Pre-tax income growth was driven by the strong performance in Systems Hardware. Overall 2017 performance reflected a successful repositioning of the business through continuous reinvention of core platforms and expansion into new workloads.

Global Financing

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Results of Operations			
External revenue	\$1,696	\$1,692	0.3%
Internal revenue	1,471	1,802	(18.4)
Total revenue	\$3,168	\$3,494	(9.3)%
Pre-tax income	\$1,278*	\$1,654*	(22.8)%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

The decline in Global Financing total revenue was driven by a decline in internal revenue with external revenue essentially flat compared to the prior year. External revenue grew 0.3 percent due to an increase in external used equipment sales (up 14.9 percent), partially offset by a decline in external financing (down 5.2 percent). The decline in internal revenue of 18.4 percent was driven by a decrease in internal used equipment sales (down 25.2 percent), partially offset by an increase in internal financing (up 13.9 percent). The decrease in Global Financing pre-tax income was primarily driven by a decrease in gross profit, partially offset by a decline in financing receivables provisions.

Geographic Revenue

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

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent Change	Yr.-to-Yr. Percent Change Adjusted for Currency
Total revenue	\$79,139	\$79,919	(1.0)%	(1.3)%
Americas	\$37,641	\$37,697	(0.1)%	(0.6)%
Europe/Middle East/Africa	24,397	24,805	(1.6)	(2.7)
Asia Pacific	17,102	17,417	(1.8)	(0.9)

* Recast to conform to 2018 presentation.

Americas revenue was essentially flat year to year as reported, but decreased 1 percent adjusted for currency with a decline in North America partially offset by growth in Latin America, both as reported and adjusted for currency. Within North America, the U.S. decreased 1.4 percent and Canada increased 4.9 percent (3 percent adjusted for currency). In Latin America, Brazil increased 7.6 percent (1 percent adjusted for currency) and Mexico increased 9.2 percent (10 percent adjusted for currency).

EMEA revenue decreased 1.6 percent as reported and 3 percent adjusted for currency. The UK decreased 11.2 percent (7 percent adjusted for currency) and Germany decreased 3.2 percent (6 percent adjusted for currency). France increased 6.7 percent (4 percent adjusted for currency), and Spain was up 8.3 percent (6 percent adjusted for currency).

Asia Pacific revenue decreased 1.8 percent as reported and 1 percent adjusted for currency. Japan decreased 1.2 percent as reported, but increased 2 percent adjusted for currency. India grew 8.6 percent as reported and 5 percent adjusted for currency. China decreased 9.7 percent (9 percent adjusted for currency) and Australia decreased 5.8 percent (9 percent adjusted for currency).

Total Expense and Other (Income)

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent/ Margin Change
Total consolidated expense and other (income)	\$25,543*	\$26,186*	(2.5)%
Non-operating adjustments			
Amortization of acquired intangible assets	(496)	(503)	(1.4)
Acquisition-related charges	(52)	(5)	NM
Non-operating retirement-related (costs)/income	(1,341)*	(448)*	199.5
Operating (non-GAAP) expense and other (income)	\$23,654*	\$25,230*	(6.2)%
Total consolidated			
expense-to-revenue ratio	32.3%*	32.8%*	(0.5)pts.
Operating (non-GAAP)			
expense-to-revenue ratio	29.9%*	31.6%*	(1.7)pts.

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Management Discussion

International Business Machines Corporation and Subsidiary Companies

Selling, General and Administrative Expense

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Selling, general and administrative expense			
Selling, general and administrative—other	\$17,100*	\$17,513*	(2.4)%
Advertising and promotional expense	1,445	1,327	8.9
Workforce rebalancing charges	199	1,038	(80.9)
Amortization of acquired intangible assets	496	503	(1.4)
Stock-based compensation	384	401	(4.1)
Bad debt expense	55	87	(36.5)
Total consolidated selling, general and administrative expense	\$19,680*	\$20,869*	(5.7)%
Non-operating adjustments			
Amortization of acquired intangible assets	(496)	(503)	(1.4)
Acquisition-related charges	(13)	2	NM
Non-operating retirement-related (costs)/income	—*	—*	—
Operating (non-GAAP) selling, general and administrative expense	\$19,170*	\$20,368*	(5.9)%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Total SG&A expense decreased 5.7 percent in 2017 versus 2016, driven primarily by the following factors:

- Lower workforce rebalancing charges (4 points); and
- Lower spending (3 points); partially offset by
- Spending related to acquisitions in the prior 12 months (1 point).

Operating (non-GAAP) SG&A expense decreased 5.9 percent year to year driven primarily by the same factors.

Bad debt expense decreased \$32 million in 2017 compared to 2016. The receivables provision coverage was 1.6 percent at December 31, 2017, a decrease of 40 basis points from December 31, 2016.

Research, Development and Engineering Expense

(\$ in millions)

For the year ended December 31:	2017*	2016*	Yr.-to-Yr. Percent Change
Total consolidated research, development and engineering			
	\$5,590	\$5,726	(2.4)%
Non-operating adjustment			
Non-operating retirement-related (costs)/income	—	—	—
Operating (non-GAAP) research, development and engineering	\$5,590	\$5,726	(2.4)%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

RD&E expense was 7.1 percent of revenue in 2017 and 7.2 percent of revenue in 2016.

RD&E expense decreased 2.4 percent in 2017 versus 2016 primarily driven by:

- Lower spending (4 points); partially offset by
- The impact of acquisitions completed in the prior 12-month period (1 point); and
- The effects of currency.

Intellectual Property and Custom Development Income

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Licensing of intellectual property including royalty-based fees	\$1,193	\$1,390	(14.1)%
Custom development income	252	214	17.5
Sales/other transfers of intellectual property	21	27	(24.2)
Total	\$1,466	\$1,631	(10.2)%

Licensing of intellectual property including royalty-based fees decreased 14.1 percent in 2017 compared to 2016. The company entered into new partnership agreements in 2017, which included three transactions with period income greater than \$100 million, compared to four transactions greater than \$100 million in 2016.

Other (Income) and Expense

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Other (income) and expense			
Foreign currency transaction losses/(gains)	\$ 405	\$(116)	NM
(Gains)/losses on derivative instruments	(341)	260	NM
Interest income	(144)	(108)	33.5%
Net (gains)/losses from securities and investment assets	(20)	23	NM
Retirement-related costs/(income)	1,341*	448*	199.5%
Other	(116)	85	NM
Total consolidated other (income) and expense	\$ 1,125*	\$ 593*	89.8%
Non-operating adjustments			
Acquisition-related charges	(39)	(7)	444.6
Non-operating retirement-related (costs)/income	(1,341)*	(448)*	199.5
Operating (non-GAAP) other (income) and expense	\$ (255)	\$ 138	NM

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

NM—Not meaningful

Total consolidated other (income) and expense was expense of \$1,125 million in 2017 compared to \$593 million in 2016. The increase in expense of \$532 million year over year was primarily driven by:

- Higher retirement-related costs (\$893 million); and
- Lower gains on divestitures (\$61 million); partially offset by
- Real estate capacity charges (reflected in Other in the table above) in 2016 related to workforce transformation (\$328 million); and
- Lower net exchange losses (\$81 million).

Interest Expense

(\$ in millions)

For the year ended December 31:	2017	2016	Yr.-to-Yr. Percent Change
Interest expense			
Total	\$615	\$630	(2.3)%

Interest expense decreased \$15 million compared to 2016. Interest expense is presented in cost of financing in the Consolidated Statement of Earnings only if the related external borrowings are to support the Global Financing external business. Overall interest expense (excluding capitalized interest) in 2017 was \$1,273 million, an increase of \$67 million year to year, primarily driven by higher average interest rates.

Income Taxes

The continuing operations effective tax rate for 2017 was 49.5 percent, an increase of 45.8 points versus the prior year. The fourth-quarter 2017 charge of \$5.5 billion related to the impact of the enactment of the U.S. Tax Cuts and Jobs Act resulted in an increase to the effective tax rate of 48.0 points. Without this impact, the continuing operations tax rate would have been 1.5 percent compared to a 2016 rate of 3.6 percent, with the remaining change in the rate year to year driven by the following factors:

- An increased benefit year to year in the utilization of foreign tax credits of 5.4 points;
- A benefit related to an intra-entity asset transfer in the first quarter of 2017 of 5.1 points;
- A benefit due to the tax write down of an investment in the fourth quarter of 2017 of 1.7 points; and
- A benefit due to the geographic mix of pre-tax earnings in 2017 of 1.0 points; partially offset by
- The favorable resolution of the longstanding tax matter in Japan in 2016 of 9.5 points; and
- An increase year to year in tax charges related to intercompany payments of 1.5 points.

The continuing operations operating (non-GAAP) effective tax rate was 6.8 percent, an increase of 0.2 points versus 2016, principally driven by the same factors described above. In 2017, the geographic and product mix of pre-tax earnings were more favorable than the company expected and there was increased utilization of foreign tax credits. These impacts drove the underlying continuing operations operating (non-GAAP) effective tax rate to approximately 12 percent before discrete period benefits.

Financial Position

Cash, restricted cash and marketable securities at December 31, 2017 were \$12,842 million. During 2017, the company continued to manage the investment portfolio to meet its capital preservation and liquidity objectives.

Total debt of \$46,824 million increased \$4,655 million from prior year-end levels. The commercial paper balance at December 31, 2017 was \$1,496 million, an increase of \$597 million from the prior year end. Within total debt, \$31,434 million was in support of the Global Financing business which was leveraged at a 9.0 to 1 ratio. During 2017, the company completed bond issuances totaling \$7,986 million, with terms ranging from 2 to 12 years, and interest rates ranging from 0.95 to 3.30 percent depending on maturity. This included IBM Credit's first public debt issuance of \$3,000 million in September 2017. The company generated strong cash flow from operations and continued to have access to additional sources of liquidity through the capital markets and its Credit Facilities.

Consistent with accounting standards, the company remeasured the funded status of its retirement and postretirement plans at December 31. At December 31, 2017, the overall net underfunded position was \$12,890 million, a decrease of \$1,949 million from December 31, 2016 driven by asset returns, partially

Management Discussion

International Business Machines Corporation and Subsidiary Companies

offset by interest cost and a decrease in discount rates. The company's qualified defined benefit plans were well funded and the cash requirements related to these plans remain stable going forward at approximately \$400 million per year through 2020. In 2017, the return on the U.S. Personal Pension Plan assets was 9.6 percent and the plan was 104 percent funded at December 31. Overall, global asset returns were 8.3 percent and the qualified defined benefit plans worldwide were 100 percent funded at December 31, 2017.

During 2017, the company generated \$16,724 million in cash from operations, a decrease of \$360 million compared to 2016. In addition, the company generated \$12,992 million in free cash flow, an increase of \$1,293 million versus the prior year. The company returned \$9,847 million to shareholders in 2017, with \$5,506 million in dividends and \$4,340 million in gross share repurchases. In 2017, the company repurchased 27.2 million shares.

GAAP Reconciliation

The following tables 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. Refer to the "Operating (non-GAAP) Earnings" section on pages 18 and 19 for the company's rationale for presenting operating earnings information.

(\$ in millions except per share amounts)

For the year ended December 31, 2017:	GAAP**	Acquisition-Related Adjustments	Retirement-Related Adjustments**	Tax Reform Charge	Operating (non-GAAP)**
Gross profit	\$36,943	\$ 449	\$ —	\$ —	\$37,392
Gross profit margin	46.7%	0.6 pts.	— pts.	— pts.	47.2%
SG&A	\$19,680	\$(509)	\$ —	\$ —	\$19,170
RD&E	5,590	—	—	—	5,590
Other (income) and expense	1,125	(39)	(1,341)	—	(255)
Total expense and other (income)	25,543	(548)	(1,341)	—	23,654
Pre-tax income from continuing operations	11,400	997	1,341	—	13,738
Pre-tax margin from continuing operations	14.4%	1.3 pts.	1.7 pts.	— pts.	17.4%
Provision for income taxes*	\$ 5,642	\$ 279	\$ 485	\$(5,475)	\$ 931
Effective tax rate	49.5%	(1.6) pts.	(1.3) pts.	(39.9) pts.	6.8%
Income from continuing operations	\$ 5,758	\$ 718	\$ 856	\$ 5,475	\$12,807
Income margin from continuing operations	7.3%	0.9 pts.	1.1 pts.	6.9 pts.	16.2%
Diluted earnings per share from continuing operations	\$ 6.14	\$0.77	\$ 0.91	\$ 5.84	\$ 13.66

* 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.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

(\$ in millions except per share amounts)

For the year ended December 31, 2016:	GAAP**	Acquisition-Related Adjustments	Retirement-Related Adjustments**	Operating (non-GAAP)**
Gross profit	\$38,516	\$ 494	\$ —	\$39,010
Gross profit margin	48.2%	0.6 pts.	— pts.	48.8%
SG&A	\$20,869	\$ (501)	\$ —	\$20,368
RD&E	5,726	—	—	5,726
Other (income) and expense	593	(7)	(448)	138
Total expense and other (income)	26,186	(508)	(448)	25,230
Pre-tax income from continuing operations	12,330	1,003	448	13,780
Pre-tax margin from continuing operations	15.4%	1.3 pts.	0.6 pts.	17.2%
Provision for income taxes*	\$ 449	\$ 268	\$ 183	\$ 900
Effective tax rate	3.6%	1.7 pts.	1.2 pts.	6.5%
Income from continuing operations	\$11,881	\$ 735	\$ 265	\$12,880
Income margin from continuing operations	14.9%	0.9 pts.	0.3 pts.	16.1%
Diluted earnings per share from continuing operations	\$ 12.39	\$ 0.77	\$ 0.28	\$ 13.44

* 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.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

OTHER INFORMATION**Looking Forward**

The company's strategies, investments and actions are all made with an objective of optimizing long-term performance. A long-term perspective ensures that the company is well-positioned to take advantage of the major shifts in technology, business and the global economy.

As part of its long-term strategic model, the company expects to continue to allocate capital efficiently and effectively to investments, and to return value to shareholders through a combination of dividends and share repurchases. Over the long term, in consideration of the opportunities it will continue to develop, the company continues to expect to have the ability to generate low single-digit revenue growth, and with a higher-value business mix, mid single-digit profit growth, high single-digit operating (non-GAAP) earnings per share growth, with free cash flow realization of GAAP net income over 90 percent.

Over the last several years, the company has been making investments and shifting resources, embedding AI and cloud into its offerings while building new solutions and modernizing its existing platforms. These investments not only drive current performance, but will extend the company's innovation leadership into the future. The company's key differentiators are built around three pillars—innovative technology, industry expertise and trust and security, uniquely delivered through an integrated model.

IBM's proposed acquisition of Red Hat will bring together the best-in-class hybrid cloud providers and will enable companies to securely unlock the full value of cloud for their businesses. IBM and Red Hat will be strongly positioned to address this opportunity and accelerate hybrid cloud adoption. The company is proceeding through the regulatory process and expects to close the transaction in the second half of 2019. The acquisition of Red Hat reinforces IBM's high-value model. It is expected to accelerate IBM's revenue growth, gross margin and be accretive to free cash flow within 12 months of closing. The company will continue with a disciplined financial policy and is committed to maintaining strong investment-grade credit ratings and supporting a solid and growing dividend. The company will target a leverage profile consistent with a mid to high single A credit rating. In order to reduce debt, the company intends to suspend its share repurchase program in 2020 and 2021.

At mid-January 2019 spot rates, the company expects a 4 point currency headwind to first quarter 2019 revenue growth, which is approximately two points worse than the year-to-year impact realized in the fourth quarter of 2018. The company expects 1 to 2 point sequential improvement in revenue growth at constant currency from the fourth quarter 2018 to the first quarter 2019. For full-year 2019, the company expects to expand gross and pre-tax margins.

Overall, the company expects GAAP earnings per share from continuing operations for 2019 to be at least \$12.45. Excluding acquisition-related charges of \$0.91 per share, non-operating retirement-related items of \$0.45 per share and tax reform enactment impacts of \$0.09 per share, operating (non-GAAP) earnings per share is expected to be at least \$13.90. For the first

quarter of 2019, the company expects GAAP earnings per share from continuing operations and operating (non-GAAP) earnings per share to be approximately 16 percent of the respective full-year expectations. In January 2019, the company announced the intent to divest certain software products and its mortgage-servicing business during the year. The estimates of the impacts from these divestitures are not dependent on timing of closing and have been included in the full-year earnings per share expectations. However, earnings per share expectations do not include Red Hat, as financial implications for 2019 are heavily dependent on the timing of the closing. Expectations will be updated after the transaction closes.

The company expects free cash flow to be approximately \$12 billion in 2019. Free cash flow expectations for the year reflect expected operational profit performance and continued working capital efficiency, partially offset by a cash tax headwind. Free cash flow realization, which is defined as free cash flow to income from continuing operations (GAAP), is expected to be approximately 100 percent for the year. These expectations also take into account the estimated impact of the announced divestitures of the select IBM software products and mortgage servicing business and an estimate of pre-closing financing costs associated with the Red Hat acquisition.

For full-year 2019, the company expects the GAAP effective tax rate to be approximately 14 percent, excluding discrete items. The company expects its operating (non-GAAP) tax rate for 2019 to be approximately 11 to 12 percent (which is a 3 to 4 points headwind year to year), including an estimate of potential discrete items. 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.

Beginning in the second quarter of 2019 and continuing throughout the year, IBM's Global Financing business will begin winding down the portion of its commercial financing operations which provides short-term working capital solutions for OEM information technology suppliers, distributors and resellers. IBM Global Financing will continue to provide differentiated end-to-end financing solutions, including commercial financing in support of IBM partner relationships. The wind down of this activity is expected to reduce IBM's revenue, with a nominal impact to profit, however, it does not change the company's earnings per share and free cash flow expectations for 2019.

Beginning in 2019, within the IBM U.S. Qualified Personal Pension Plan, substantially all the plan participants are now considered inactive, which, as required by U.S. GAAP, results in a change in the amortization period of unrecognized actuarial losses, from the average remaining service period of active plan participants to the average remaining life expectancy of inactive plan participants. These periods are approximately 6 years and

18 years, respectively. As a result of this change, there will be a reduction to 2019 amortization expense of approximately \$900 million. Actuarial loss amortization is reported within non-operating pension costs. There will be no impact to 2019 operating (non-GAAP) retirement-related costs, funded status, retiree benefit payments or funding requirements of the U.S. Qualified Personal Pension Plan. However, there will be an impact to free cash flow realization in 2019.

The company expects 2019 pre-tax retirement-related plan cost to be approximately \$2.0 billion, a decrease of approximately \$1 billion compared to 2018. This estimate reflects current pension plan assumptions at December 31, 2018. Within total retirement-related plan cost, operating retirement-related plan cost is expected to be approximately \$1.5 billion, approximately flat versus 2018. Non-operating retirement-related plan cost is expected to be approximately \$0.6 billion, a decrease of approximately \$1 billion compared to 2018, primarily driven by lower actuarial loss amortization resulting from the change in amortization period for the U.S. plan. Contributions for all retirement-related plans are expected to be approximately \$2.4 billion in 2019, an increase of approximately \$100 million compared to 2018.

Liquidity and Capital Resources

The company has consistently generated strong cash flow from operations, providing a source of funds ranging between \$15.2 billion and \$17.1 billion per year over the past three years. The company provides for additional liquidity through several sources: maintaining an adequate cash balance, access to 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, 2016 through 2018.

Cash Flow and Liquidity Trends

(\$ in billions)

	2018	2017	2016
Net cash from operating activities	\$15.2	\$16.7	\$17.1
Cash, restricted cash and short-term marketable securities	\$12.2	\$12.8*	\$ 8.8*
Committed global credit facilities	\$15.3	\$15.3	\$10.3

* Recast to reflect adoption of the FASB guidance on restricted cash.

On October 28, 2018, IBM announced its intent to acquire all the outstanding shares of Red Hat. The transaction is subject to customary closing conditions, including regulatory clearance. The company intends to fund this transaction through a combination of cash and debt. In connection with this acquisition, IBM entered into a commitment letter under which certain banks committed to provide the company with a 364-day unsecured bridge term loan facility in an aggregate principal amount of up to \$20 billion to fund the acquisition.

The major rating agencies' ratings on the company's debt securities at December 31, 2018 appear in the table below. As a result of the proposed Red Hat transaction, in the fourth quarter of 2018, Standard and Poor's lowered IBM and IBM Credit's long-term debt rating to A from A+, with no change to the short-term debt rating of A-1, and Fitch Ratings has lowered IBM and IBM Credit's long-term debt rating to A from A+, with no change to the short-term debt rating of F1. Moody's placed IBM and IBM Credit's long-term debt rating of A1 under review for downgrade, with no change to the short-term debt rating of Prime-1. IBM will continue with a disciplined financial policy and is committed to maintaining strong investment-grade credit ratings.

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 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 certification 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.

The company does not have "ratings trigger" provisions in its 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. The company's contractual agreements governing derivative instruments contain standard market clauses which can trigger the termination of the agreement if the company's credit rating were to fall below investment grade. At December 31, 2018, the fair value of those instruments that were in a liability position was \$383 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. The company has no other contractual arrangements that, in the event of a change in credit rating, would result in a material adverse effect on its financial position or liquidity.

	Standard and Poor's	Moody's Investors Service	Fitch Ratings
IBM and IBM Credit Ratings			
Senior long-term debt	A	A1	A
Commercial paper	A-1	Prime-1	F1

The company prepares its Consolidated Statement of Cash Flows in accordance with applicable accounting standards for cash flow presentation on page 73 and highlights causes and events underlying sources and uses of cash in that format on page 40. For the purpose of running its business, the company 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. The company defines 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 outflows. As previously noted, the company views Global Financing receivables as a profit-generating investment which it seeks to maximize and therefore it is not considered when formulating guidance for free cash flow. As a result, the company does not estimate a GAAP Net Cash from Operations expectation metric.

From the perspective of how management views cash flow, in 2018, after investing \$3.7 billion in capital investments primarily in support of the services and cloud-based businesses, the company generated free cash flow of \$11.9 billion, a decrease of

\$1.1 billion compared to 2017. The decrease was primarily driven by higher capital expenditures, declines in sales cycle working capital and an increase in cash income tax payments.

In 2018, the company continued to focus its cash utilization on returning value to shareholders including \$5.7 billion in dividends and \$4.4 billion in gross common stock repurchases (32.9 million shares).

Over the past three years, the company generated over \$36 billion in free cash flow. During that period, the company invested over \$6 billion in strategic acquisitions and returned over \$28 billion to shareholders through dividends and gross share repurchases. The company's performance during this period demonstrates that there is fungibility across the elements of share repurchases, dividends and acquisitions. 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 on page 62. As a result of the proposed transaction to acquire Red Hat, subject to closing, the company intends to suspend its share repurchase program in 2020 and 2021.

The company's Board of Directors considers the dividend payment on a quarterly basis. In the second quarter of 2018, the Board of Directors increased the company's quarterly common stock dividend from \$1.50 to \$1.57 per share.

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

(\$ in billions)

For the year ended December 31:	2018	2017	2016
Net cash from operating activities per GAAP	\$15.2	\$16.7	\$17.1
Less: the change in Global Financing receivables	(0.3)	0.4	1.7
Net cash from operating activities, excluding Global Financing receivables	15.6	16.3	15.4
Capital expenditures, net	(3.7)	(3.3)	(3.7)
Free cash flow (FCF)	11.9	13.0	11.7
Acquisitions	(0.1)	(0.5)	(5.7)
Divestitures	—	(0.2)	(0.5)
Share repurchase	(4.4)	(4.3)	(3.5)
Common stock repurchases for tax withholdings	(0.2)	(0.2)	(0.1)
Dividends	(5.7)	(5.5)	(5.3)
Non-Global Financing debt	(0.5)	1.1	1.3
Other (includes Global Financing receivables and Global Financing debt)	(1.6)	0.8*	2.4*
Change in cash, cash equivalents, restricted cash and short-term marketable securities	\$ (0.6)	\$ 4.1*	\$ 0.4*
FCF as percent of Income from Continuing Operations	136%**	226%**	98%

* Recast to reflect adoption of the FASB guidance on restricted cash.

**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 M, "Contingencies and Commitments," on pages 115 to 117. With respect to pension funding, in 2018, the company contributed \$363 million to its non-U.S. defined benefit plans compared to \$409 million in 2017. As highlighted in the Contractual Obligations table, the company expects to make legally mandated pension plan contributions to certain non-U.S. plans of approximately \$1.8 billion in the next five years. The 2019 contributions are currently expected to be approximately \$400 million. Contributions related to all retirement-related plans are expected to be approximately \$2.4 billion in 2019,

an increase of approximately \$100 million compared to 2018. 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. The company is 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 2019, the company is not legally required to make any contributions to the U.S. defined benefit pension plans.

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

Contractual Obligations

(\$ in millions)

	Total Contractual Payment Stream	Payments Due In			
		2019	2020-21	2022-23	After 2023
Long-term debt obligations	\$43,155	\$ 7,048	\$13,914	\$ 7,736	\$14,457
Interest on long-term debt obligations	9,260	1,175	1,784	1,243	5,059
Capital (finance) lease obligations	41	3	5	5	28
Operating lease obligations	5,628	1,581	2,147	1,085	815
Purchase obligations	3,171	1,079	1,114	776	202
Other long-term liabilities:					
Minimum defined benefit plan pension funding (mandated)*	1,800	400	700	700	
Excess 401(k) Plus Plan	1,581	201	441	493	446
Long-term termination benefits	991	179	143	114	555
Tax reserves**	4,172	551			
Other	1,410	211	363	153	683
Total	\$71,209	\$12,427	\$20,611	\$12,305	\$22,245

* As funded status on plans will vary, obligations for mandated minimum pension payments after 2023 could not be reasonably estimated.

**These amounts represent the liability for unrecognized tax benefits. The company estimates that approximately \$551 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.

Total contractual obligations are reported in the previous table excluding the effects of time value and therefore, may not equal the amounts reported in the Consolidated Statement of Financial Position. 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 the company's 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) the company would incur a penalty if the agreement was canceled, or (3) the company must make specified minimum payments even if it does 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 the company 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, the company enters into contracts that specify that the company will purchase all or a portion of its 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, the company does not consider them to be purchase obligations.

Interest on floating-rate debt obligations is calculated using the effective interest rate at December 31, 2018, plus the interest rate spread associated with that debt, if any.

Off-Balance Sheet Arrangements

From time to time, the company 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, 2018, the company had no off-balance sheet arrangements that have, or are reasonably likely to have, a material current or future effect on the company's financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources. See the table on page 62 for the company's contractual obligations, and note M, "Contingencies and Commitments," on pages 115 to 117, for detailed information about the company's guarantees, financial commitments and indemnification arrangements. The company does 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 the company 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 the company considers to be the most critical to its 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 the company's financial condition. Senior management has discussed the development, selection and disclosure of these estimates with the Audit Committee of the company's Board of Directors. The company's significant accounting policies are described in note A, "Significant Accounting Policies," on pages 76 to 88.

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 the company's 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 company increased the discount rate assumption for the IBM Personal Pension Plan (PPP), a U.S.-based defined benefit plan, by 70 basis points to 4.10 percent on December 31, 2018. This change will decrease pre-tax income recognized in 2019 by an estimated \$17 million. If the discount rate assumption for the PPP had decreased by 70 basis points on December 31, 2018, pre-tax income recognized in 2019 would have increased by an estimated \$50 million. Further changes in the discount rate assumptions would impact the PBO which, in turn, may impact the company's 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 \$1.1 billion based upon December 31, 2018 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 \$248 million on the following year's pre-tax net periodic pension (income)/cost (based upon the PPP's plan assets at December 31, 2018 and assuming no contributions are made in 2019).

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

In addition to the above, the company evaluates other pension assumptions involving demographic factors, such as retirement age and mortality, and updates 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 the company's pension plans and the development of these assumptions, see note T, "Retirement-Related Benefits," on pages 127 to 141.

Revenue Recognition

Application of GAAP related to the measurement and recognition of revenue requires the company 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 the company's 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. The company considers 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 2018, the impact on net income would have been immaterial.

Costs to Complete Service Contracts

The company enters into numerous service contracts through its 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 the company uses cost-to-cost measures of progress (i.e. percentage-of-completion (POC) method of accounting). If at any time these estimates indicate the POC contract will be unprofitable, the entire estimated loss for the remainder of the contract is recorded immediately in cost. The company performs ongoing profitability analyses of its POC-based services contracts in order to determine whether the latest estimates require updating. Key factors reviewed by the company 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 \$24 million and \$25 million at December 31, 2018 and 2017, respectively.

Income Taxes

The company is 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, the company recognizes tax liabilities based on estimates of whether additional taxes and interest will be due. These tax liabilities are recognized when, despite the company's belief that its tax return positions are supportable, the company believes that certain positions may not be fully sustained upon review by tax authorities. The company believes that its accruals for tax liabilities are adequate for all open audit years based on its 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 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.

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. In the event that the company changes its determination as to the amount of deferred tax assets that can be realized, the company will adjust its 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 \$113 million in 2018.

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 the company 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 and indefinite-lived intangible assets, 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. The company's 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

The company reviews goodwill for impairment annually and whenever events or changes in circumstances indicate the carrying value of goodwill may not be recoverable. In 2018, the company 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.

The company assesses qualitative factors in each of its 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.

The company assesses 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 the company concludes that it is more likely than not that a reporting unit's fair value is less than its carrying amount. After performing the annual goodwill impairment qualitative analysis during the fourth quarter of 2018, the company determined it was not necessary to perform the two-step goodwill impairment test.

Loss Contingencies

The company is currently involved in various claims and legal proceedings. At least quarterly, the company reviews the status of each significant matter and assesses its potential financial exposure. If the potential loss from any claim or legal proceeding is considered probable and the amount can be reasonably estimated, the company accrues 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, the company reassesses the potential liability related to its pending claims and litigation, and may revise its estimates. These revisions in the estimates of the potential liabilities could have a material impact on the company's 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," on pages 76 to 88. 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 the company's income from continuing operations before income taxes would be higher or lower by an estimated \$29 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 impact the determination of whether a lease is classified as operating or capital. 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 the company's income from continuing operations before income taxes for 2018 would have been lower by an estimated \$70 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 the company's financial results and financial position. At December 31, 2018, currency changes resulted in assets and liabilities denominated in local currencies being translated into fewer dollars than at year-end 2017. The company uses 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, the company may use some of the advantage from a weakening U.S. dollar to improve its position competitively, and price more aggressively to win the business, essentially passing on a portion of the currency advantage to its customers. Competition will frequently take the same action. Consequently, the company believes that some of the currency-based changes in cost impact the prices charged to clients. The company also maintains currency hedging programs for cash management purposes which temporarily mitigate, but do not eliminate, the volatility of currency impacts on the company's financial results.

The company translates revenue, cost and expense in its 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 the company utilizes to disclose this information does not incorporate any operational actions that management could take to mitigate fluctuating currency rates. Currency movements impacted the company's year-to-year revenue and earnings per share growth in 2018. Based on the currency rate movements in 2018, total revenue increased 0.6 percent as reported and was flat at constant currency versus 2017. 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 2018, on both an as-reported basis and operating (non-GAAP) basis. The same mathematical exercise resulted in an increase of approximately \$100 million in 2017 on an as-reported basis and an operating (non-GAAP) basis. The company views these amounts as a theoretical maximum impact to its 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 the company believes 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, the company manages currency risk in these entities by linking prices and contracts to U.S. dollars.

During 2018 there were reported economic events impacting the Argentinean economy, such as significant depreciation of the Argentine peso, increases in interest rates and the Argentine government requesting financial assistance from the International Monetary Fund. The three-year cumulative inflation rates, 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. The ongoing impact from the change is not expected to be material given the size of the company's operations in the country (less than 1 percent of total 2018 revenue).

Market Risk

In the normal course of business, the financial position of the company 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.

The company regularly assesses these risks and has established policies and business practices to protect against the adverse effects of these and other potential exposures. As a result, the company does not anticipate any material losses from these risks.

The company's debt, in support of the Global Financing business and the geographic breadth of the company's operations, contains an element of market risk from changes in interest and currency rates. The company manages this risk, in part, through the use of a variety of financial instruments including derivatives, as described in note D, "Financial Instruments—Derivative Financial Instruments," on pages 97 to 102.

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

The financial instruments that are included in the sensitivity analysis are comprised of the company's 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. The company's derivative financial instruments generally include interest rate swaps, foreign currency swaps and forward contracts.

To perform the sensitivity analysis, the company assesses 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, 2018 and 2017. 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 the company 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, 2018 and 2017, are as follows:

Interest Rate Risk

At December 31, 2018, 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 the company's financial instruments of \$422 million as compared with a decrease of \$201 million at December 31, 2017. 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 the company's financial instruments of \$408 million as compared to an increase of \$232 million at December 31, 2017. Changes in the relative sensitivity of the fair value of the company's financial instrument portfolio for these theoretical changes in the level of interest rates are primarily driven by changes in the company's debt maturities, interest rate profile and amount.

Foreign Currency Exchange Rate Risk

At December 31, 2018, a 10 percent weaker U.S. dollar against foreign currencies, with all other variables held constant, would result in an increase in the fair value of the company's financial instruments of \$697 million as compared with an increase of \$363 million at December 31, 2017. Conversely, a 10 percent stronger U.S. dollar against foreign currencies, with all other variables held constant, would result in a decrease in the fair value of the company's financial instruments of \$697 million compared with a decrease of \$363 million at December 31, 2017.

Financing Risks

See the "Description of Business" on page 25 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, the company's approach draws on the depth and breadth of its global capabilities, both in terms of its offerings to clients and its internal approaches to risk management. The company offers commercial solutions that deliver capabilities in areas such as identity and access management, data security, application security, network security and endpoint security. IBM's solutions include pervasive encryption, security intelligence, analytics, cognitive and artificial intelligence, and forensic tools that can process information on customer IT security events and vulnerabilities and provide detailed information to customers about potential threats and security posture. The company also offers professional consulting and technical services solutions for security from assessment and incident response to deployment and resource augmentation. In addition, the company offers managed and outsourced security solutions from multiple security operations centers around the world. Finally, security is embedded in a multitude of IBM products and offerings through secure engineering and operations, and by critical functions (encryption, access control, etc.) in servers, storage, software, services and other solutions.

From an enterprise perspective, IBM implements a multi-faceted risk-management approach to identify and address cybersecurity risks. The company has established policies and procedures that provide the foundation upon which IBM's infrastructure and data are managed. IBM performs ongoing assessments regarding its technical controls and its methods for identifying emerging risks related to cybersecurity. The company uses a layered approach with overlapping controls to defend against cybersecurity attacks and threats on networks, end-user devices, servers, applications, data and cloud solutions. The company also has a security monitoring program and a global incident response process to respond to cybersecurity threats and attacks. In addition, the company utilizes a combination of online training, educational tools, videos and other awareness initiatives to foster a culture of security awareness and responsibility among its workforce.

Employees and Related Workforce

(In thousands)

For the year ended December 31:	2018
IBM/wholly owned subsidiaries	350.6
Less-than-wholly owned subsidiaries	9.4
Complementary	21.1

As a globally integrated enterprise, the company operates in more than 175 countries and is continuing to shift its business to the higher value segments of enterprise IT. The company continues to remix its 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**

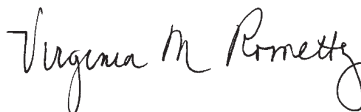
Management is responsible for establishing and maintaining adequate internal control over financial reporting of the company. Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial 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, 2018.

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 26, 2019



James J. Kavanaugh
Senior Vice President and Chief Financial Officer
February 26, 2019

**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 Statement of Financial Position of International Business Machines Corporation and its subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related Consolidated Statements of Earnings, Comprehensive Income, Changes in Equity, and Cash Flows for each of the three years in the period ended December 31, 2018, 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, 2018, 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, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 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, 2018, based on criteria established in *Internal Control—Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting appearing on page 68. 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.



PricewaterhouseCoopers LLP

New York, New York

February 26, 2019

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 Statement of Earnings
International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

For the year ended December 31:	Notes	2018	2017	2016
Revenue				
Services		\$51,350	\$50,709	\$51,268
Sales		26,641	26,715	26,942
Financing		1,599	1,715	1,710
Total revenue	O	79,591	79,139	79,919
Cost				
Services		34,059	33,811*	33,792*
Sales		7,464	7,175*	6,566*
Financing		1,132	1,210	1,044
Total cost		42,655	42,196*	41,403*
Gross profit				
		36,936	36,943*	38,516*
Expense and other (income)				
Selling, general and administrative		19,366	19,680*	20,869*
Research, development and engineering	P	5,379	5,590*	5,726*
Intellectual property and custom development income		(1,026)	(1,466)	(1,631)
Other (income) and expense		1,152	1,125*	593*
Interest expense	D&J	723	615	630
Total expense and other (income)		25,594	25,543*	26,186*
Income from continuing operations before income taxes				
		11,342	11,400	12,330
Provision for income taxes	N	2,619	5,642	449
Income from continuing operations				
		8,723	5,758	11,881
Income/(loss) from discontinued operations, net of tax		5	(5)	(9)
Net income		\$ 8,728	\$ 5,753	\$11,872
Earnings/(loss) per share of common stock				
Assuming dilution				
Continuing operations	Q	\$ 9.51	\$ 6.14	\$ 12.39
Discontinued operations	Q	0.01	0.00	(0.01)
Total	Q	\$ 9.52	\$ 6.14	\$ 12.38
Basic				
Continuing operations	Q	\$ 9.56	\$ 6.17	\$ 12.44
Discontinued operations	Q	0.01	0.00	(0.01)
Total	Q	\$ 9.57	\$ 6.17	\$ 12.43
Weighted-average number of common shares outstanding				
Assuming dilution		916,315,714	937,385,625	958,714,097
Basic		912,048,072	932,828,295	955,422,530

* Recast to reflect adoption of the FASB guidance on presentation of net periodic pension and nonpension postretirement benefit costs. Amounts may not add due to rounding.

The accompanying notes on pages 76 through 146 are an integral part of the financial statements.

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

(\$ in millions)

For the year ended December 31:	Notes	2018	2017	2016
Net income		\$ 8,728	\$5,753	\$11,872
Other comprehensive income/(loss), before tax				
Foreign currency translation adjustments	L	(730)	152	(20)
Net changes related to available-for-sale securities	L			
Unrealized gains/(losses) arising during the period		(2)	1	(38)
Reclassification of (gains)/losses to net income		—	1	34
Total net changes related to available-for-sale securities		(2)	2	(3)
Unrealized gains/(losses) on cash flow hedges	L			
Unrealized gains/(losses) arising during the period		(136)	(58)	243
Reclassification of (gains)/losses to net income		449	(363)	102
Total unrealized gains/(losses) on cash flow hedges		313	(421)	345
Retirement-related benefit plans	L			
Prior service costs/(credits)		(182)	0	—
Net (losses)/gains arising during the period		(2,517)	682	(2,490)
Curtailments and settlements		11	19	(16)
Amortization of prior service (credits)/costs		(73)	(88)	(107)
Amortization of net (gains)/losses		2,966	2,889	2,764
Total retirement-related benefit plans		204	3,502	150
Other comprehensive income/(loss), before tax	L	(215)	3,235	472
Income tax (expense)/benefit related to items of other comprehensive income	L	(262)	(429)	(263)
Other comprehensive income/(loss)	L	(476)	2,806	209
Total comprehensive income		\$ 8,252	\$8,559	\$12,081

Amounts may not add due to rounding.

The accompanying notes on pages 76 through 146 are an integral part of the financial statements.

Consolidated Statement of Financial Position
International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts)

At December 31:	Notes	2018	2017
Assets			
Current assets			
Cash and cash equivalents		\$ 11,379	\$ 11,972
Restricted cash		225	262*
Marketable securities	D	618	608
Notes and accounts receivable—trade (net of allowances of \$309 in 2018 and \$297 in 2017)		7,432	8,928
Short-term financing receivables (net of allowances of \$244 in 2018 and \$261 in 2017)	F	22,388	21,721
Other accounts receivable (net of allowances of \$38 in 2018 and \$36 in 2017)		743	981
Inventories	E	1,682	1,583
Deferred costs	O	2,300	1,820**
Prepaid expenses and other current assets		2,378	1,860***
Total current assets		49,146	49,735
Property, plant and equipment	G	32,460	32,331
Less: Accumulated depreciation	G	21,668	21,215
Property, plant and equipment—net	G	10,792	11,116
Long-term financing receivables (net of allowances of \$48 in 2018 and \$74 in 2017)	F	9,148	9,550
Prepaid pension assets	T	4,666	4,643
Deferred costs	O	2,676	2,136**
Deferred taxes	N	5,216	4,862
Goodwill	I	36,265	36,788
Intangible assets—net	I	3,087	3,742
Investments and sundry assets	H	2,386	2,783**
Total assets		\$ 123,382	\$ 125,356
Liabilities and equity			
Current liabilities			
Taxes	N	\$ 3,046	\$ 4,219
Short-term debt	D&J	10,207	6,987
Accounts payable		6,558	6,451
Compensation and benefits		3,310	3,644
Deferred income		11,165	11,552
Other accrued expenses and liabilities		3,941	4,510
Total current liabilities		38,227	37,363
Long-term debt	D&J	35,605	39,837
Retirement and nonpension postretirement benefit obligations	T	17,002	16,720
Deferred income		3,445	3,746
Other liabilities	K	12,174	9,965
Total liabilities		106,452	107,631
Contingencies and commitments	M		
Equity	L		
IBM stockholders' equity			
Common stock, par value \$.20 per share, and additional paid-in capital		55,151	54,566
Shares authorized: 4,687,500,000			
Shares issued (2018—2,233,427,058; 2017—2,229,428,813)			
Retained earnings		159,206	153,126
Treasury stock, at cost (shares: 2018—1,340,947,648; 2017—1,307,249,588)		(168,071)	(163,507)
Accumulated other comprehensive income/(loss)		(29,490)	(26,592)
Total IBM stockholders' equity		16,796	17,594
Noncontrolling interests	A	134	131
Total equity		16,929	17,725
Total liabilities and equity		\$ 123,382	\$ 125,356

* Recast to reflect adoption of the FASB guidance on restricted cash.

**Recast to conform to current period presentation.

Amounts may not add due to rounding.

The accompanying notes on pages 76 through 146 are an integral part of the financial statements.

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Cash flows from operating activities			
Net income	\$ 8,728	\$ 5,753	\$11,872
Adjustments to reconcile net income to cash provided by operating activities			
Depreciation	3,127	3,021	2,837
Amortization of intangibles	1,353	1,520	1,544
Stock-based compensation	510	534	544
Deferred taxes	853	(931)	(1,132)
Net (gain)/loss on asset sales and other	123	14	62
Change in operating assets and liabilities, net of acquisitions/divestitures			
Receivables (including financing receivables)	1,006	1,297	712
Retirement related	1,368	1,014	54
Inventories	(127)	18	(14)
Other assets/other liabilities	(1,819)	4,437	408
Accounts payable	126	47	197
Net cash provided by operating activities	15,247	16,724	17,084
Cash flows from investing activities			
Payments for property, plant and equipment	(3,395)	(3,229)	(3,567)
Proceeds from disposition of property, plant and equipment	248	460	424
Investment in software	(569)	(544)	(583)
Purchases of marketable securities and other investments	(7,041)	(4,949)*	(5,853)*
Proceeds from disposition of marketable securities and other investments	6,487	3,910	5,692
Non-operating finance receivables—net	(503)	(2,028)	(891)
Acquisition of businesses, net of cash acquired	(139)	(496)	(5,696)*
Divestiture of businesses, net of cash transferred	—	(205)	(454)
Net cash used in investing activities	(4,913)	(7,081)*	(10,928)*
Cash flows from financing activities			
Proceeds from new debt	6,891	9,643	9,132
Payments to settle debt	(8,533)	(6,816)	(6,395)
Short-term borrowings/(repayments) less than 90 days—net	1,341	620	26
Common stock repurchases	(4,443)	(4,340)	(3,502)
Common stock repurchases for tax withholdings	(171)	(193)	(126)
Financing—other	111	175	204
Cash dividends paid	(5,666)	(5,506)	(5,256)
Net cash used in financing activities	(10,469)	(6,418)	(5,917)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(495)	937	(51)
Net change in cash, cash equivalents and restricted cash	(630)	4,161*	188*
Cash, cash equivalents and restricted cash at January 1	12,234	8,073*	7,885*
Cash, cash equivalents and restricted cash at December 31	\$ 11,604	\$12,234*	\$ 8,073*
Supplemental data			
Income taxes paid—net of refunds received	\$ 1,745	\$ 1,597	\$ 1,078
Interest paid on debt	\$ 1,423	\$ 1,208	\$ 1,158

* Recast to reflect adoption of the FASB guidance on restricted cash.

Amounts may not add due to rounding.

The accompanying notes on pages 76 through 146 are an integral part of the financial statements.

Consolidated Statement of Changes in Equity
International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

	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
2016							
Equity, January 1, 2016	\$53,262	\$146,124	\$(155,518)	\$(29,607)	\$14,262	\$162	\$14,424
Net income plus other comprehensive income/(loss)							
Net income		11,872			11,872		11,872
Other comprehensive income/(loss)				209	209		209
Total comprehensive income/(loss)					\$12,081		\$12,081
Cash dividends paid— common stock (\$5.50 per share)		(5,256)			(5,256)		(5,256)
Common stock issued under employee plans (3,893,366 shares)	695				695		695
Purchases (854,365 shares) and sales (383,077 shares) of treasury stock under employee plans—net		18	(77)		(59)		(59)
Other treasury shares purchased, not retired (23,283,400 shares)			(3,455)		(3,455)		(3,455)
Changes in other equity	(22)	0			(22)		(22)
Changes in noncontrolling interests						(16)	(16)
Equity, December 31, 2016	\$53,935	\$152,759	\$(159,050)	\$(29,398)	\$18,246	\$146	\$18,392

Amounts may not add due to rounding.

The accompanying notes on pages 76 through 146 are an integral part of the financial statements.

(\$ in millions)

	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 on pages 76 through 146 are an integral part of the financial statements.

Consolidated Statement of Changes in Equity
International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

	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 changes 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 on pages 76 through 146 are an integral part of the financial statements.

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. This is annotated where applicable.

On December 22, 2017, the Tax Cuts and Jobs Act (U.S. tax reform) was enacted in the U.S. This Act 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 a provisional charge of \$5.5 billion to tax expense in the fourth-quarter and year-ended December 31, 2017. The charge was primarily 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. During the fourth quarter of 2018, the accounting for impacts of U.S. tax reform was completed and the effects of measurement period adjustments were recognized as a charge to tax expense of \$1.9 billion and \$2.0 billion in the fourth quarter and year ended December 31, 2018, respectively. The 2018 charges were primarily attributable to the election to include Global Intangible Low-Taxed Income (GILTI) in measuring deferred taxes, in addition to refinements to the one-time U.S. transition tax and foreign tax costs on undistributed foreign earnings. Refer to note N, "Taxes," on pages 117 to 119 for additional information.

Noncontrolling interest amounts of \$17 million, \$17 million and \$16 million, net of tax, for the years ended December 31, 2018, 2017 and 2016, respectively, are included as a reduction within other (income) and expense in the Consolidated Statement of Earnings.

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 in Equity in the Consolidated Statement of Financial Position. Net income and losses attributable to the noncontrolling interest is reported as described above in the Consolidated Statement of Earnings. 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 on pages 86 and 87 within "Marketable Securities." 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 the amounts of assets, liabilities, revenue, costs, expenses and other comprehensive income/(loss) (OCI) that are reported in the Consolidated Financial Statements and accompanying disclosures. 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. As a result, actual results may be different from these estimates. See "Critical Accounting Estimates" on pages 63 to 66 for a discussion of the company's critical accounting 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 in 2018. For further information regarding the adoption of the new standard, see note B, "Accounting Changes," on pages 89 to 91, and note O, "Revenue Recognition," on pages 120 to 122.

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. Estimates of variable consideration and the determination of whether to include estimated amounts in the transaction price are based on all information (historical, current and forecasted) that is reasonably available to the company, taking into consideration the type of client, the type of transaction and the specific facts and circumstances of each arrangement. Changes in estimates of variable consideration are included in note O, "Revenue Recognition," on pages 120 to 122.

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. For example, a client may purchase a server that includes operating system software. In addition, the arrangement may include post-contract support for the software and a contract for post-warranty maintenance service for the hardware. These types of arrangements may also include financing provided by the company. These arrangements consist of multiple products and services, whereby the hardware and software may be delivered in one period and the software support and hardware maintenance services are delivered over time. In another example, the company may assist the client in building and running an enterprise information technology (IT) environment utilizing a private cloud on a long-term basis and the client periodically purchases hardware and/or software products from the company to upgrade or expand the facility. The services delivered on the cloud are provided on a continuous basis across multiple reporting periods, and the hardware and software products are provided in each period the products are purchased.

The company continues to build 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 criteria below are considered to determine when the products or services are distinct and how to allocate the arrangement consideration to each distinct performance obligation. A performance obligation is a promise in a contract with a client to transfer products or services that are distinct. If the company enters into two or

more contracts at or near the same time, the contracts may be combined and accounted for as one contract, in which case the company determines whether the products or services in the combined contract are distinct. A product or service that is promised to a client is distinct if both of the following criteria are met:

- The client can benefit from the product or service either on its own or together with other resources that are readily available to the client (that is, the product or service is capable of being distinct); and
- The company's promise to transfer the product or service to the client is separately identifiable from other promises in the contract (that is, the product or service is distinct within the context of the contract).

If these criteria are not met, the company determines an appropriate measure of progress based on the nature of its overall promise for the single performance obligation. When products and services are distinct, the arrangement consideration is allocated to each performance obligation on a relative standalone selling price basis. The revenue policies in the Services, Hardware and/or Software sections below are then applied to each performance obligation, as applicable.

To the extent the company grants the customer the option to acquire additional products or services in one of these arrangements, the company accounts for the option as a distinct performance obligation in the contract only if the option provides a material right to the customer that it would not receive without entering into the contract (e.g., a discount incremental to the range of discounts typically given for the product or service), in which case the client in effect pays in advance for the option to purchase future products or services. The company recognizes revenue when those future products or services are transferred or when the option expires.

Services

The company's primary services offerings include infrastructure 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.

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 the 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 fixed-price design and build contracts, revenue is recognized based on progress toward completion of the performance obligation using a cost-to-cost measure of progress (i.e., percentage-of-completion (POC) method of accounting). 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. If circumstances arise that change the original estimates of revenues, costs, or extent of progress toward completion, revisions to the estimates are made. These revisions may result in increases or decreases in estimated revenues or costs, and such revisions 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 O, "Revenue Recognition," on pages 120 to 122 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 \$5,424 million and \$5,870 million at December 31, 2018 and 2017, respectively, is included in the Consolidated Statement of Financial Position. 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, beginning January 1, 2018, the unbilled accounts receivable is classified as a contract asset. At December 31, 2018 and January 1, 2018, contract assets for services contracts of \$421 million and \$471 million, respectively, are included in prepaid expenses and other current assets in the Consolidated Statement of Financial Position. The remaining amount of unbilled accounts receivable of \$1,075 million and \$1,756 million at December 31, 2018 and 2017, respectively, is included in notes and accounts receivable—trade in the Consolidated Statement of Financial Position.

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. 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 under 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. Any cost of standard warranties is

accrued when the corresponding revenue is recognized. 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 solutions software, which contains many of the company's strategic areas including analytics, data and security; transaction processing software, which primarily runs mission-critical systems for clients; integration software, which helps clients to create, connect and optimize their applications data and infrastructure; and operating systems software, which provides operating systems for IBM Z and Power Systems hardware. Many of these offerings 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 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 post-contract support offered by the company. In limited circumstances, when the software requires continuous updates to provide the intended functionality, the software license and post-contract support are not distinct and revenue for the single performance obligation is recognized over time as the post-contract support is provided. This is only applicable to certain security software perpetual licenses offered by the company. Prior to the adoption of the new revenue standard, the company recognized revenue for these software licenses at a point in time at the inception of the arrangement. This change did not have a material impact on the company's financial statements.

Revenue from post-contract support 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.

Revenue from 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). However, if the amount of consideration to be paid in exchange for the license depends on client usage, revenue is recognized when the usage occurs.

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 a standalone selling price range 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 has been most commonly used when certain perpetual software licenses are only sold bundled with one year of post-contract support 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 incurred in the initial phases of outsourcing contracts and other cloud-based services contracts (i.e., setup costs) 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, prepaid assets used in services contracts (i.e., prepaid software or prepaid maintenance), and other deferred fulfillment costs eligible for capitalization. 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. This review is done by comparing the carrying amount of the asset to the remaining amount of consideration the company expects to receive for the services to which the asset relates, less the costs that relate directly to providing those services that have not yet been recognized. If the carrying amount is deemed not recoverable, an impairment loss is recognized. Refer to note O, "Revenue Recognition," on pages 120 to 122 for the amount of deferred costs to fulfill a contract at December 31, 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 to create and implement internal-use software programs, including software coding, installation, testing and certain data conversions. 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.

Certain eligible, nonrecurring costs incurred in the initial phases of arrangements in which IBM provides Software-as-a-Service are deferred and amortized over the expected period of benefit, which includes anticipated contract renewals or extensions, consistent with the policy described for Services Costs. Recurring operating costs in these contracts are recognized as incurred.

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. The company previously 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 commission 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. Estimated costs for standard warranty terms are recognized when revenue is recorded for the related product. The company estimates its warranty costs standard 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. Changes in deferred income for extended warranty contracts, and in the warranty liability for standard warranties, which are included in other accrued expenses and liabilities and other liabilities in the Consolidated Statement of Financial Position, are presented in the following tables:

Standard Warranty Liability

(\$ in millions)		
	2018	2017
Balance at January 1	\$ 152	\$ 156
Current period accruals	121	172
Accrual adjustments to reflect experience	(32)	(10)
Charges incurred	(123)	(165)
Balance at December 31	\$ 118	\$ 152

Extended Warranty Liability (Deferred Income)

(\$ in millions)		
	2018	2017
Balance at January 1	\$ 566	\$ 531
Revenue deferred for new extended warranty contracts	220	267
Amortization of deferred revenue	(240)	(260)
Other*	(13)	28
Balance at December 31	\$ 533	\$ 566
Current portion	\$ 271	\$ 277
Noncurrent portion	\$ 262	\$ 289

* Other consists primarily of foreign currency translation adjustments.

Shipping and Handling

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

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 \$1,466 million, \$1,445 million and \$1,327 million in 2018, 2017 and 2016, respectively, and is recorded in SG&A expense in the Consolidated Statement of Earnings.

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. 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, income is recognized over time. 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. 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). 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. 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/postretirement 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. 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 other costs, are expensed in the periods in which the costs are incurred. 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 and indefinite-lived intangible assets, 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 and indefinite-lived intangible assets are tested at least annually, in the fourth quarter, for impairment and whenever changes in circumstances indicate an impairment may exist. The goodwill impairment test is performed by reporting unit, which is an operating segment, a component or multiple components of an operating segment. A component meets the definition of a reporting unit if it is one level below an operating segment, is considered to be a business with discrete financial information available and is regularly reviewed by segment management. Components are aggregated as a single reporting unit if they have similar economic characteristics.

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 on page 80 within "Software Costs," 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 7 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. The company's maximum exposure for all environmental liabilities cannot be estimated and no amounts are recorded for environmental liabilities that are not probable or estimable.

Asset Retirement Obligations

Asset retirement obligations (ARO) are legal obligations associated with the retirement of long-lived assets. These liabilities are initially recorded at fair value and 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 Statement of Financial Position. 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 Statement of Financial Position.

Net periodic pension and nonpension postretirement benefit cost/(income) is recorded in the Consolidated Statement of Earnings 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 OCI and amortization of the net transition asset remaining in accumulated other comprehensive income/(loss) (AOCI). Service cost represents the actuarial present value of participant benefits earned in the current year. Interest cost represents the time value of money cost associated with the passage of time. Certain events, such as changes in the employee base, plan amendments and changes in actuarial assumptions, result in a change in the benefit obligation and the corresponding change in OCI. The result of these events is amortized as a component of net periodic cost/(income) 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. The service cost component of net benefit cost is recorded in Cost, SG&A and RD&E in the Consolidated Statement of Earnings (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 Statement of Earnings. Refer to note B, "Accounting Changes," on pages 89 to 91, for additional information on the presentation change relating to pension costs beginning on January 1, 2018.

(Gains)/losses and prior service costs/(credits) are not recognized as a component of net periodic cost/(income) in the Consolidated Statement of Earnings as they arise, but are recognized as a component of OCI in the Consolidated Statement of Comprehensive Income. 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 Statement of Earnings 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) and 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. 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. 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 Statement of Earnings 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 statutory tax rate in the jurisdiction in which it will receive a deduction. 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 Statement of Earnings.

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. 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 tax liabilities when, despite the company's belief that its tax return positions are supportable, 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 current portion of tax liabilities is included in taxes and the noncurrent portion of tax liabilities is included in other liabilities in the Consolidated Statement of Financial Position. 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.

The U.S. Tax Cuts and Jobs Act introduced GILTI, which subjects a U.S. shareholder to current tax on income earned by certain foreign subsidiaries. The Financial Accounting Standards Board (FASB) allows companies to either (1) recognize deferred taxes for temporary differences that are expected to reverse as GILTI in future years (deferred method) or (2) account for taxes on GILTI as period costs in the year the tax is incurred (period method). The company elected the deferred method and in order to record the initial deferred taxes for GILTI, the company estimated the impact of foreign temporary differences on GILTI in future years. This included consideration of statutory limitation impacts on the GILTI calculation.

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.

Inventories, 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

Derivatives are recognized in the Consolidated Statement of Financial Position at fair value and are reported in prepaid expenses and other current assets, investments and sundry assets, other accrued expenses and liabilities or other liabilities. Classification of each derivative as current or noncurrent is based upon whether the maturity of the instrument is less than or greater than 12 months. To qualify for hedge accounting, the company requires that the instruments be effective in reducing the risk exposure that they are designated to hedge. For instruments that hedge cash flows, hedge designation criteria also require that it be probable that the underlying transaction will occur. Instruments that meet established accounting criteria are formally designated as hedges. These criteria demonstrate that the derivative is expected to be highly effective at offsetting changes in fair value or cash flows of the underlying exposure both at inception of the hedging relationship and on an ongoing basis. The method of assessing hedge effectiveness and measuring hedge results is formally documented at hedge inception. The company assesses hedge effectiveness and measures hedge results at least quarterly throughout the designated hedge period.

Where the company applies hedge accounting, the company designates each derivative as a hedge of: (1) the fair value of a recognized financial asset or liability, or of an unrecognized firm commitment (fair value hedge attributable to interest rate or foreign currency risk); (2) the variability of anticipated cash flows of a forecasted transaction, or the cash flows to be received or paid related to a recognized financial asset or liability (cash flow hedge attributable to interest rate or foreign currency risk); or (3) a hedge of a long-term investment (net investment hedge) in a foreign operation. In addition, the company may enter into derivative contracts that economically hedge certain of its risks, even though hedge accounting does not apply or the company elects not to apply hedge accounting. In these cases, there exists a natural hedging relationship in which changes in the fair value of the derivative, which are recognized currently in net income, act as an economic offset to changes in the fair value of the underlying hedged item(s).

Changes in the fair value of a derivative that is designated as a fair value hedge, along with offsetting changes in the fair value of the underlying hedged exposure, are recorded in earnings each period. For hedges of interest rate risk, the fair value adjustments are recorded as adjustments to interest expense and cost of financing in the Consolidated Statement of Earnings. For hedges of currency risk associated with recorded financial assets or liabilities, derivative fair value adjustments are recognized in other (income) and expense in the Consolidated Statement of Earnings. Changes in the fair value of a derivative that is designated as a cash flow hedge are recorded, net of applicable taxes, in OCI, in the Consolidated Statement of Comprehensive Income. When net income is affected by the variability of the underlying cash flow, the applicable offsetting amount of the gain or loss from the derivative that is deferred in AOCI is released to net income and reported in interest expense, cost, SG&A

expense or other (income) and expense in the Consolidated Statement of Earnings based on the nature of the underlying cash flow hedged. 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. If the underlying hedged item in a fair value hedge ceases to exist, all changes in the fair value of the derivative are included in net income each period until the instrument matures. When the derivative transaction ceases to exist, a hedged asset or liability is no longer adjusted for changes in its fair value except as required under other relevant accounting standards.

Derivatives that are not designated as hedges are recorded in earnings for each period and are primarily reported in other (income) and expense. When a cash flow hedging relationship is discontinued, the net gain or loss in AOCI must generally remain in AOCI until the item that was hedged affects earnings. However, when it is probable that a forecasted transaction will not occur by the end of the originally specified time period or within an additional two-month period thereafter, the net gain or loss in AOCI must be reclassified into earnings immediately.

The company reports cash flows arising from derivative financial instruments designated as fair value or cash flow hedges consistent with the classification of cash flows from the underlying hedged items that these derivatives are hedging. Accordingly, the cash flows associated with derivatives designated as fair value or cash flow hedges are classified in cash flows from operating activities in the Consolidated Statement of Cash Flows. Cash flows from derivatives designated as net investment hedges and derivatives that do not qualify as hedges are reported in cash flows from investing activities in the Consolidated Statement of Cash Flows. For currency swaps designated as hedges of foreign currency denominated debt (included in the company's debt risk management program as addressed in note D, "Financial Instruments," on pages 95 to 102), cash flows directly associated with the settlement of the principal element of these swaps 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 D, "Financial Instruments," on pages 95 to 102 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

Accounting guidance defines fair value 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. Under this guidance, the company is required to classify 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.

The guidance requires the use of observable market data if such data is available without undue cost and effort.

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.

As an example, the fair value of derivatives is derived utilizing a discounted cash flow model that uses observable market inputs such as known notional value amounts, yield curves, spot and forward exchange rates as well as discount rates. These inputs relate to liquid, heavily traded currencies with active markets which are available for the full term of the derivative.

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 non-financial 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 non-financial assets depend on the type of asset. There were no material impairments of non-financial assets for the years ended December 31, 2018, 2017 and 2016.

Accounting guidance permits the measurement of eligible financial assets, financial liabilities and firm commitments at fair value, on an instrument-by-instrument basis, that are otherwise not permitted to be accounted for at fair value under other accounting standards. This election is irrevocable. The company has not applied the fair value option to any eligible assets or liabilities.

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 that are not expected to be realized in cash within one year 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 for available-for-sale debt securities are included in other (income) and expense in the Consolidated Statement of Earnings. 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. The credit loss component recognized in other (income) and expense is identified as the amount of the principal cash flows not expected to be received over the remaining term of the debt security as projected using the company's cash flow projections.

Inventories

Raw materials, work in process and finished goods are stated at the lower of average cost or net realizable value. Cash flows related to the sale of inventories are reflected in net cash provided by operating activities in the Consolidated Statement of Cash Flows.

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 net losses on the value of customer receivables is recognized by establishing an allowance for credit losses.

Contract Assets and Notes and Accounts Receivable—Trade

As of January 1, 2018, 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. At December 31, 2018 and January 1, 2018 contract assets of \$470 million and \$557 million, respectively, are included in prepaid expenses and other current assets in the Consolidated Statement of Financial Position. At December 31, 2017, these assets were classified as notes and accounts receivable—trade in the Consolidated Statement of Financial Position.

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.

Factored Receivables

The company enters into various factoring agreements with third-party financial institutions to sell 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 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: (1) they are transferred beyond the reach of the company and its creditors; (2) the purchaser has the right to pledge or exchange the receivables; and (3) the company has surrendered control over the transferred receivables. 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, 2018 were \$2.2 billion compared to \$1.9 billion for the year ended December 31, 2017. Within the accounts receivables sold and derecognized from the Consolidated Statement of Financial Position, \$0.9 billion and \$0.7 billion remained uncollected from customers at December 31, 2018 and 2017, 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 and loans. Leases are accounted for in accordance with lease accounting standards. Loan receivables, including installment payment plans, 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. 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 capital leases, installment payment plan receivables and customer loans includes an assessment of the entire balance of the capital 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 on a quarterly basis. The review primarily consists of 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. The company's assessments factor in the history of collections and write-offs in specific countries and across the portfolio.

Estimated Residual Values of Lease Assets

The recorded residual values of lease assets are estimated at the inception of the lease to be the expected fair value of the assets at the end of the lease term. The company periodically reassesses the realizable value of its lease residual values. Any anticipated increases in specific future residual values are not recognized before realization through remarketing efforts. 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 financing income in the period in which the estimate is changed, as well as an adjustment to unearned income to reduce future-period financing income.

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. The two-class method 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

In August 2018, the FASB issued guidance on 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. 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. The guidance is not expected to have a material impact in the consolidated financial results.

In August 2018, the FASB issued guidance which changed the disclosure requirements for fair value measurements and defined benefit plans. 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. As a result, the company has removed Level 1/Level 2 transfer disclosures in accordance with the fair value guidance. The company is evaluating the adoption date for the remaining changes. As the guidance is a change to disclosures only, the company does not expect the guidance to have a material impact in the consolidated financial results.

In January 2017, the FASB issued guidance that simplifies the goodwill impairment test by removing Step 2. The guidance also changes the requirements for reporting units with zero or negative carrying amounts and requires additional disclosures for these reporting units. The guidance is effective January 1, 2020 and early adoption is permitted. The company expects to adopt the guidance on a prospective basis on the effective date. The company is evaluating the impact of the guidance.

In June 2016, with amendments in 2018, the FASB issued guidance for credit impairment based on an expected loss model rather than an incurred loss model. The guidance 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. A cross-functional team has been established that is evaluating the financial instruments portfolio and the system, process and policy change requirements. The new guidance expands the scope of financial instruments subject to impairment, including off-balance sheet commitments and residual value. The guidance is effective January 1, 2020 with one-year early adoption permitted. The company will adopt the guidance as of the effective date and is continuing to evaluate the impact.

The FASB issued guidance in February 2016, with amendments in 2018, which changes the accounting for leases. The guidance requires lessees to recognize right-of-use assets and lease liabilities for most leases in the Consolidated Statement of Financial Position. The guidance makes some changes to lessor accounting, including elimination of the use of third-party residual value guarantee insurance in the lease classification test, and overall aligns with the new revenue recognition guidance. The guidance also requires qualitative and quantitative disclosures to assess the amount, timing and uncertainty of cash flows arising from leases. The guidance was effective January 1, 2019 and early adoption was permitted. The company adopted

the guidance on the effective date using the transition option whereby prior comparative periods will not be 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 nonlease components for all asset classes. The company made a policy election to not recognize right-of-use assets and lease liabilities for short-term leases for all asset classes.

A cross-functional implementation team evaluated the lease portfolio and implemented system, process, control and policy changes. The company also gathered lease data in order to comply with the requirements in the guidance, including new disclosures that will be added to the Notes to the Consolidated Financial Statements beginning in the first quarter of 2019. The guidance had a material impact on the Consolidated Statement of Financial Position as of the effective date. As a lessee, the company's undiscounted operating lease commitments were \$5.6 billion at December 31, 2018, which is expected to approximate the January 1, 2019 balance of operating lease liabilities, which will be discounted by the company's incremental borrowing rate. The transition adjustment recognized in retained earnings at the effective date is not expected to be material.

From a lessor perspective, 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, which remain outstanding relating to that equipment and are still expected to be collected, will be reclassified to loan receivables. The amount that would have been reclassified from lease receivables to loan receivables in 2018, under the application of this new guidance, would have been approximately \$263 million. Additionally, the company does not expect the removal of third-party residual value guarantee insurance in the lease classification test to have a material impact on the Consolidated Statement of Earnings.

Standards Implemented

In February 2018, the FASB issued guidance that allows entities to elect an option to reclassify the stranded tax effects related to the application of U.S. tax reform from AOCI to retained earnings. The guidance was effective January 1, 2019 with early adoption permitted, and can be applied either in the period of adoption or retrospectively to all applicable periods. The company adopted the guidance effective January 1, 2018, and elected not to reclassify prior periods. In accordance with its accounting policy, the company releases income tax effects from AOCI once the reason the tax effects were established ceases 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. At adoption on January 1, 2018, \$2,420 million was reclassified from AOCI to retained earnings, primarily comprised of amounts relating to retirement-related benefit plans.

In August 2017, the FASB issued guidance to simplify the application of hedge accounting in certain areas, better portray the economic results of an entity's risk management activities in its financial statements and make targeted improvements to presentation and disclosure requirements. The guidance was effective January 1, 2019 with early adoption permitted. The company adopted the guidance as of January 1, 2018, and it did not have a material impact in the consolidated financial results.

In March 2017, the FASB issued guidance that impacts the presentation of net periodic pension and postretirement benefit costs (net benefit cost). Under the guidance, the service cost component of net benefit cost continues to be presented within cost, SG&A expense and RD&E expense in the Consolidated Statement of Earnings, 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 Statement of Earnings. The guidance was effective January 1, 2018 with early adoption permitted. The company adopted the guidance as of the effective date. The guidance is primarily a change in financial statement presentation and did not have a material impact in the consolidated financial results. This presentation change was applied retrospectively upon adoption. For the year ended December 31, 2017, \$717 million, \$427 million and \$197 million was recast from total cost, SG&A expense and RD&E expense, respectively, into other (income) and expense. For the year ended December 31, 2016, \$222 million, \$126 million and \$25 million was recast from total cost, SG&A expense and RD&E expense, respectively, into other (income) and expense. Refer to note T, "Retirement-Related Benefits," for additional information.

In January 2016, the FASB issued guidance which addresses aspects of recognition, measurement, presentation and disclosure of financial instruments. 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. Certain equity investments are now measured at fair value with changes recognized in net income. The amendment also simplified the impairment test of equity investments that lack readily determinable fair value. The guidance did not have a material impact in the consolidated financial results.

The FASB issued guidance on the recognition of revenue from contracts with customers in 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. The company adopted the guidance effective January 1, 2018 using the modified retrospective transition method. 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 Statement of Earnings were capitalized in deferred costs, in accordance with the transition guidance, 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 Statement of Financial Position, 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. For additional information regarding GILTI, refer to note A, "Significant Accounting Policies." The revenue guidance did not have a material impact in the company's consolidated financial results for the year ended December 31, 2018. The company expects revenue recognition for its broad portfolio of hardware, software and services offerings to remain largely unchanged. Refer to note O, "Revenue Recognition," for additional information, including further discussion on the impact of adoption.

In January 2017, the FASB issued guidance which clarified the definition of a business. The guidance provided a more robust framework to use in determining when a set of assets and activities acquired or sold is a business. The guidance was effective January 1, 2018 and early adoption was permitted. The company adopted the guidance effective January 1, 2017, and it did not have a material impact in the consolidated financial results.

In October 2016, the FASB issued guidance which requires an entity to recognize the income tax consequences of intra-entity transfers of assets, other than inventory, at the time of transfer. Assets within the scope of the guidance include intellectual property and property, plant and equipment. The guidance was effective January 1, 2018 and early adoption was permitted. The company adopted the guidance on January 1, 2017 using the required modified retrospective method. At adoption, \$95 million and \$47 million were reclassified from investments and sundry assets and prepaid expenses and other current assets, respectively, into retained earnings. Additionally, net deferred taxes of \$244 million were established in deferred taxes in the Consolidated Statement of Financial Position, resulting in a cumulative-effect net increase to retained earnings of \$102 million. In January 2017, the company had one transaction that generated a \$582 million benefit to income tax expense, income from continuing operations and net income and a benefit to both basic and diluted earnings per share of \$0.62 per share for the year ended December 31, 2017. No transactions impacted the consolidated financial results for the year ended December 31, 2018. The ongoing impact of this guidance will be dependent on any transaction that is within its scope.

In March 2016, the FASB issued guidance which 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. The guidance was effective and adopted by the company on January 1, 2017, and it did not have a material impact in the Consolidated Statement of Financial Position. The ongoing impact of the guidance could result in increased volatility in the provision for income taxes and earnings per share in the Consolidated Statement of Earnings, depending on the company's share price at exercise or vesting of share-based awards compared to grant date, however these impacts are not expected to be material. These impacts are recorded on a prospective basis. 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 FASB also issued guidance 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. 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. The guidance had no impact in the consolidated financial results.

NOTE C. ACQUISITIONS/DIVESTITURES

Acquisitions

Purchase price consideration for all acquisitions, as reflected in the tables in this note, was paid primarily in cash. All acquisitions are reported in the Consolidated Statement of Cash Flows net of acquired cash and cash equivalents.

2018

In 2018, the company completed two acquisitions at an aggregate cost of \$49 million. These acquisitions were for 100 percent of the acquired businesses.

The Cognitive Solutions segment completed the acquisition of one privately held business in the second quarter, Armanta, Inc. (Armanta). The GBS segment completed the acquisition of one privately held business in the second quarter, Oniqua Holdings Pty Ltd. (Oniqua).

Each acquisition is expected to enhance the company's portfolio of product and services capabilities. Armanta is a provider of aggregation and analytics software to financial institutions, enabling data aggregation across multiple systems in near real-time speed, enhancing decision-making and improving regulatory compliance. Oniqua is a global innovator in maintenance-repair-operate inventory optimization solutions and services for asset-intensive industries.

The acquisitions were accounted for as business combinations using the acquisition method, and accordingly, the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquired entity were recorded at their estimated fair values at the date of acquisition. The acquisitions did not have a material impact in the Consolidated Financial Statements. The primary items that generated the goodwill are the value of the synergies between the acquired businesses and IBM and the acquired assembled workforce, neither of which qualify as an amortizable intangible asset.

On October 28, 2018, the company announced its intent to acquire all of the outstanding shares of Red Hat, Inc. (Red Hat). The combination of Red Hat's vast portfolio of open-source technologies, innovative cloud development platform and developer community, combined with IBM's innovative hybrid cloud technology, industry expertise, and commitment to data, trust and security, will deliver the hybrid cloud capabilities required to address the next chapter of cloud implementations. Under the terms of the definitive agreement, Red Hat shareholders will receive \$190 per share in cash, representing a total enterprise value of approximately \$34 billion. On January 16, 2019, Red Hat stockholders voted to approve the merger with IBM. The transaction is subject to customary closing conditions, including regulatory reviews and is expected to close in the second half of 2019. The company intends to fund the transaction through a combination of cash and debt. Refer to note J, "Borrowings," for additional details on the bridge loan credit facility that IBM has entered into in support of this transaction.

2017

In 2017, the company completed five acquisitions at an aggregate cost of \$134 million. All of these acquisitions were for 100 percent of the acquired businesses.

The Technology Services & Cloud Platforms segment completed acquisitions of three businesses: in the first quarter, Agile 3 Solutions, LLC (Agile 3 Solutions), 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. (Cloudigo), a privately held business. The Cognitive Solutions segment completed the acquisition of one privately held business: in the second quarter, XCC Web Content & Custom Apps Extension (XCC) from TIMETOACT Software & Consulting GmbH. GBS completed the acquisition of one privately held business: in the fourth quarter, Vivant Digital (Vivant).

Agile 3 Solutions is a developer of software used by C-Suite and senior executives to better visualize, understand and manage risks associated with the protection of sensitive data and adds capabilities to the company's security portfolio. The acquisition of the cloud and managed hosting services business of a large U.S. telecommunications company strengthens the company's services portfolio and aligns with its cloud strategy. Cloudigo brings talent and technology that aligns closely with the company's cloud platform investments in advanced network processing. XCC's technology enhances IBM's Connections Cloud platform by providing a single, accessible engagement center for sharing content. Vivant extends the strategy and design expertise of IBM Interactive Experience (IBM iX) and helps accelerate clients' digital transformations.

The following table reflects the purchase price related to these acquisitions and the resulting purchase price allocations as of December 31, 2017.

2017 Acquisitions

(\$ 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 will be amortized on a straight-line basis over their useful lives. Goodwill of \$13 million was assigned to the Technology Services & Cloud Platforms segment and goodwill of \$3 million was assigned to the Cognitive Solutions segment. It was expected that approximately 50 percent of the goodwill will be deductible for tax purposes.

2016

In 2016, the company completed fifteen acquisitions at an aggregate cost of \$5,899 million.

The Weather Company (TWC)—On January 29, 2016, the company completed the acquisition of TWC's B2B, mobile and cloud-based Web-properties, weather.com, Weather Underground, The Weather Company brand and WSI, its global business-to-business brand, for cash consideration of \$2,278 million. The cable television segment was not acquired by IBM, but is licensing weather forecast data and analytics from IBM under a long-term contract. TWC was a privately held business. Goodwill of \$1,717 million was assigned to the Cognitive Solutions segment. It was expected that none of the goodwill would be deductible for tax purposes. The overall weighted-average useful life of the identified intangible assets acquired was 6.9 years.

Truven Health Analytics, Inc. (Truven)—On April 8, 2016, the company completed the acquisition of 100 percent of Truven, a leading provider of healthcare analytics solutions, for cash consideration of \$2,612 million, of which \$2,412 million was paid in April 2016 and \$148 million was paid in July 2017. Truven has developed proprietary analytic methods and assembled analytic content assets, creating extensive national healthcare utilization, performance, quality and cost data. Truven was a privately held business. Goodwill of \$1,933 million was assigned to the Cognitive Solutions segment. It was expected that approximately 15 percent of the goodwill would be deductible for tax purposes. The overall weighted-average useful life of the identified intangible assets acquired was 6.9 years.

Other Acquisitions—The Technology Services & Cloud Platforms segment completed acquisitions of four businesses: in the first quarter, Ustream, Inc. (Ustream), a privately held business, and AT&T's application and hosting services business; in the third quarter, G4S's cash solutions business; and in the fourth quarter, Sanovi Technologies Private Limited (Sanovi), a privately held business. GBS completed acquisitions of six privately held businesses: in the first quarter, Resource/Ammirati, ecx International AG (ecx.io) and Optevia Limited (Optevia); in the second quarter, Aperto AG (Aperto) and Bluewolf Group, LLC (Bluewolf); and in the fourth quarter, Fluid, Inc.'s Expert Personal Shopper (XPS) business. The Cognitive Solutions segment completed acquisitions of three privately held businesses: in the second quarter, Resilient Systems, Inc. (Resilient) and EZ Legacy, Ltd. (EZSource); and in the fourth quarter, Promontory Financial Group, LLC (Promontory).

Ustream provides cloud-based video streaming to enterprises and broadcasters. The acquisition of AT&T's application and hosting services business strengthens the company's cloud portfolio. The acquisition of the G4S cash solutions business brings together the engineering skills of G4S with the company's analytics and remote technology capabilities to expand delivery solutions. Sanovi provides hybrid cloud recovery, cloud migration and business continuity software for enterprise data centers

and cloud infrastructure. Resource/Ammirati is a leading U.S.-based digital marketing and creative agency, addressing the rising demand from businesses seeking to reinvent themselves for the digital economy. Exc.io enhances GBS' IBM iX with new digital marketing, commerce and platform skills to accelerate clients' digital transformations. Optevia is a Software-as-a-Service systems integrator specializing in CRM solutions for public sector organizations. Aperto also joined IBM iX, supporting the company's growth in Europe, with expertise in digital strategy projects, including website and application development. Bluewolf extends the company's analytics, experience design and industry consulting leadership with one of the world's leading Salesforce consulting practices to deliver differentiated, consumer-grade experiences via the cloud. Fluid, Inc.'s Expert Personal Shopper business extends the company's portfolio of SaaS offerings and services, helping clients conduct commerce and engage with their customers. Resilient, a provider of incident response solutions, automates and orchestrates the many processes needed when dealing with cyber incidents from breaches to lost devices. EZSource helps developers quickly and easily understand and change mainframe code based on data displayed through dashboards and other visualizations. Promontory, a global market-leading risk management and regulatory compliance consulting firm, helps address clients' escalating regulations and risk management requirements.

All of these Other Acquisitions were for 100 percent of the acquired businesses.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

The following table reflects the purchase price related to these acquisitions and the resulting purchase price allocations as of December 31, 2016.

2016 Acquisitions

(\$ in millions)

	Amortization Life (in Years)	The Weather Company	Truven Health Analytics	Other Acquisitions
Current assets		\$ 76	\$ 171	\$ 153
Fixed assets/noncurrent assets		123	127	110
Intangible assets				
Goodwill	N/A	1,717	1,933	593
Completed technology	1–7	160	338	96
Client relationships	3–7	313	516	226
Patents/trademarks	1–7	349	54	42
Total assets acquired		2,738	3,141	1,220
Current liabilities		(88)	(148)	(96)
Noncurrent liabilities		(372)	(381)	(76)
Total liabilities assumed		(460)	(529)	(171)
Bargain purchase gain		—	—	(40)*
Total purchase price		\$2,278	\$2,612	\$1,009

* Bargain purchase gain relating to AT&T's application and hosting services business was recognized in selling, general and administrative expense in the Consolidated Statement of Earnings in the three months ended March 31, 2016.

N/A—Not applicable

For the Other Acquisitions, the overall weighted-average life of the identified amortizable intangible assets acquired was 6.3 years. These identified intangible assets will be amortized on a straight-line basis over their useful lives. Goodwill of \$119 million was assigned to the Technology Services & Cloud Platforms segment, goodwill of \$303 million was assigned to the GBS segment and goodwill of \$171 million was assigned to the Cognitive Solutions segment. It was expected that approximately 55 percent of the goodwill would be deductible for tax purposes.

Divestitures

Select IBM software products—On December 6, 2018, IBM and HCL Technologies Limited (HCL) announced a definitive agreement, in which HCL will acquire select standalone Cognitive Solutions software products for \$1,775 million, inclusive of contingent consideration. The software products in-scope include AppScan, BigFix, Unica, Commerce, Portal, Notes, Domino and Connections. The transaction is expected to close in mid-2019, subject to the satisfaction of applicable regulatory requirements and customary closing conditions. IBM will receive cash consideration, with approximately half at closing and the remainder within 12 to 15 months of closing. The company expects to recognize a pre-tax gain upon closing, however, the amount of the gain is not yet determinable. At December 31, 2018, the company concluded that the business did not meet the held for sale classification.

Seterus—On January 3, 2019, IBM and Mr. Cooper Group announced a definitive agreement, in which Mr. Cooper Group will acquire IBM's Seterus home mortgage servicing platform business. The Seterus content has been reported in Global Process Services, within IBM's GBS segment. The transaction is expected to close in the first quarter of 2019, subject to the satisfaction of applicable regulatory requirements and customary closing conditions. The financial terms related to this transaction are not material.

Other—On December 2, 2018, IBM entered into a definitive agreement to sell certain commercial financing capabilities and assign a number of its commercial financing contracts, excluding related receivables which will be collected as they become due in the normal course of business. These commercial financing capabilities and contracts have been reported within IBM's Global Financing segment. The transaction is expected to close in the first quarter of 2019, subject to the satisfaction of applicable regulatory requirements and customary closing conditions. The financial terms related to the transaction were not material.

Others

2017—In the first quarter of 2017, the company completed one research-related divestiture. The Cognitive Solutions segment completed four divestitures; two in the second quarter of 2017 and one each in the third and fourth quarter of 2017. 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.

2016—In the first quarter of 2016, the company completed four software product-related divestitures. In the fourth quarter of 2016, the company completed the divestiture of one service-related offering. The financial terms related to these transactions were not material. Overall, the company recorded a pre-tax gain of \$42 million related to these transactions in 2016.

NOTE D. FINANCIAL INSTRUMENTS

Fair Value Measurements

Financial Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following tables present the company's financial assets and financial liabilities that are measured at fair value on a recurring basis at December 31, 2018 and 2017.

(\$ in millions)

At December 31, 2018:	Level 1	Level 2	Level 3	Total
Assets				
Cash equivalents ⁽¹⁾				
Time deposits and certificates of deposit	\$ —	\$7,679	\$ —	\$7,679 ⁽⁶⁾
Money market funds	25	—	—	25
Total	25	7,679	—	7,704
Equity investments ⁽²⁾	0	—	—	0
Debt securities—current ⁽³⁾	—	618	—	618 ⁽⁶⁾
Derivative assets ⁽⁴⁾	1	731	—	731 ⁽⁷⁾
Total assets	\$26	\$9,028	\$ —	\$9,053
Liabilities				
Derivative liabilities ⁽⁵⁾	\$40	\$ 343	\$ —	\$ 383 ⁽⁷⁾

⁽¹⁾ Included within cash and cash equivalents in the Consolidated Statement of Financial Position.

⁽²⁾ Included within investments and sundry assets in the Consolidated Statement of Financial Position.

⁽³⁾ Included within marketable securities in the Consolidated Statement of Financial Position.

⁽⁴⁾ The gross balances of derivative assets contained within prepaid expenses and other current assets, and investments and sundry assets in the Consolidated Statement of Financial Position at December 31, 2018 were \$385 million and \$347 million, respectively.

⁽⁵⁾ The gross balances of derivative liabilities contained within other accrued expenses and liabilities, and other liabilities in the Consolidated Statement of Financial Position at December 31, 2018 were \$177 million and \$206 million, respectively.

⁽⁶⁾ Available-for-sale debt securities with carrying values that approximate fair value.

⁽⁷⁾ If derivative exposures covered by a qualifying master netting agreement had been netted in the Consolidated Statement of Financial Position, the total derivative asset and liability positions each would have been reduced by \$267 million.

(\$ in millions)

At December 31, 2017:	Level 1	Level 2	Level 3	Total
Assets				
Cash equivalents ⁽¹⁾				
Time deposits and certificates of deposit	\$ —	\$ 8,066	\$ —	\$ 8,066
Commercial paper	—	96	—	96
Money market funds	26	—	—	26
Canadian government securities	—	398	—	398
Total	26	8,560	—	8,586⁽⁶⁾
Equity investments ⁽²⁾	4	—	—	4
Debt securities—current ⁽³⁾	—	608	—	608 ⁽⁶⁾
Debt securities—noncurrent ⁽²⁾	4	7	—	11
Derivative assets ⁽⁴⁾	—	942	—	942 ⁽⁷⁾
Total assets	\$33	\$10,117	\$ —	\$10,151
Liabilities				
Derivative liabilities ⁽⁵⁾	\$ —	\$ 415	\$ —	\$ 415 ⁽⁷⁾

⁽¹⁾ Included within cash and cash equivalents in the Consolidated Statement of Financial Position.

⁽²⁾ Included within investments and sundry assets in the Consolidated Statement of Financial Position.

⁽³⁾ U.S. Government securities reported as marketable securities in the Consolidated Statement of Financial Position.

⁽⁴⁾ The gross balances of derivative assets contained within prepaid expenses and other current assets, and investments and sundry assets in the Consolidated Statement of Financial Position at December 31, 2017 were \$185 million and \$757 million, respectively.

⁽⁵⁾ The gross balances of derivative liabilities contained within other accrued expenses and liabilities, and other liabilities in the Consolidated Statement of Financial Position at December 31, 2017 were \$377 million and \$38 million, respectively.

⁽⁶⁾ Available-for-sale securities with carrying values that approximate fair value.

⁽⁷⁾ If derivative exposures covered by a qualifying master netting agreement had been netted in the Consolidated Statement of Financial Position, the total derivative asset and liability positions each would have been reduced by \$255 million.

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) 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, 2018 and 2017, 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 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 \$35,605 million and \$39,837 million and the estimated fair value was \$36,599 million and \$42,264 million at December 31, 2018 and 2017, 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.

Available-for-Sale Securities

Gross realized gains/losses from the sale of available-for-sale securities during the years ended December 31, 2018 and 2017 were immaterial. After-tax net unrealized holding gains/losses on available-for-sale securities that have been included in other comprehensive income/(loss) for the years ended December 31, 2018 and 2017 were immaterial.

During the fourth quarter of 2014, the company acquired equity securities in conjunction with the sale of the System x business which were classified as available-for-sale securities. Based on an evaluation of available evidence as of December 31, 2015, the company recorded an other-than-temporary impairment loss of \$86 million resulting in an adjusted cost basis of \$185 million as of December 31, 2015. In the first quarter of 2016, the company recorded a gross realized loss of \$37 million (before taxes) related to the sale of all the outstanding shares. The loss on this sale was recorded in other (income) and expense in the Consolidated Statement of Earnings.

Sales of debt and available-for-sale equity investments during the period were as follows:

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Proceeds	\$0	\$7	\$151
Gross realized gains (before taxes)	—	3	3
Gross realized losses (before taxes)	—	2	37

The contractual maturities of substantially all available-for-sale debt securities are less than one year at December 31, 2018.

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.

As a result of the use of derivative instruments, the company is exposed to the risk that counterparties to derivative contracts will fail to meet their contractual obligations. To mitigate the counterparty credit risk, the company has a policy of only entering into contracts with carefully selected major financial institutions based upon their overall credit profile. The company's established policies and procedures for mitigating credit risk on principal transactions include reviewing and establishing limits for credit exposure and continually assessing the creditworthiness of counterparties. The right of setoff that exists under certain of these arrangements enables the legal entities of the company subject to the arrangement to net amounts due to and from the counterparty reducing the maximum loss from credit risk in the event of counterparty default.

The company is also a party to collateral security arrangements with most of its major derivative counterparties. These arrangements require the company to hold or post collateral (cash or U.S. Treasury securities) when the derivative fair values exceed contractually established thresholds. Posting thresholds can be fixed or can vary based on credit default swap pricing or credit ratings received from the major credit agencies. The aggregate fair value of all derivative instruments under these collateralized arrangements that were in a liability position at December 31, 2018 and 2017 was \$74 million and \$126 million, respectively, for which no collateral was posted at either date. Full collateralization of these agreements would be required in the event that the company's credit rating falls below investment grade or if its credit default swap spread exceeds 250 basis points, as applicable, pursuant to the terms of the collateral security arrangements. The aggregate fair value of derivative instruments in asset positions as of December 31, 2018 and 2017 was \$731 million and \$942 million, respectively. This amount represents the maximum exposure to loss at the reporting date if the counterparties failed to perform as contracted. This exposure was reduced by \$267 million and \$255 million at December 31, 2018 and 2017, respectively, of liabilities included in master netting arrangements with those counterparties. Additionally, at December 31, 2018 and 2017, this exposure was reduced by \$70 million and \$114 million of cash collateral, respectively. There were no non-cash collateral balances in U.S. Treasury securities at December 31, 2018 and 2017. At December 31, 2018 and 2017, the net exposure related to derivative assets recorded in the Consolidated Statement of Financial Position was \$395 million and \$572 million, respectively. At December 31, 2018 and 2017, the net position related to derivative liabilities recorded in the Consolidated Statement of Financial Position was \$116 million and \$160 million, respectively.

In the Consolidated Statement of Financial Position, 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. No amount was recognized in other receivables at December 31, 2018 and 2017 for the right to reclaim cash collateral. The amount recognized in accounts payable for the obligation to return cash collateral was \$70 million and \$114 million at December 31, 2018 and 2017, respectively. The company restricts the use of cash collateral received to rehypothecation, and therefore reports it in restricted cash in the Consolidated Statement of Financial Position. No amount was rehypothecated at December 31, 2018 and 2017.

The company may employ derivative instruments to hedge the volatility in stockholders' equity resulting from changes in currency exchange rates of significant foreign subsidiaries of the company with respect to the U.S. dollar. These instruments, designated as net investment hedges, expose the company to liquidity risk as the derivatives have an immediate cash flow impact upon maturity which is not offset by a cash flow from the translation of the underlying hedged equity. The company monitors this cash loss potential on an ongoing basis and may discontinue some of these hedging relationships by de-designating or terminating the derivative instrument in order to manage the liquidity risk. Although not designated as accounting hedges, the company may utilize derivatives to offset the changes in the fair value of the de-designated instruments from the date of de-designation until maturity.

In its hedging programs, the company uses forward contracts, futures contracts, interest-rate swaps, cross-currency 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, 2018 and 2017, the total notional amount of the company's interest-rate swaps was \$7.6 billion and \$9.1 billion, respectively. The weighted-average remaining maturity of these instruments at December 31, 2018 and 2017 was approximately 3.5 years and 4.8 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, 2018 and 2017.

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. In connection with this program, in the fourth quarter of 2018, the company entered into forward starting interest-rate swaps. These swaps are linked to future interest payments on anticipated U.S. dollar debt issuances forecasted to occur throughout 2019 and 2020. 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 30 years. As of December 31, 2018, the total notional amount of forward starting interest-rate swaps outstanding was \$5.5 billion. The company did not have any derivative instruments relating to this program outstanding at December 31, 2017.

At December 31, 2018, in connection with cash flow hedges of forecasted interest payments related to the company's borrowings, the company recorded net losses of \$35 million (before taxes) in AOCI. None of the deferred net losses on derivatives in AOCI at December 31, 2018 is expected to be reclassified to net income within the next 12 months.

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, 2018 and 2017, the total notional amount of derivative instruments designated as net investment hedges was \$6.4 billion and \$7.0 billion, respectively. At December 31, 2018 and 2017, the weighted-average remaining maturity of these instruments was approximately 0.2 years at both periods.

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, 2018 and 2017, the total notional amount of forward contracts designated as cash flow hedges of forecasted royalty and cost transactions was \$9.8 billion and \$7.8 billion, respectively. The weighted-average remaining maturity of these instruments at December 31, 2018 and 2017 was 0.8 years and 0.7 years, respectively.

At December 31, 2018 and 2017, in connection with cash flow hedges of anticipated royalties and cost transactions, the company recorded net gains of \$342 million and net gains of \$27 million (before taxes), respectively, in AOCI. The company estimates that \$266 million (before taxes) of deferred net gains on derivatives in AOCI at December 31, 2018 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 ten years. At December 31, 2018 and 2017, the total notional amount of cross-currency swaps designated as cash flow hedges of foreign currency denominated debt was \$6.5 billion at both periods.

At December 31, 2018 and 2017, in connection with cash flow hedges of foreign currency denominated borrowings, the company recorded net gains of \$75 million and net gains of \$42 million (before taxes), respectively, in AOCI. The company estimates that \$189 million (before taxes) of deferred net gains on derivatives in AOCI at December 31, 2018, 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 Statement of Earnings. At December 31, 2018 and 2017, the total notional amount of derivative instruments in economic hedges of foreign currency exposure was \$5.2 billion and \$11.5 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 Statement of Earnings. 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 Statement of Earnings. At December 31, 2018 and 2017, the total notional amount of derivative instruments in economic hedges of these compensation obligations was \$1.2 billion and \$1.3 billion, respectively.

Other Risks

The company may hold warrants to purchase shares of common stock in connection with various investments that are deemed derivatives because they contain net share or net cash settlement provisions. The company records the changes in the fair value of these warrants in other (income) and expense in the Consolidated Statement of Earnings. The company did not have any warrants qualifying as derivatives outstanding at December 31, 2018 and 2017.

The company is exposed to a potential loss if a client fails to pay amounts due under contractual terms. The company may utilize credit default swaps to economically hedge its credit exposures. The swaps are recorded at fair value with gains and losses reported in other (income) and expense in the Consolidated Statement of Earnings. The company did not have

any derivative instruments relating to this program outstanding at December 31, 2018 and 2017.

The company is exposed to market volatility on certain investment securities. The company may utilize options or forwards to economically hedge its market exposure. The derivatives are recorded at fair value with gains and losses reported in other (income) and expense in the Consolidated Statement of Earnings. At December 31, 2018 and 2017, the company did not have any derivative instruments relating to this program outstanding.

The following tables provide a quantitative summary of the derivative and non-derivative instrument-related risk management activity at December 31, 2018 and 2017, as well as for the years ended December 31, 2018, 2017 and 2016, respectively.

Fair Values of Derivative Instruments in the Consolidated Statement of Financial Position

(\$ in millions)

At December 31:	Fair Value of Derivative Assets			Fair Value of Derivative Liabilities		
	Balance Sheet Classification	2018	2017	Balance Sheet Classification	2018	2017
Designated as hedging instruments						
Interest rate contracts	Prepaid expenses and other current assets	\$ 9	\$ 2	Other accrued expenses and liabilities	\$ 4	\$ —
	Investments and sundry assets	212	459	Other liabilities	76	34
Foreign exchange contracts	Prepaid expenses and other current assets	348	111	Other accrued expenses and liabilities	110	318
	Investments and sundry assets	135	298	Other liabilities	129	3
	Fair value of derivative assets	\$704	\$870	Fair value of derivative liabilities	\$ 320	\$ 355
Not designated as hedging instruments						
Foreign exchange contracts	Prepaid expenses and other current assets	\$ 26	\$ 61	Other accrued expenses and liabilities	\$ 13	\$ 57
Equity contracts	Prepaid expenses and other current assets	2	12	Other accrued expenses and liabilities	51	3
	Fair value of derivative assets	\$ 28	\$ 72	Fair value of derivative liabilities	\$ 63	\$ 60
Total derivatives		\$731	\$942		\$ 383	\$ 415
Total debt designated as hedging instruments ⁽¹⁾						
Short-term debt		N/A	N/A		\$ —	\$ —
Long-term debt		N/A	N/A		6,261	6,471
		N/A	N/A		\$6,261	\$6,471
Total		\$731	\$942		\$6,644	\$6,886

⁽¹⁾ Debt designated as hedging instruments are reported at carrying value.

N/A—Not applicable

At December 31, 2018, the following amounts were recorded in the Consolidated Statement of Financial Position related to cumulative basis adjustments for fair value hedges:

(\$ in millions)

Line Item in the Consolidated Statement of Financial Position in which the Hedged Item is Included	Carrying Amount of the Hedged Item Assets/(Liabilities)	Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Assets/(Liabilities)
Short-term debt	\$(1,878)	\$ (4) ⁽¹⁾
Long-term debt	\$(6,004)	\$(333) ⁽²⁾

⁽¹⁾ Includes (\$6) million of hedging adjustments on discontinued hedging relationships.

⁽²⁾ Includes (\$213) million of hedging adjustments on discontinued hedging relationships.

The Effect of Derivative Instruments in the Consolidated Statement of Earnings

The total amounts of income and expense line items presented in the Consolidated Statement of Earnings 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)

For the year ended December 31, 2018	Cost of Services	Cost of Sales	Cost of Financing	SG&A Expense	Other (Income) and Expense	Interest Expense
Total	\$34,059	\$7,464	\$1,132	\$19,366	\$1,152	\$723
Gains/(losses) of total hedge activity	30	8	(6)	(116)	(434)	(6)

Notes to Consolidated Financial Statements
International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

For the year ended December 31:	Consolidated Statement of Earnings Line Item	Gain/(Loss) Recognized in Earnings					
		Recognized on Derivatives			Attributable to Risk Being Hedged ⁽²⁾		
		2018	2017	2016	2018	2017	2016
Derivative instruments in fair value hedges ⁽¹⁾							
Interest rate contracts	Cost of financing	\$ (61)	\$ 1	\$ 28	\$ 97	\$ 74	\$ 58
	Interest expense	(58)	1	31	92	69	63
Derivative instruments not designated as hedging instruments							
Interest rate contracts	Other (income) and expense	—	—	0	N/A	N/A	N/A
Foreign exchange contracts	Other (income) and expense	(93)	16	(189)	N/A	N/A	N/A
Equity contracts	SG&A expense	(116)	135	112	N/A	N/A	N/A
	Other (income) and expense	—	—	(1)	N/A	N/A	N/A
Total		\$(327)	\$153	\$ (18)	\$189	\$144	\$121

(\$ in millions)

For the year ended December 31:	Gain/(Loss) Recognized in Earnings and Other Comprehensive Income									
	Recognized in OCI			Consolidated Statement of Earnings Line Item	Reclassified from AOCI			Amounts Excluded from Effectiveness Testing ⁽³⁾		
	2018	2017	2016		2018	2017	2016	2018	2017	2016
Derivative instruments in cash flow hedges										
Interest rate contracts	\$ (35)	\$ —	\$ —	Cost of financing	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
				Interest expense	—	—	—	—	—	—
Foreign exchange contracts	(101)	(58)	243	Cost of services	30	70	(8)	—	—	—
				Cost of sales	8	3	(5)	—	—	—
				Cost of financing*	(75)	(23)	(12)	—	—	—
				SG&A expense	0	11	4	—	—	—
				Other (income) and expense	(341)	324	(68)	—	1	(3)
				Interest expense*	(71)	(22)	(13)	—	—	—
Instruments in net investment hedges ⁽⁴⁾										
Foreign exchange contracts	686	(1,607)	311	Cost of financing*	—	—	—	33	23	37
				Interest expense*	—	—	—	31	21	40
Total	\$ 549	\$(1,665)	\$555		\$(449)	\$363	\$(102)	\$64	\$45	\$74

* Reclassified to conform to 2018 presentation.

Prior period gain or loss amounts and presentation 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 ended December 31, 2018, 2017 and 2016, 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 E. INVENTORIES

(\$ in millions)

At December 31:	2018	2017
Finished goods	\$ 266	\$ 333
Work in process and raw materials	1,415	1,250
Total	\$1,682	\$1,583

NOTE F. FINANCING RECEIVABLES

Financing receivables primarily consist of investment in sales-type and direct financing leases, commercial financing receivables and client loan and installment payment receivables

(loans). 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. 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.

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, 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

(\$ in millions)

	Investment in Sales-Type and Direct Financing Leases	Commercial Financing Receivables	Client Loan and Installment Payment Receivables/ (Loans)	Total
At December 31, 2017:				
Financing receivables, gross	\$7,128	\$11,649	\$13,311	\$32,087
Unearned income	(535)	(32)	(644)	(1,210)
Recorded investment	\$6,593	\$11,617	\$12,667	\$30,877
Allowance for credit losses	(103)	(21)	(211)	(336)
Unguaranteed residual value	630	—	—	630
Guaranteed residual value	100	—	—	100
Total financing receivables, net	\$7,220	\$11,596	\$12,456	\$31,272
Current portion	\$2,900	\$11,596	\$ 7,226	\$21,721
Noncurrent portion	\$4,320	\$ —	\$ 5,230	\$ 9,550

Scheduled maturities of minimum lease payments outstanding at December 31, 2018, expressed as a percentage of the total, are approximately: 2019, 44 percent; 2020, 26 percent; 2021, 18 percent; 2022, 9 percent; and 2023 and beyond, 3 percent.

The company utilizes certain of its financing receivables as collateral for nonrecourse borrowings. Financing receivables pledged as collateral for borrowings were \$710 million and \$773 million at December 31, 2018 and 2017, respectively. These borrowings are included in note J, "Borrowings," on pages 108 to 111.

The company did not have any financing receivables held for sale as of December 31, 2018 and 2017.

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, 2018 and 2017. 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. The company determines its allowance for credit losses based on two portfolio segments: lease receivables and loan receivables, and further segments the portfolio into three classes: Americas, Europe/Middle East/Africa (EMEA) and Asia Pacific.

Notes to Consolidated Financial Statements
International Business Machines Corporation and Subsidiary Companies

(\$ 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.

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.

(\$ in millions)

At December 31, 2017:	Americas	EMEA	Asia Pacific	Total
Recorded investment:				
Lease receivables	\$ 3,911	\$1,349	\$1,333	\$ 6,593
Loan receivables	6,715	3,597	2,354	12,667
Ending balance	\$10,626	\$4,946	\$3,687	\$19,259
Recorded investment, collectively evaluated for impairment	\$10,497	\$4,889	\$3,604	\$18,990
Recorded investment, individually evaluated for impairment	\$ 129	\$ 57	\$ 83	\$ 269
Allowance for credit losses				
Beginning balance at January 1, 2017				
Lease receivables	\$ 54	\$ 4	\$ 76	\$ 133
Loan receivables	169	18	89	276
Total	\$ 223	\$ 22	\$ 165	\$ 410
Write-offs	(51)	(1)	(85)	(137)
Recoveries	1	1	0	2
Provision	(8)	29	(4)	16
Other*	7	11	6	24
Ending balance at December 31, 2017	\$ 172	\$ 61	\$ 82	\$ 314
Lease receivables	\$ 63	\$ 9	\$ 31	\$ 103
Loan receivables	\$ 108	\$ 52	\$ 51	\$ 211
Related allowance, collectively evaluated for impairment	\$ 43	\$ 15	\$ 6	\$ 64
Related allowance, individually evaluated for impairment	\$ 128	\$ 46	\$ 76	\$ 250

* Primarily represents translation adjustments.

Write-offs of lease receivables and loan receivables were \$55 million and \$82 million, respectively, for the year ended December 31, 2017. Provisions for credit losses recorded for lease receivables and loan receivables were \$9 million and \$7 million, respectively, for the year ended December 31, 2017.

The average recorded investment of impaired leases and loans for Americas, EMEA and Asia Pacific was \$158 million, \$33 million and \$122 million, respectively, for the year ended December 31, 2017. 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, 2017.

When determining the allowances, financing receivables are evaluated either on an individual or a collective basis. For individually evaluated receivables, 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. The company considers any receivable with an individually evaluated reserve as an impaired receivable.

In addition, the company records an unallocated reserve that is determined by applying a reserve rate to its different portfolios, excluding accounts that have been specifically reserved. This reserve rate is based upon credit rating, probability of default, term, characteristics (lease/loan) and loss history.

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)

	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⁾
At December 31, 2018:					
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, \$249 million is individually evaluated for impairment with a related allowance of \$219 million.

(\$ in millions)

	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⁾⁽³⁾
At December 31, 2017:					
Americas	\$ 3,911	\$239	\$197	\$29	\$ 44
EMEA	1,349	32	5	3	27
Asia Pacific	1,333	57	23	3	36
Total lease receivables	\$ 6,593	\$328	\$225	\$36	\$107
Americas	\$ 6,715	\$345	\$254	\$38	\$ 96
EMEA	3,597	90	17	0	74
Asia Pacific	2,354	63	12	3	54
Total loan receivables	\$12,667	\$498	\$283	\$41	\$224
Total	\$19,259	\$825	\$507	\$77	\$331

⁽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, \$269 million is individually evaluated for impairment with a related allowance of \$250 million.

⁽³⁾ Recast to conform to current period presentation, which includes billed impaired amounts.

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, 2018 and 2017. 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.

Lease Receivables

(\$ in millions)

At December 31, 2018:	Americas	EMEA	Asia Pacific
Credit rating			
Aaa–Aa3	\$ 593	\$ 45	\$ 85
A1–A3	678	158	413
Baa1–Baa3	892	417	297
Ba1–Ba2	852	426	191
Ba3–B1	433	171	84
B2–B3	299	90	50
Caa–D	26	10	7
Total	\$3,774	\$1,319	\$1,128

Loan Receivables

(\$ in millions)

At December 31, 2018:	Americas	EMEA	Asia Pacific
Credit rating			
Aaa–Aa3	\$1,055	\$ 125	\$ 185
A1–A3	1,206	436	901
Baa1–Baa3	1,587	1,148	648
Ba1–Ba2	1,516	1,175	417
Ba3–B1	770	472	184
B2–B3	531	249	109
Caa–D	47	28	15
Total	\$6,712	\$3,633	\$2,457

Lease Receivables

(\$ in millions)

At December 31, 2017:	Americas	EMEA	Asia Pacific
Credit rating			
Aaa–Aa3	\$ 422	\$ 49	\$ 68
A1–A3	855	190	544
Baa1–Baa3	980	371	337
Ba1–Ba2	730	448	184
Ba3–B1	443	192	89
B2–B3	367	77	64
Caa–D	51	13	18
Total	\$3,847	\$1,340	\$1,302

Loan Receivables

(\$ in millions)

At December 31, 2017:	Americas	EMEA	Asia Pacific
Credit rating			
Aaa–Aa3	\$ 724	\$ 129	\$ 120
A1–A3	1,469	502	961
Baa1–Baa3	1,683	982	596
Ba1–Ba2	1,253	1,186	325
Ba3–B1	760	508	157
B2–B3	630	204	113
Caa–D	88	34	31
Total	\$6,607	\$3,545	\$2,303

Troubled Debt Restructurings

The company did not have any significant troubled debt restructurings for the years ended December 31, 2018 and 2017.

NOTE G. PROPERTY, PLANT AND EQUIPMENT

(\$ in millions)

At December 31:	2018	2017
Land and land improvements	\$ 448	\$ 480
Buildings and building and leasehold improvements	9,640	10,073
Information technology equipment	17,468	16,874
Production, engineering, office and other equipment	4,081	4,060
Plant and other property—gross	31,636	31,487
Less: Accumulated depreciation	21,276	20,832
Plant and other property—net	10,359	10,655
Rental machines	824	844
Less: Accumulated depreciation	392	383
Rental machines—net	433	462
Total—net	\$10,792	\$11,116

NOTE H. INVESTMENTS AND SUNDRY ASSETS

(\$ in millions)

At December 31:	2018	2017
Derivatives—noncurrent	\$ 347	\$ 757
Alliance investments		
Equity method	192	90
Non-equity method	34	32
Long-term deposits	268	271
Other receivables	359	455
Employee benefit-related	263	316
Prepaid income taxes	626	590
Other assets	296	272*
Total	\$2,386	\$2,783*

* Recast to conform to 2018 presentation.

NOTE I. INTANGIBLE ASSETS INCLUDING GOODWILL

Intangible Assets

The following table details the company's intangible asset balances by major asset class.

(\$ 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

* Other intangibles are primarily acquired proprietary and nonproprietary business processes, methodologies and systems.

(\$ in millions)

At December 31, 2017:	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Intangible asset class			
Capitalized software	\$1,600	\$ (790)	\$ 810
Client relationships	2,358	(1,080)	1,278
Completed technology	2,586	(1,376)	1,210
Patents/trademarks	668	(256)	413
Other*	47	(16)	31
Total	\$7,260	\$(3,518)	\$3,742

* Other intangibles are primarily acquired proprietary and nonproprietary business processes, methodologies and systems.

The net carrying amount of intangible assets decreased \$655 million during the year ended December 31, 2018, primarily due to intangible asset amortization, partially offset by additions resulting from capitalized software. There was no impairment of intangible assets recorded in 2018 and 2017. The aggregate intangible amortization expense was \$1,353 million and \$1,520 million for the years ended December 31, 2018 and 2017, respectively. In addition, in 2018 and 2017, respectively, the company retired \$1,469 million and \$1,753 million of fully amortized intangible assets, impacting both the gross carrying amount and accumulated amortization by this amount.

The amortization expense for each of the five succeeding years relating to intangible assets currently recorded in the Consolidated Statement of Financial Position is estimated to be the following at December 31, 2018:

(\$ in millions)

	Capitalized Software	Acquired Intangibles	Total
2019	\$461	\$676	\$1,137
2020	320	565	886
2021	157	450	608
2022	—	382	382
2023	—	64	64

Goodwill

The changes in the goodwill balances by reportable segment for the years ended December 31, 2018 and 2017 are as follows:

(\$ in millions)

Segment	Balance January 1, 2018	Goodwill Additions	Purchase Price Adjustments	Divestitures	Foreign Currency Translation and Other Adjustments*	Balance December 31, 2018
Cognitive Solutions	\$19,665	\$10	\$ 0	\$(1)	\$(290)	\$19,384
Global Business Services	4,813	24	(3)	—	(92)	4,742
Technology Services & Cloud Platforms	10,447	—	0	—	(156)	10,292
Systems	1,862	—	0	—	(15)	1,847
Total	\$36,788	\$34	\$(3)	\$(1)	\$(553)	\$36,265

* Primarily driven by foreign currency translation.

(\$ in millions)

Segment	Balance January 1, 2017	Goodwill Additions	Purchase Price Adjustments	Divestitures	Foreign Currency Translation and Other Adjustments*	Balance December 31, 2017
Cognitive Solutions	\$19,484	\$ 3	\$(38)	\$(20)	\$235	\$19,665
Global Business Services	4,607	—	2	—	204	4,813
Technology Services & Cloud Platforms	10,258	13	(2)	—	179	10,447
Systems	1,850	—	0	—	13	1,862
Total	\$36,199	\$16	\$(38)	\$(20)	\$631	\$36,788

* Primarily driven by foreign currency translation.

There were no goodwill impairment losses recorded during 2018 or 2017 and the company has no accumulated impairment losses.

Purchase price adjustments recorded in 2018 and 2017 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 during 2018 were not material. Net purchase price adjustments of \$38 million were recorded during 2017, with the primary drivers being deferred tax assets, other taxes payable and other current liabilities associated with the Truven Health Analytics, Inc. and The Weather Company acquisitions.

NOTE J. BORROWINGS**Short-Term Debt**

(\$ in millions)

At December 31:	2018	2017
Commercial paper	\$ 2,995	\$1,496
Short-term loans	161	276
Long-term debt—current maturities	7,051	5,214
Total	\$10,207	\$6,987

The weighted-average interest rate for commercial paper at December 31, 2018 and 2017 was 2.5 percent and 1.5 percent, respectively. The weighted-average interest rates for short-term loans were 4.3 percent and 8.8 percent at December 31, 2018 and 2017, respectively.

Long-Term Debt
Pre-Swap Borrowing

(\$ in millions)

At December 31:	Maturities	2018	2017
U.S. dollar debt (weighted-average interest rate at December 31, 2018):*			
3.5%	2018	\$ —	\$ 4,640
3.0%	2019	5,465	5,540
2.6%	2020	4,344	3,416
2.8%	2021	5,529	4,129
2.4%	2022	3,536	3,481
3.2%	2023	2,428	1,547
3.6%	2024	2,037	2,000
7.0%	2025	600	600
3.5%	2026	1,350	1,350
4.7%	2027	969	969
6.5%	2028	313	313
3.7%	2030	32	—
5.9%	2032	600	600
8.0%	2038	83	83
5.6%	2039	745	745
4.0%	2042	1,107	1,107
7.0%	2045	27	27
4.7%	2046	650	650
7.1%	2096	316	316
		\$30,131	\$31,515
Other currencies (weighted-average interest rate at December 31, 2018, in parentheses):*			
Euros (1.5%)	2019–2029	10,011	10,502
Pound sterling (2.7%)	2020–2022	1,338	1,420
Japanese yen (0.3%)	2022–2026	1,325	1,291
Other (5.6%)	2019–2022	391	717
		43,196	45,445
Less: net unamortized discount		802	826
Less: net unamortized debt issuance costs		76	93
Add: fair value adjustment**		337	526
		42,656	45,052
Less: current maturities		7,051	5,214
Total		\$35,605	\$39,837

* Includes notes, debentures, bank loans, secured borrowings and capital lease obligations.

**The portion of the company's fixed-rate debt obligations that is hedged is reflected in the Consolidated Statement of Financial Position 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.

There are no debt securities issued and outstanding by IBM International Group Capital LLC, which is an indirect, 100 percent owned finance subsidiary of International Business Machines Corporation, the parent. Any debt securities issued by IBM International Group Capital LLC, would be fully and unconditionally guaranteed by the parent.

During the third quarter of 2017, IBM Credit LLC (IBM Credit), a wholly owned subsidiary of the company, filed a shelf registration statement with the Securities and Exchange Commission (SEC) allowing it to offer for sale public debt securities. IBM Credit issued fixed- and floating-rate debt securities in September 2017 in the aggregate amount of \$3.0 billion with maturity dates ranging from 2019 to 2022. During 2018, IBM Credit issued fixed- and floating-rate debt securities in the aggregate amount of \$4.0 billion with maturity dates ranging from 2020 to 2023. This debt is included in the long-term debt table above.

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 consolidated net interest expense ratio, which cannot be less

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

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.

Post-Swap Borrowing (Long-Term Debt, Including Current Portion)

(\$ in millions)

For the year ended December 31:	2018		2017	
	Amount	Weighted-average Interest Rate	Amount	Weighted-average Interest Rate
Fixed-rate debt	\$28,770	2.7%	\$29,007	2.7%
Floating-rate debt*	13,886	3.0%	16,044	2.1%
Total	\$42,656		\$45,052	

* Includes \$7,563 million in 2018 and \$9,138 million in 2017 of notional interest rate swaps that effectively convert fixed-rate long-term debt into floating-rate debt. See note D, "Financial Instruments," on pages 95 to 102.

Pre-swap annual contractual obligations of long-term debt outstanding at December 31, 2018, are as follows:

(\$ in millions)

	Total
2019	\$ 7,050
2020	7,273
2021	6,647
2022	4,338
2023	3,403
2024 and beyond	14,485
Total	\$43,196

Interest on Debt

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Cost of financing	\$ 757	\$ 658	\$ 576
Interest expense	723	615	630
Interest capitalized	3	5	2
Total interest paid and accrued	\$1,482	\$1,278	\$1,208

Refer to the related discussion on page 143 in note U, "Segment Information," for total interest expense of the Global Financing segment. See note D, "Financial Instruments," on pages 95 to 102 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 October 28, 2018, the company announced its intent to acquire all of the outstanding shares of Red Hat, Inc. In connection with this acquisition, IBM entered into a commitment letter under which certain banks committed to provide the company with a 364-day unsecured bridge term loan facility in an aggregate principal amount of up to \$20 billion to fund the acquisition. The company also entered into a fee letter in

connection with the 364-day bridge facility, under which the company incurred \$40 million in upfront fees during the fourth quarter of 2018. The company expects to incur additional fees of up to approximately \$25 million during the period the agreement remains in place. These upfront fees were capitalized and will be amortized to SG&A in the Consolidated Statement of Earnings over the expected term of the bridge term loan facility. For additional information on this transaction, see note C, "Acquisitions/Divestitures."

On July 19, 2018, the company amended its existing \$10.25 billion Five-Year Credit Agreement. In addition, 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 agreement, and also amended the existing \$2.5 billion Three-Year Credit Agreement. The amended Five-Year and Three-Year credit agreements included a modification of terms to account for the potential discontinuation of LIBOR and to extend the maturity dates. The new maturity dates for the Five-Year and Three-Year Credit Agreements are July 20, 2023 and July 20, 2021, respectively. Each of the facility sizes remained unchanged. The total expense recorded by the company related to the Five-Year Credit Agreement was \$6.7 million in 2018, \$6.1 million in 2017 and \$5.5 million in 2016. The total expense recorded by the company related to the 364-Day and Three-Year Credit Agreements was \$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 the 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, (the Borrowers), 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 the Credit 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, 2018, there were no borrowings by the company, or its subsidiaries, under the Credit Facilities.

NOTE K. OTHER LIABILITIES

(\$ in millions)

At December 31:	2018	2017
Income tax reserves	\$ 4,195	\$4,193
Excess 401(k) Plus Plan	1,380	1,583
Disability benefits	507	504
Derivative liabilities	206	38
Workforce reductions	736	804
Deferred taxes*	3,696	545
Other taxes payable	40	948
Environmental accruals	244	262
Warranty accruals	76	56
Asset retirement obligations	111	115
Acquisition related	13	88
Divestiture related**	173	253
Other	796	577
Total	\$12,174	\$9,965

* The increase in deferred taxes is due to the company's election on GILTI and a reclass from other taxes payable.

**Primarily related to the divestiture of the Microelectronics business.

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. Current liabilities are included in other accrued expenses and liabilities in the Consolidated Statement of Financial Position and were immaterial at December 31, 2018.

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 Statement of Financial Position, that do not reflect actual or anticipated insurance recoveries, were \$255 million and \$267 million at December 31, 2018 and 2017, respectively. Estimated environmental costs 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, 2018, 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 Statement of Financial Position were \$146 million and \$152 million at December 31, 2018 and 2017, respectively.

NOTE L. 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 892,479,411 shares were outstanding at December 31, 2018 and 150,000,000 shares of preferred stock with a \$.01 per share par value, none of which were outstanding at December 31, 2018.

Stock Repurchases

The Board of Directors authorizes the company to repurchase IBM common stock. The company repurchased 32,949,233 common shares at a cost of \$4,447 million, 27,237,179 common shares at a cost of \$4,323 million, and 23,283,400 common shares at a cost of \$3,455 million in 2018, 2017 and 2016, 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, 2018, \$3,339 million of Board common stock repurchase authorization was available. The company plans to purchase shares on the open market or in private transactions from time to time, depending on market conditions. As a result of the proposed transaction to acquire Red Hat, subject to closing, the company intends to suspend its share repurchase program in 2020 and 2021.

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: 3,998,245 shares in 2018, 4,311,998 shares in 2017, and 3,893,366 shares in 2016. The company issued 424,589 treasury shares in 2018, 463,083 treasury shares in 2017 and 383,077 treasury shares in 2016, 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, 1,173,416 common shares at a cost of \$171 million, 1,226,080 common shares at a cost of \$193 million, and 854,365 common shares at a cost of \$126 million in 2018, 2017 and 2016, 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 Statement of Financial Position and the Consolidated Statement of Changes in Equity.

Reclassifications and Taxes Related to Items of Other Comprehensive Income

(\$ in millions)

For the year ended December 31, 2018:	Before Tax Amount	Tax (Expense)/ Benefit	Net of Tax Amount
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. (See note T, "Retirement-Related Benefits," for additional information.)

(\$ in millions)

For the year ended December 31, 2017:	Before Tax Amount	Tax (Expense)/ Benefit	Net of Tax Amount
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⁽¹⁾			
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

* Reclassified to conform to 2018 presentation.

⁽¹⁾ These AOCI components are included in the computation of net periodic pension cost. (See note T, "Retirement-Related Benefits," for additional information.)

Notes to Consolidated Financial Statements
International Business Machines Corporation and Subsidiary Companies

(\$ in millions)

For the year ended December 31, 2016:	Before Tax Amount	Tax (Expense)/ Benefit	Net of Tax Amount
Other comprehensive income/(loss)			
Foreign currency translation adjustments	\$ (20)	\$ (120)	\$ (140)
Net changes related to available-for-sale securities			
Unrealized gains/(losses) arising during the period	\$ (38)	\$ 14	\$ (23)
Reclassification of (gains)/losses to other (income) and expense	34	(13)	21
Total net changes related to available-for-sale securities	\$ (3)	\$ 1	\$ (2)
Unrealized gains/(losses) on cash flow hedges			
Unrealized gains/(losses) arising during the period	\$ 243	\$ (80)	\$ 163
Reclassification of (gains)/losses to:			
Cost of services	8	(3)	5
Cost of sales	5	(5)	1
Cost of financing*	12	(4)	7
SG&A expense	(4)	(2)	(7)
Other (income) and expense	68	(26)	42
Interest expense*	13	(5)	8
Total unrealized gains/(losses) on cash flow hedges	\$ 345	\$ (126)	\$ 219
Retirement-related benefit plans⁽¹⁾			
Net (losses)/gains arising during the period	\$(2,490)	\$ 924	\$(1,566)
Curtailments and settlements	(16)	1	(15)
Amortization of prior service (credits)/costs	(107)	34	(74)
Amortization of net (gains)/losses	2,764	(976)	1,788
Total retirement-related benefit plans	\$ 150	\$ (19)	\$ 132
Other comprehensive income/(loss)	\$ 472	\$ (263)	\$ 209

* Reclassified to conform to 2018 presentation.

⁽¹⁾ These AOCI components are included in the computation of net periodic pension cost. (See note T, "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, 2015	\$ 100	\$(3,463)	\$(26,248)	\$ 5	\$(29,607)
Other comprehensive income before reclassifications	163	(140)	(1,581)	(23)	(1,581)
Amount reclassified from accumulated other comprehensive income	56	0	1,714	21	1,791
Total change for the period	219	(140)	132	(2)	209
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)

* 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."

NOTE M. CONTINGENCIES AND COMMITMENTS

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, 2018, 2017 and 2016 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 May 13, 2010, IBM and the State of Indiana (acting on behalf of the Indiana Family and Social Services Administration) sued one another in a dispute over a 2006 contract regarding the modernization of social service program processing in Indiana. After six weeks of trial, on July 18, 2012, the Indiana Superior Court in Marion County rejected the State's claims in their entirety and awarded IBM \$52 million plus interest and costs. On February 13, 2014, the Indiana Court of Appeals reversed portions of the trial judge's findings, found IBM in material breach, and ordered the case remanded to the trial judge to determine the State's damages, if any. The Indiana Court of Appeals also affirmed approximately \$50 million of the trial court's award of damages to IBM. On March 22, 2016, the Indiana Supreme Court affirmed the outcome of the Indiana Court of Appeals and remanded the case to the Indiana Superior Court. On August 7, 2017, the Indiana Superior Court awarded the State \$128 million, which it then offset against IBM's previously affirmed award of \$50 million, resulting in a \$78 million award to the State, plus interest. On September 28, 2018, the Indiana Court of Appeals affirmed the Superior Court's \$78 million award to the State, but reversed the Superior Court by awarding IBM prejudgment interest on its previously affirmed \$50 million award. In January 2019, the Indiana Supreme Court agreed to hear both parties' appeals. The matter remains pending.

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.

Following the 2017 final judgment of the Appeal Court in London holding that IBM UK acted lawfully in 2010 in closing its UK defined benefit plans to future accruals for most participants and in implementing a new retirement policy, the Employment Tribunal in Southampton UK is expected to address approximately 290 individual actions alleging constructive dismissal and age discrimination brought against IBM UK in 2010 by employees who left the company at that time. The individual actions were previously stayed.

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 and the matter remains pending.

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 \$900 million. The company believes it will prevail on these matters and that this amount is not a meaningful indicator of liability.

Commitments

The company's extended lines of credit to third-party entities include unused amounts of \$7,368 million and \$8,111 million at December 31, 2018 and 2017, respectively. A portion of these amounts was available to the company's business partners to support their working capital needs. In addition, the company has committed to provide future financing to its clients in connection with client purchase agreements for approximately \$4,432 million and \$3,569 million at December 31, 2018 and 2017, 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 \$26 million and \$19 million at December 31, 2018 and 2017, respectively. The fair value of the guarantees recognized in the Consolidated Statement of Financial Position was immaterial.

NOTE N. TAXES

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Income from continuing operations before income taxes			
U.S. operations	\$ 627	\$ 560	\$ 3,650
Non-U.S. operations	10,715	10,840	8,680
Total income from continuing operations before income taxes	\$11,342	\$11,400	\$12,330

The income from continuing operations provision for income taxes by geographic operations is as follows:

(\$ in millions)

For the year ended December 31:	2018	2017	2016
U.S. operations	\$1,199	\$2,923	\$ 38
Non-U.S. operations	1,420	2,719	411
Total continuing operations provision for income taxes	\$2,619	\$5,642	\$449

The components of the income from continuing operations provision for income taxes by taxing jurisdiction are as follows:

(\$ in millions)

For the year ended December 31:	2018	2017	2016
U.S. federal			
Current	\$ (342)	\$2,388	\$ 186
Deferred	1,377	77	(746)
	\$1,035	\$2,465	\$ (560)
U.S. state and local			
Current	\$ 127	\$ 55	\$ 244
Deferred	(292)	28	(44)
	\$ (165)	\$ 83	\$ 200
Non-U.S.			
Current	\$2,135	\$3,891	\$ 988
Deferred	(386)	(797)	(179)
	\$1,749	\$3,094	\$ 809
Total continuing operations provision for income taxes	\$2,619	\$5,642	\$ 449
Discontinued operations provision for/(benefit from) income taxes	2	(3)	(2)
Provision for social security, real estate, personal property and other taxes	3,322	3,434	3,417
Total taxes included in net income	\$5,943	\$9,073	\$3,864

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

A reconciliation of the statutory U.S. federal tax rate to the company's effective tax rate from continuing operations is as follows:

For the year ended December 31:	2018	2017	2016
Statutory rate	21%	35%	35%
Enactment of U.S. tax reform	18	48	—
Tax differential on foreign income	(11)	(26)	(21)
Intra-entity transfers	0	(5)	—
Domestic incentives	(1)	(2)	(1)
State and local	(1)	1	1
Japan resolution	—	—	(10)
Other	(3)	(2)	0
Effective rate	23%	49%	4%

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, excluding the 2016 Japan resolution, 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 the company recording a provisional tax expense charge of \$5.5 billion in the fourth quarter and year ended December 31, 2017. This charge 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. All components of the provisional charge were based on the company's estimates as of December 31, 2017. During the fourth quarter of 2018, the company completed its accounting for impacts of U.S. tax reform and the effects of measurement period adjustments were recognized as charges of \$2.0 billion for the year ended December 31, 2018, including \$1.9 billion in the fourth quarter of 2018. The adjustments were 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 net impact of the measurement period adjustments on the 2018 effective tax rate was 17.7 percent.

The U.S. Tax Cuts and Jobs Act introduced GILTI which subjects a U.S. shareholder to current tax on income earned by certain foreign subsidiaries. The company elected the deferred method which resulted in an increase to tax expense and deferred tax liabilities of \$2.0 billion in the fourth quarter and year ended December 31, 2018. Refer to note A, "Significant Accounting Policies," on pages 76 to 88 for additional information.

In January 2019, the U.S. Treasury and Internal Revenue Service issued additional U.S. tax reform guidelines. The company is still evaluating the impact of these guidelines.

The 2018 continuing operations effective tax rate decreased 26.4 points from 2017 driven by: a decrease in the tax charges related to the impact of U.S. tax reform described above (30.4 points), a benefit related to domestic and foreign audit activity (6.8 points), a more favorable mix of pre-tax earnings in 2018 (2.1 points) and the re-assessment of valuation allowances (1.2 points). These benefits were partially offset by a lower benefit year to year in the utilization of foreign tax credits (5.9 points) and benefits in 2017 related to an intra-entity asset transfer (5.1 points) and a tax write down of an intercompany investment (1.7 points), as well as a year-to-year increase in tax charges related to intercompany payments (1.3 points).

With the exception of the impact of U.S. tax reform, the effect of tax law changes on deferred tax assets and liabilities did not have a material impact on the company's effective tax rate.

Deferred Tax Assets

(\$ in millions)

At December 31:	2018	2017
Retirement benefits	\$3,620	\$3,477
Share-based and other compensation	636	646
Domestic tax loss/credit carryforwards	964	718
Deferred income	674	605
Foreign tax loss/credit carryforwards	903	1,024
Bad debt, inventory and warranty reserves	348	395
Depreciation	231	293
Accruals	336	387
Intangible assets	620	585
Other	1,501	1,396
Gross deferred tax assets	9,833	9,526
Less: valuation allowance	915	1,004
Net deferred tax assets	\$8,918	\$8,522

Deferred Tax Liabilities

(\$ in millions)

At December 31:	2018	2017
Depreciation	\$ 719	\$ 641
Retirement benefits	455	483
Goodwill and intangible assets	1,200	1,226
Leases	580	584
Software development costs	292	360
Deferred transition costs	233	254
GILTI deferred taxes	1,927	—
Undistributed foreign earnings*	981	—
Other	1,011	658
Gross deferred tax liabilities	\$7,398	\$4,206

* Year-to-year increase primarily driven by a reclass from other taxes payable within other liabilities.

For financial reporting purposes, the company has foreign and domestic loss carryforwards, the tax effect of which is \$584 million, as well as foreign and domestic credit carryforwards of \$1,283 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, 2018, 2017 and 2016 were \$915 million, \$1,004 million and \$916 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, 2018 decreased by \$272 million in 2018 to \$6,759 million. A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

(\$ in millions)

	2018	2017	2016
Balance at January 1	\$ 7,031	\$ 3,740	\$ 4,574
Additions based on tax positions related to the current year	394	3,029	560
Additions for tax positions of prior years	1,201	803	334
Reductions for tax positions of prior years (including impacts due to a lapse of statute)	(1,686)	(367)	(1,443)
Settlements	(181)	(174)	(285)
Balance at December 31	\$ 6,759	\$ 7,031	\$ 3,740

The additions to unrecognized tax benefits related to the current and prior years are 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 are primarily attributable to the resolution of certain U.S. federal audit activity, non-U.S. audits and impacts due to lapse of statute of limitations.

The unrecognized tax benefits at December 31, 2018 of \$6,759 million can be reduced by \$718 million associated with timing adjustments, U.S. tax credits, potential transfer pricing adjustments, and state income taxes. The net amount of \$6,041 million, if recognized, would favorably affect the company's effective tax rate. The net amounts at December 31, 2017 and 2016 were \$6,064 million and \$2,965 million, respectively.

Interest and penalties related to income tax liabilities are included in income tax expense. During the year ended December 31, 2018, the company recognized a net benefit of \$14 million in interest expense and penalties; in 2017, the company

recognized \$174 million in interest expense and penalties; and, in 2016, the company recognized \$62 million in interest expense and penalties. The company has \$680 million for the payment of interest and penalties accrued at December 31, 2018, and had \$799 million accrued at December 31, 2017.

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, 2018 could be reduced by \$551 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 2020. 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, 2018, the company has recorded \$660 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. The company believes it will prevail on these matters.

Within consolidated retained earnings at December 31, 2018 are undistributed after-tax earnings from certain non-U.S. subsidiaries that are not indefinitely reinvested. At December 31, 2018, the company has a deferred tax liability of \$981 million for the estimated taxes associated with the repatriation of these earnings. Undistributed earnings of approximately \$300 million and other outside basis differences in foreign subsidiaries are indefinitely reinvested in foreign operations. Quantification of the deferred tax liability, if any, associated with indefinitely reinvested earnings and outside basis differences is not practicable.

NOTE O. REVENUE RECOGNITION

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)

For the year ended December 31, 2018:	Cognitive Solutions	Global Business Services	Technology Services & Cloud Platforms	Systems	Global Financing	Other	Total Revenue
Solutions Software	\$12,903	\$ —	\$ —	\$ —	\$ —	\$ —	\$12,903
Transaction Processing Software	5,578	—	—	—	—	—	5,578
Consulting	—	7,705	—	—	—	—	7,705
Global Process Services	—	1,259	—	—	—	—	1,259
Application Management	—	7,852	—	—	—	—	7,852
Infrastructure Services	—	—	23,007	—	—	—	23,007
Technical Support Services	—	—	6,961	—	—	—	6,961
Integration Software	—	—	4,493	—	—	—	4,493
Systems Hardware	—	—	—	6,363	—	—	6,363
Operating Systems Software	—	—	—	1,671	—	—	1,671
Global Financing*	—	—	—	—	1,590	—	1,590
Other Revenue	—	—	—	—	—	207	207
Total	\$18,481	\$16,817	\$34,462	\$8,034	\$1,590	\$207	\$79,591

* 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)

For the year ended December 31, 2018:	Total Revenue
Americas	\$36,994
Europe/Middle East/Africa	25,491
Asia Pacific	17,106
Total	\$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. Remaining performance obligation estimates are subject to change and are affected by several factors, including terminations, changes in the scope of contracts, periodic revaluations, adjustments for revenue that has not materialized and adjustments for currency.

At December 31, 2018, the aggregate amount of the transaction price allocated to RPO related to customer contracts that are unsatisfied or partially unsatisfied was \$124 billion. Given the profile of contract terms, approximately 60 percent of this amount is expected to be recognized as revenue over the next two years, approximately 35 percent between three and five years and the balance (mostly Infrastructure Services) thereafter.

Revenue Recognized for Performance Obligations Satisfied (or Partially Satisfied) in Prior Periods

For the year ended December 31, 2018, revenue was reduced by \$51 million for performance obligations satisfied (or partially satisfied) in previous periods mainly due to changes in estimates on percentage-of-completion based contracts. Refer to note A, "Significant Accounting Policies," for additional information on percentage-of-completion contracts and estimates of costs to complete.

Reconciliation of Contract Balances

The following table provides information about notes and accounts receivables—trade, contract assets and deferred income balances:

(\$ in millions)

	At December 31, 2018	At January 1, 2018 ⁽²⁾
Notes and accounts receivable—trade (net of allowances of \$309 and \$297 at December 31, 2018 and January 1, 2018, respectively)	\$ 7,432	\$ 8,295
Contract assets ⁽¹⁾	470	557
Deferred income (current)	11,165	11,493
Deferred income (noncurrent)	3,445	3,758

⁽¹⁾ Included within prepaid expenses and other current assets in the Consolidated Statement of Financial Position.

⁽²⁾ As adjusted, upon adoption of the revenue standard on January 1, 2018.

The amount of revenue recognized during the year ended December 31, 2018 that was included within the deferred income balance at January 1, 2018 was \$10.2 billion and primarily related to services and software.

Deferred Costs

(\$ in millions)

	At December 31, 2018
Capitalized costs to obtain a contract	\$ 717
Deferred costs to fulfill a contract:	
Deferred setup costs	2,085
Other deferred fulfillment costs	2,173
Total deferred costs⁽¹⁾	\$4,975

⁽¹⁾ Of the total, \$2,300 million is current and \$2,676 million is noncurrent. Prior to January 1, 2018, the current and noncurrent balance of deferred costs were included within prepaid expenses and other current assets and investments and sundry assets, respectively.

On January 1, 2018, in accordance with the transition guidance, \$737 million of in-scope sales commissions that were previously recorded in the Consolidated Statement of Earnings were capitalized as costs to obtain a contract. The amount of total deferred costs amortized during the year ended December 31, 2018 was \$3,690 million. There were no material impairment losses incurred during the period. Refer to note A, "Significant Accounting Policies," for additional information on deferred costs to fulfill a contract and capitalized costs of obtaining a contract.

Transition Disclosures

In accordance with the modified retrospective method transition requirements, the company has presented the financial statement line items impacted and adjusted to compare to presentation under the prior GAAP for each of the annual periods during the first year of adoption of the new revenue standard. The following tables summarize the impacts as of and for the year ended December 31, 2018. The adjustments to prior GAAP include results of the transition adjustments recorded at adoption and current period impacts. Refer to note B, "Accounting Changes," for additional information on the transition adjustments.

Consolidated Statement of Earnings Impacts

(\$ in millions except per share amounts)

	As Reported under New Revenue Standard	Adjustments to Convert to Prior GAAP	Adjusted Amounts under Prior GAAP
For the year ended December 31, 2018:			
Revenue	\$79,591	\$ (63)	\$79,528
Cost	42,655	(40)	42,615
Gross profit	36,936	(23)	36,912
Selling, general and administrative expense	19,366	7	19,373
Income from continuing operations before income taxes	11,342	(30)	11,312
Provision for/(benefit from) income taxes	2,619	(6)	2,613
Net income	\$ 8,728	\$ (24)	\$ 8,704
Earnings/(loss) per share of common stock—continuing operations:			
Assuming dilution	\$ 9.51	\$(0.03)	\$ 9.49
Basic	\$ 9.56	\$(0.03)	\$ 9.54

Consolidated Statement of Financial Position Impacts

(\$ in millions)

	As Reported under New Revenue Standard	Adjustments to Convert to Prior GAAP	Adjusted Amounts under Prior GAAP
At December 31, 2018:			
Assets:			
Notes and accounts receivable—trade (net of allowances)	\$ 7,432	\$ 533	\$ 7,965
Deferred costs (current)	2,300	(273)	2,027
Prepaid expenses and other current assets	2,378	(430)	1,948
Deferred taxes	5,216	190	5,406
Deferred costs (noncurrent)	2,676	(444)	2,231
Investments and sundry assets	2,386	—	2,386
Total assets	\$123,382	\$(425)	\$122,957
Liabilities:			
Taxes	\$ 3,046	\$ 56	\$ 3,102
Deferred income (current)	11,165	67	11,232
Deferred income (noncurrent)	3,445	31	3,476
Total liabilities	\$106,452	\$ 154	\$106,606
Equity:			
Retained earnings	\$159,206	\$(604)	\$158,601
Accumulated other comprehensive income/(loss)	(29,490)	26	(29,464)
Total stockholders' equity	\$ 16,929	\$(578)	\$ 16,351
Total liabilities and stockholders' equity	\$123,382	\$(425)	\$122,957

Consolidated Statement of Cash Flows Impacts

(\$ in millions)

	As Reported under New Revenue Standard	Adjustments to Convert to Prior GAAP	Adjusted Amounts under Prior GAAP
For the year ended December 31, 2018:			
Cash flows from operating activities:			
Net income	\$ 8,728	\$(24)	\$ 8,704
Adjustments to reconcile net income to cash provided by operating activities:			
Changes in operating assets and liabilities, net of acquisitions/divestitures	554	24	578
Net cash provided by operating activities	\$15,247	\$ —	\$15,247

NOTE P. RESEARCH, DEVELOPMENT AND ENGINEERING

RD&E expense was \$5,379 million in 2018, \$5,590 million in 2017 and \$5,726 million in 2016. Amounts for 2017 and 2016 have been recast to reflect the adoption of the FASB guidance on presentation of net benefit cost.

The company incurred total expense of \$5,027 million, \$5,170 million and \$5,394 million in 2018, 2017 and 2016, 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 \$3,050 million, \$3,145 million and \$3,441 million in 2018, 2017 and 2016, respectively.

Expense for product-related engineering was \$352 million, \$420 million and \$332 million in 2018, 2017 and 2016, respectively.

NOTE Q. EARNINGS PER SHARE OF COMMON STOCK

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:	2018	2017	2016
Weighted-average number of shares on which earnings per share calculations are based			
Basic	912,048,072	932,828,295	955,422,530
Add—incremental shares under stock-based compensation plans	2,786,316	3,094,373	2,416,940
Add—incremental shares associated with contingently issuable shares	1,481,326	1,462,957	874,626
Assuming dilution	916,315,714	937,385,625	958,714,097
Income from continuing operations	\$8,723	\$5,758	\$11,881
Income/(loss) from discontinued operations, net of tax	5	(5)	(9)
Net income on which basic earnings per share is calculated	\$8,728	\$5,753	\$11,872
Income from continuing operations	\$8,723	\$5,758	\$11,881
Net income applicable to contingently issuable shares	(6)	(2)	0
Income from continuing operations on which diluted earnings per share is calculated	\$8,718	\$5,756	\$11,881
Income/(loss) from discontinued operations, net of tax, on which basic and diluted earnings per share is calculated	5	(5)	(9)
Net income on which diluted earnings per share is calculated	\$8,722	\$5,752	\$11,872
Earnings/(loss) per share of common stock			
Assuming dilution			
Continuing operations	\$ 9.51	\$ 6.14	\$ 12.39
Discontinued operations	0.01	0.00	(0.01)
Total	\$ 9.52	\$ 6.14	\$ 12.38
Basic			
Continuing operations	\$ 9.56	\$ 6.17	\$ 12.44
Discontinued operations	0.01	0.00	(0.01)
Total	\$ 9.57	\$ 6.17	\$ 12.43

Weighted-average stock options to purchase 576,776 common shares in 2018, 209,294 common shares in 2017 and 405,552 common shares in 2016 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 R. RENTAL EXPENSE AND LEASE COMMITMENTS

Rental expense, including amounts charged to inventories and fixed assets, and excluding amounts previously reserved, was \$1,944 million in 2018, \$1,821 million in 2017 and \$1,508 million in 2016. Rental expense in agreements with rent holidays and scheduled rent increases is recorded on a straight-line basis over the lease term. Contingent rentals are included in the determination of rental expense as accruable.

The table below depicts gross minimum rental commitments under noncancelable leases, amounts related to vacant space associated with workforce transformation, sublease income commitments and capital lease commitments. These amounts reflect activities primarily related to office space, data centers, equipment and vehicles.

(\$ 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

NOTE S. STOCK-BASED COMPENSATION

The following table presents total stock-based compensation cost included in income from continuing operations.

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Cost	\$ 82	\$ 91	\$ 88
Selling, general and administrative	361	384	401
Research, development and engineering	67	59	55
Pre-tax stock-based compensation cost	510	534	544
Income tax benefits	(116)	(131)	(179)
Net stock-based compensation cost	\$ 393	\$ 403	\$ 364

Total unrecognized compensation cost related to non-vested awards at December 31, 2018 and 2017 was \$821 million and \$851 million, respectively. The amount at December 31, 2018 is expected to be recognized over a weighted-average period of approximately 2.6 years.

Capitalized stock-based compensation cost was not material at December 31, 2018, 2017 and 2016.

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 (the "Committee"). Awards available under the Plans principally include restricted stock units, performance share units, stock options or any combination thereof.

The amount of shares originally authorized to be issued under the company's existing Plans was 273 million at December 31, 2018. In addition, certain incentive awards granted under previous plans, if and when those awards were canceled, could be reissued under the company's existing Plans. As such, 66.2 million additional shares were considered authorized to be issued under the company's existing Plans as of December 31, 2018. There were 100.0 million unused shares available to be granted under the Plans as of December 31, 2018.

Under the company's long-standing practices and policies, all awards are approved prior to or on the date of grant. The awards approval process specifies the individual receiving the grant, the number of options or the value of the award, the exercise price or formula for determining the exercise price and the date of grant. All awards for senior management are approved by the Committee. All awards for employees other than senior management are approved by senior management pursuant to a series of delegations that were approved by the Committee, and the grants made pursuant to these delegations are reviewed periodically with the Committee. Awards that are given as part of annual total compensation for senior management and other employees are made on specific cycle dates scheduled in advance. With respect to awards given in connection with promotions or new hires, the company's policy requires approval of such awards prior to the grant date, which is typically the date of the promotion or the date of hire.

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 tables below summarize RSU and PSU activity under the Plans during the years ended December 31, 2018, 2017 and 2016.

RSUs

	2018		2017		2016	
	Weighted-Average Grant Price	Number of Units	Weighted-Average Grant Price	Number of Units	Weighted-Average Grant Price	Number of Units
Balance at January 1	\$141	8,555,263	\$147	8,899,092	\$159	7,527,341
RSUs granted	121	4,806,790	137	3,540,949	140	3,985,870
RSUs released	148	(2,579,962)	153	(3,032,531)	174	(1,860,660)
RSUs canceled/forfeited	139	(979,387)	147	(852,247)	158	(753,459)
Balance at December 31	\$130	9,802,704	\$141	8,555,263	\$147	8,899,092

PSUs

	2018		2017		2016	
	Weighted-Average Grant Price	Number of Units	Weighted-Average Grant Price	Number of Units	Weighted-Average Grant Price	Number of Units
Balance at January 1	\$144	2,649,313	\$155	2,874,758	\$173	2,928,932
PSUs granted at target	130	909,140	137	824,875	140	990,336
Performance adjustments*	152	(328,120)	175	(623,245)	194	(387,457)
PSUs released	152	(666,244)	175	(293,236)	194	(419,759)
PSUs canceled/forfeited	135	(144,394)	144	(133,839)	174	(237,294)
Balance at December 31**	\$136	2,419,695	\$144	2,649,313	\$155	2,874,758

* Represents the change in shares issued to employees after vesting of PSUs 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.

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. For RSUs, dividend equivalents are not paid. The fair value of such RSUs is determined and fixed on the grant date based on the company's stock price adjusted for the exclusion of dividend equivalents.

The remaining weighted-average contractual term of RSUs at December 31, 2018, 2017 and 2016 is the same as the period over which the remaining cost of the awards will be recognized, which is approximately three years. The fair value of RSUs granted during the years ended December 31, 2018, 2017 and 2016 was \$583 million, \$484 million and \$557 million, respectively. The total fair value of RSUs vested and released during the years ended December 31, 2018, 2017 and 2016 was \$381 million, \$463 million and \$323 million, respectively. As of December 31, 2018, 2017 and 2016, there was \$715 million, \$763 million and \$814 million, respectively, of unrecognized compensation cost related to non-vested RSUs. The company received no cash from employees as a result of employee vesting and release of RSUs for the years ended December 31, 2018, 2017 and 2016.

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. For PSUs, dividend equivalents are not paid. The fair value of each PSU is determined on the grant date, based on the company's stock price, adjusted for the exclusion of dividend equivalents, and assumes that performance targets will be achieved. Over the performance period, the number of shares of stock that will be issued is adjusted upward or downward 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. The fair value of PSUs granted at target during the years ended December 31, 2018, 2017 and 2016 was \$118 million, \$113 million and \$138 million, respectively. Total fair value of PSUs vested and released during the years ended December 31, 2018, 2017 and 2016 was \$101 million, \$51 million and \$81 million, respectively.

In connection with vesting and release of RSUs and PSUs, the tax benefits realized by the company for the years ended December 31, 2018, 2017 and 2016 were \$117 million, \$180 million and \$118 million, respectively.

Stock Options

For the years ended December 31, 2018 and 2017, the company did not grant stock options. For the year ended December 31, 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 is recognized ratably over the three-year vesting period.

The company estimates the fair value of stock options at the date of grant using the Black-Scholes valuation model. Key inputs and assumptions used to estimate the fair value of stock options include the grant price of the award, the expected option term, volatility of the company's stock, the risk-free rate and the company's dividend yield. Estimates of fair value are not intended to predict actual future events or the value ultimately realized by employees who receive equity awards, and subsequent events are not indicative of the reasonableness of the original estimates of fair value made by the company.

The following table summarizes option activity under the Plans during the years ended December 31, 2018, 2017 and 2016.

	2018		2017		2016	
	Weighted-Average Exercise Price	Number of Shares Under Option	Weighted-Average Exercise Price	Number of Shares Under Option	Weighted-Average Exercise Price	Number of Shares Under Option
Balance at January 1	\$140	1,500,000	\$137	1,613,923	\$ 94	479,774
Options granted	—	—	—	—	140	1,500,000
Options exercised	—	—	103	(106,132)	91	(361,088)
Options canceled/expired	—	—	103	(7,791)	86	(4,763)
Balance at December 31	\$140	1,500,000	\$140	1,500,000	\$137	1,613,923
Exercisable at December 31	\$ —	—	\$ —	—	\$103	113,923

The shares under option at December 31, 2018 were in the following exercise price ranges:

Exercise Price Range	Options Outstanding			
	Weighted-Average Exercise Price	Number of Shares Under Option	Aggregate Intrinsic Value	Weighted-Average Remaining Contractual Life (in Years)
\$129–\$154	\$140	1,500,000	\$0	7.1

Exercises of Employee Stock Options

For the year ended December 31, 2018, no stock options were exercised. The total intrinsic value of options exercised during the years ended December 31, 2017 and 2016 was \$7 million and \$20 million, respectively. The total cash received from employees as a result of employee stock option exercises for the years ended December 31, 2017 and 2016 was approximately \$11 million and \$33 million, respectively. In connection with these exercises, the tax benefits realized by the company for the years ended December 31, 2017 and 2016 were \$2 million and \$7 million, respectively.

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, 2018 and 2017 were approximately 1,341 million and 1,307 million shares, respectively.

Acquisitions

In connection with various acquisition transactions, there was an additional 0.2 million options outstanding at December 31, 2018, as a result of the company's conversion of stock-based awards previously granted by the acquired entities. The weighted-average exercise price of these awards was \$39 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 full or fractional 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 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 1.0 million, 1.0 million and 1.2 million shares under the ESPP during the years ended December 31, 2018, 2017 and 2016, respectively. 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.

In July 2014, the "2014 ESPP Reserve" became effective and 25 million additional shares of authorized common stock were reserved and approved for issuance. The 2014 ESPP provides for semi-annual offerings commencing July 1, 2014, and continuing as long as shares remain available under the ESPP, unless terminated earlier at the discretion of the Board of Directors.

Approximately 19.8 million, 20.8 million and 21.8 million shares were available for purchase under the ESPP at December 31, 2018, 2017 and 2016, respectively.

NOTE T. RETIREMENT-RELATED BENEFITS

Description of Plans

IBM sponsors defined benefit pension plans and defined contribution plans that cover eligible regular employees, a supplemental retention plan that covers certain U.S. executives and nonpension postretirement benefit plans primarily consisting of retiree medical and dental benefits for eligible retirees and dependents.

U.S. Plans

Defined Benefit Pension Plans

IBM Personal Pension Plan

IBM provides U.S. regular, full-time and part-time employees hired prior to January 1, 2005 with noncontributory defined benefit pension benefits via the IBM Personal Pension Plan (PPP). The PPP has two plans, a tax qualified plan (Qualified PPP) and a non-tax qualified plan (Excess PPP). The Qualified PPP is funded by company contributions to an irrevocable trust fund, which is held for the sole benefit of participants and beneficiaries. The Excess PPP, which is unfunded, provides benefits in excess of IRS limitations for qualified plans.

Benefits provided to the PPP participants are calculated using benefit formulas that vary based on the participant. The first method uses a five-year, final pay formula that determines benefits based on salary, years of service, mortality and other participant-specific factors. The second method is a cash balance formula that calculates benefits using a percentage of employees' annual salary, as well as an interest crediting rate.

Benefit accruals under the IBM PPP ceased December 31, 2007 for all participants.

Beginning in 2019, substantially all the plan participants in the U.S. Qualified PPP are considered inactive. As required by U.S. GAAP, this will change the amortization period of unrecognized actuarial losses to the average remaining life expectancy of inactive plan participants, which is 18 years as of December 31, 2018. As a result of this change, there will be a reduction to 2019 amortization expense of approximately \$900 million. There will be no impact to funded status, retiree benefit payments or funding requirements of the U.S. Qualified PPP due to this change.

U.S. Supplemental Executive Retention Plan

The company also sponsors a nonqualified U.S. Supplemental Executive Retention Plan (Retention Plan). The Retention Plan, which is unfunded, provides benefits to eligible U.S. executives based on average earnings, years of service and age at termination of employment.

Benefit accruals under the Retention Plan ceased December 31, 2007 for all participants.

Defined Contribution Plans

IBM 401(k) Plus Plan

U.S. regular, full-time and part-time employees are eligible to participate in the IBM 401(k) Plus Plan, which is a qualified defined contribution plan under section 401(k) of the Internal Revenue Code. Under the IBM 401(k) Plus Plan, eligible employees receive a dollar-for-dollar match of their contributions generally up to 6 percent of eligible compensation for those hired prior to January 1, 2005, and generally up to 5 percent of eligible compensation for those hired on or after January 1, 2005. In addition, eligible employees generally receive automatic contributions from the company equal to 1, 2 or 4 percent of eligible compensation based on their eligibility to participate in the PPP as of December 31, 2007. Employees generally receive automatic contributions and matching contributions after the completion of one year of service.

All contributions, including the company match, are made in cash and invested in accordance with participants' investment elections. There are no minimum amounts that must be invested in company stock, and there are no restrictions on transferring amounts out of company stock to another investment choice, other than excessive trading rules applicable to such investments. Matching and automatic contributions are made once annually at the end of the year. In order to receive such contributions each year, a participant must be employed on December 15 of the plan year. However, matching and auto contributions may be made for certain types of separations that occur prior to December 15, including for example, if the participant has completed certain service and/or age requirements at separation. The company's matching contributions vest immediately and participants are always fully vested in their own contributions.

IBM Excess 401(k) Plus Plan

The IBM Excess 401(k) Plus Plan (Excess 401(k)) is an unfunded, nonqualified defined contribution plan. Employees whose eligible compensation is expected to exceed the IRS compensation limit for qualified plans are eligible to participate in the Excess 401(k). The purpose of the Excess 401(k) is to provide benefits that would be provided under the qualified IBM 401(k) Plus Plan if the compensation limits did not apply.

Amounts deferred into the Excess 401(k) are record-keeping (notional) accounts and are not held in trust for the participants. Participants in the Excess 401(k) may invest their notional accounts in investments which mirror the primary investment options available under the 401(k) Plus Plan. Participants in the Excess 401(k) are also eligible to receive company match and automatic contributions (at the same rate as under the 401(k) Plus Plan) on eligible compensation deferred into the Excess 401(k) and on compensation earned in excess of the Internal Revenue Code pay limit once they have completed one year of service. Amounts deferred into the Excess 401(k), including company contributions are recorded as liabilities in the Consolidated Statement of Financial Position. Matching and automatic contributions are made once annually at the end of the year. In order to receive such contributions each year, a participant must be employed on December 15 of the plan year. However, matching and auto contributions may be made for certain types of separations that occur prior to December 15, including for example, if the participant has completed certain service and/or age requirements at separation.

Nonpension Postretirement Benefit Plan

U.S. Nonpension Postretirement Plan

The company sponsors a defined benefit nonpension postretirement benefit plan that provides medical and dental benefits to eligible U.S. retirees and eligible dependents, as well as life insurance for eligible U.S. retirees. Benefits provided vary based on plan design formulas and eligibility requirements. Under all the plan arrangements, there is a maximum cost to the company for these benefits.

Since January 1, 2004, new hires, as of that date or later, are not eligible for company-subsidized nonpension postretirement benefits.

Non-U.S. Plans

Certain subsidiaries and branches outside the United States sponsor defined benefit and/or defined contribution plans that cover eligible regular employees. The company deposits funds under various fiduciary-type arrangements, purchases annuities under group contracts or provides reserves for these plans. Benefits under the defined benefit plans are typically 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. The range of assumptions that are used for the non-U.S. defined benefit plans reflect the different economic environments within the various countries.

In addition, certain of the company's non-U.S. subsidiaries sponsor nonpension postretirement benefit plans that provide medical and dental benefits to eligible non-U.S. retirees and eligible dependents, as well as life insurance for certain eligible non-U.S. retirees. However, most non-U.S. retirees are covered by local government sponsored and administered programs.

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 Statement of Earnings.

(\$ in millions)

	U.S. Plans			Non-U.S. Plans			Total		
	2018	2017	2016	2018	2017	2016	2018	2017	2016
For the year ended December 31:									
Defined benefit pension plans	\$ 542	\$ 237	\$(334)	\$1,284	\$1,315	\$1,039	\$1,827	\$1,552	\$ 705
Retention Plan	17	16	17	—	—	—	17	16	17
Total defined benefit pension plans (income)/cost	\$ 559	\$ 253	\$(317)	\$1,284	\$1,315	\$1,039	\$1,843	\$1,568	\$ 722
IBM 401(k) Plus Plan and non-U.S. plans	\$ 588	\$ 616	\$ 626	\$ 412	\$ 404	\$ 420	\$1,000	\$1,020	\$1,046
Excess 401(k)	24	26	24	—	—	—	24	26	24
Total defined contribution plans cost	\$ 612	\$ 643	\$ 650	\$ 412	\$ 404	\$ 420	\$1,024	\$1,046	\$1,070
Nonpension postretirement benefit plans cost	\$ 147	\$ 180	\$ 195	\$ 51	\$ 62	\$ 16	\$ 198	\$ 242	\$ 211
Total retirement-related benefits net periodic cost	\$1,319	\$1,076	\$ 527	\$1,747	\$1,781	\$1,475	\$3,066	\$2,857	\$2,003

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 Statement of Financial Position.

(\$ in millions)

At December 31:	Benefit Obligations		Fair Value of Plan Assets		Funded Status*	
	2018	2017	2018	2017	2018	2017
U.S. Plans						
Overfunded plans						
Qualified PPP	\$46,145	\$50,602	\$48,213	\$52,694	\$ 2,069	\$ 2,092
Underfunded plans						
Excess PPP	\$ 1,395	\$ 1,532	\$ —	\$ —	\$ (1,395)	\$ (1,532)
Retention Plan	273	310	—	—	(273)	(310)
Nonpension postretirement benefit plan	3,912	4,184	29	18	(3,882)	(4,165)
Total underfunded U.S. plans	\$ 5,579	\$ 6,026	\$ 29	\$ 18	\$ (5,550)	\$ (6,007)
Non-U.S. Plans						
Overfunded plans						
Qualified defined benefit pension plans**	\$17,379	\$19,537	\$19,975	\$22,088	\$ 2,597	\$ 2,551
Nonpension postretirement benefit plans	0	0	0	0	0	0
Total overfunded non-U.S. plans	\$17,379	\$19,537	\$19,975	\$22,088	\$ 2,597	\$ 2,551
Underfunded plans						
Qualified defined benefit pension plans**	\$22,139	\$23,046	\$16,783	\$18,711	\$ (5,356)	\$ (4,336)
Nonqualified defined benefit pension plans	6,252	6,527	—	—	(6,252)	(6,527)
Nonpension postretirement benefit plans	704	732	65	70	(640)	(663)
Total underfunded non-U.S. plans	\$29,095	\$30,306	\$16,848	\$18,780	\$ (12,248)	\$ (11,526)
Total overfunded plans	\$63,524	\$70,139	\$68,190	\$74,782	\$ 4,666	\$ 4,643
Total underfunded plans	\$34,675	\$36,332	\$16,877	\$18,799	\$ (17,798)	\$ (17,533)

* Funded status is recognized in the Consolidated Statement of Financial Position 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. non-qualified plans are unfunded.

At December 31, 2018, the company's qualified defined benefit pension plans worldwide were 99 percent funded compared to the benefit obligations, with the U.S. Qualified PPP 104 percent funded. Overall, including nonqualified plans, the company's defined benefit pension plans worldwide were 91 percent funded.

Defined Benefit Pension and Nonpension Postretirement Benefit Plan Financial Information

The following tables through page 133 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 tables below present the components of net periodic (income)/cost of the retirement-related benefit plans recognized in the Consolidated Statement of Earnings, excluding defined contribution plans.

(\$ in millions)

For the year ended December 31:	Defined Benefit Pension Plans					
	U.S. Plans			Non-U.S. Plans		
	2018	2017	2016	2018	2017	2016
Service cost	\$ —	\$ —	\$ —	\$ 413	\$ 410	\$ 420
Interest cost ⁽¹⁾	1,719	1,913	2,048	830	837	1,035
Expected return on plan assets ⁽¹⁾	(2,701)	(3,014)	(3,689)	(1,342)	(1,325)	(1,867)
Amortization of transition assets ⁽¹⁾	—	—	—	0	0	0
Amortization of prior service costs/(credits) ⁽¹⁾	16	16	10	(83)	(97)	(106)
Recognized actuarial losses ⁽¹⁾	1,525	1,337	1,314	1,401	1,507	1,408
Curtailments and settlements ⁽¹⁾	—	—	—	11	19	22
Multi-employer plans	—	—	—	38	40	43
Other costs/(credits)*	—	—	—	16	(76)	84
Total net periodic (income)/cost	\$ 559	\$ 253	\$ (317)	\$ 1,284	\$ 1,315	\$ 1,039

(\$ in millions)

For the year ended December 31:	Nonpension Postretirement Benefit Plans					
	U.S. Plan			Non-U.S. Plans		
	2018	2017	2016	2018	2017	2016
Service cost	\$ 13	\$ 14	\$ 17	\$ 5	\$ 6	\$ 5
Interest cost ⁽¹⁾	132	154	165	45	57	51
Expected return on plan assets ⁽¹⁾	0	0	0	(6)	(7)	(6)
Amortization of transition assets ⁽¹⁾	—	—	—	0	0	0
Amortization of prior service costs/(credits) ⁽¹⁾	(7)	(7)	(7)	0	0	(5)
Recognized actuarial losses ⁽¹⁾	10	20	20	6	7	9
Curtailments and settlements ⁽¹⁾	—	—	—	0	0	(38)
Total net periodic cost	\$147	\$180	\$195	\$51	\$ 62	\$ 16

⁽¹⁾ These components of net periodic pension costs are included in other (income) and expense in the Consolidated Statement of Earnings.

* The non-U.S. plans amounts include a gain of \$91 million in 2017 related to the IBM UK litigation and a retirement-related charge of \$56 million related to the IBM Spain pension litigation for 2016.

The following table presents the changes in benefit obligations and plan assets of the company's retirement-related benefit plans, excluding defined contribution 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	
	2018	2017	2018	2017	2018	2017	2018	2017
Change in benefit obligation								
Benefit obligation at January 1	\$52,444	\$52,218	\$49,111	\$44,981	\$ 4,184	\$ 4,470	\$ 732	\$ 692
Service cost	—	—	413	410	13	14	5	6
Interest cost	1,719	1,913	830	837	132	154	45	57
Plan participants' contributions	—	—	25	28	59	54	—	—
Acquisitions/divestitures, net	—	—	(27)	24	0	0	0	0
Actuarial losses/(gains)	(2,743)	1,895	(240)	520	(71)	(98)	43	(3)
Benefits paid from trust	(3,484)	(3,460)	(1,976)	(1,865)	(383)	(385)	(7)	(6)
Direct benefit payments	(124)	(123)	(390)	(384)	(22)	(24)	(31)	(30)
Foreign exchange impact	—	—	(2,012)	4,657	—	—	(86)	18
Amendments/curtailments/ settlements/other	—	—	34	(96)	—	—	3	(1)
Benefit obligation at December 31	\$47,812	\$52,444	\$45,770	\$49,111	\$ 3,912	\$ 4,184	\$ 705	\$ 732
Change in plan assets								
Fair value of plan assets at January 1	\$52,694	\$51,405	\$40,798	\$36,020	\$ 18	\$ 26	\$ 70	\$ 71
Actual return on plan assets	(997)	4,749	(610)	2,583	1	0	12	6
Employer contributions	—	—	325	368	335	394	0	0
Acquisitions/divestitures, net	—	—	(22)	(28)	0	0	0	0
Plan participants' contributions	—	—	25	28	59	54	0	—
Benefits paid from trust	(3,484)	(3,460)	(1,976)	(1,865)	(383)	(385)	(7)	(6)
Foreign exchange impact	—	—	(1,754)	3,694	—	—	(10)	(1)
Amendments/curtailments/ settlements/other	—	—	(28)	(2)	0	(70)	0	(1)
Fair value of plan assets at December 31	\$48,213	\$52,694	\$36,758	\$40,798	\$ 29	\$ 18	\$ 65	\$ 70
Funded status at December 31	\$ 401	\$ 250	\$ (9,012)	\$ (8,312)	\$(3,882)	\$(4,165)	\$(640)	\$(663)
Accumulated benefit obligation*	\$47,812	\$52,444	\$45,161	\$47,974	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 Statement of Financial Position.

(\$ in millions)

	Defined Benefit Pension Plans				Nonpension Postretirement Benefit Plans			
	U.S. Plans		Non-U.S. Plans		U.S. Plan		Non-U.S. Plans	
	2018	2017	2018	2017	2018	2017	2018	2017
At December 31:								
Prepaid pension assets	\$ 2,069	\$ 2,092	\$ 2,597	\$ 2,551	\$ 0	\$ 0	\$ 0	\$ 0
Current liabilities— compensation and benefits	(120)	(120)	(302)	(323)	(340)	(353)	(36)	(17)
Noncurrent liabilities—retirement and nonpension postretirement benefit obligations	(1,548)	(1,722)	(11,306)	(10,541)	(3,542)	(3,812)	(605)	(646)
Funded status—net	\$ 401	\$ 250	\$ (9,012)	\$ (8,312)	\$(3,882)	\$(4,165)	\$(640)	\$(663)

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

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	
	2018	2017	2018	2017	2018	2017	2018	2017
Net loss at January 1	\$18,045	\$19,222	\$18,275	\$20,544	\$486	\$605	\$145	\$154
Current period loss/(gain)	956	159	1,590	(740)	(72)	(99)	33	(2)
Curtailments and settlements	—	—	(11)	(22)	—	—	0	0
Amortization of net loss included in net periodic (income)/cost	(1,525)	(1,337)	(1,401)	(1,507)	(10)	(20)	(6)	(7)
Net loss at December 31	\$17,476	\$18,045	\$18,452	\$18,275	\$405	\$486	\$172	\$145
Prior service costs/(credits) at January 1	\$ 74	\$ 90	\$ (90)	\$ (188)	\$ 45	\$ 37	\$ 3	\$ 1
Current period prior service costs/(credits)	—	—	181	—	—	—	1	—
Curtailments, settlements and other	—	—	0	1	—	—	0	2
Amortization of prior service (costs)/credits included in net periodic (income)/cost	(16)	(16)	83	97	7	7	0	0
Prior service costs/(credits) at December 31	\$ 57	\$ 74	\$ 172	\$ (90)	\$ 52	\$ 45	\$ 4	\$ 3
Transition (assets)/liabilities at January 1	\$ —	\$ —	\$ 0	\$ 0	\$ —	\$ —	\$ 0	\$ 0
Amortization of transition assets/(liabilities) included in net periodic (income)/cost	—	—	—	0	—	—	0	0
Transition (assets)/liabilities at December 31	\$ —	\$ —	\$ 0	\$ 0	\$ —	\$ —	\$ 0	\$ 0
Total loss recognized in accumulated other comprehensive income/(loss)*	\$17,533	\$18,119	\$18,624	\$18,184	\$457	\$531	\$176	\$147

* See note L, "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.

The following table presents the pre-tax estimated net loss, estimated prior service costs/(credits) and estimated transition (assets)/liabilities of the retirement-related benefit plans that will be amortized from AOCI into net periodic (income)/cost in 2019.

(\$ in millions)

	Defined Benefit Pension Plans		Nonpension Postretirement Benefit Plans	
	U.S. Plans	Non-U.S. Plans	U.S. Plan	Non-U.S. Plans
Net loss	\$560	\$1,261	\$2	\$11
Prior service costs/(credits)	16	(26)	(2)	0
Transition (assets)/liabilities	—	—	—	—

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.

On March 24, 2014, the Supreme Court of Spain issued a ruling against IBM Spain in litigation involving its defined benefit and defined contribution plans. During the fourth quarter of 2016, an arbitration ruling related to the defined contribution plan resulted in an additional charge of \$56 million. For the year ended December 31, 2016, the company recorded pre-tax retirement-related obligations of \$56 million in selling, general and administrative expense in the Consolidated Statement of Earnings. There were no pre-tax retirement-related obligations for the years ended December 31, 2018 and 2017. These obligations are reflected in "Non-U.S. Plans—Other costs/(credits)" in the table on page 130.

On October 12, 2012, the High Court in London issued a ruling against IBM United Kingdom Limited and IBM United Kingdom Holdings Limited, both wholly owned subsidiaries of the company, in litigation involving one of IBM UK's defined benefit plans. As a result of the ruling, the company recorded a pre-tax retirement-related obligation of \$162 million in the fourth quarter of 2012 in selling, general and administrative expense in the Consolidated Statement of Earnings. As a result of the final Court of Appeal ruling received in August 2017, the company adjusted its obligation under the plan. This adjustment resulted in a gain of \$91 million for the year ended December 31, 2017, which was recorded in selling, general and administrative expense in the Consolidated Statement of Earnings. This gain is reflected in "Non-U.S. Plans—Other costs/(credits)" in the table on page 130. See note M, "Contingencies and Commitments" for additional information.

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 table below presents 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		
	2018	2017	2016	2018	2017	2016
Weighted-average assumptions used to measure net periodic (income)/cost for the year ended December 31						
Discount rate	3.40%	3.80%	4.00%	1.76%	1.80%	2.40%
Expected long-term returns on plan assets	5.25%	5.75%	7.00%	3.62%	3.77%	5.53%
Rate of compensation increase	N/A	N/A	N/A	2.41%	2.45%	2.40%
Weighted-average assumptions used to measure benefit obligations at December 31						
Discount rate	4.10%	3.40%	3.80%	1.85%	1.76%	1.80%
Rate of compensation increase	N/A	N/A	N/A	2.18%	2.41%	2.45%

N/A—Not applicable

	Nonpension Postretirement Benefit Plans					
	U.S. Plan			Non-U.S. Plans		
	2018	2017	2016	2018	2017	2016
Weighted-average assumptions used to measure net periodic cost for the year ended December 31						
Discount rate	3.30%	3.60%	3.70%	7.28%	8.26%	7.06%
Expected long-term returns on plan assets	N/A	N/A	N/A	8.91%	10.47%	9.95%
Weighted-average assumptions used to measure benefit obligations at December 31						
Discount rate	3.90%	3.30%	3.60%	7.48%	7.28%	8.26%

N/A—Not applicable

Discount Rate

The discount rate assumptions used for retirement-related benefit plans accounting reflect the yields available on high-quality, fixed-income debt instruments at the measurement date. For the U.S. and certain non-U.S. countries, a portfolio of high-quality corporate bonds is used to construct a yield curve. The cash flows from the company's expected benefit obligation payments are then matched to the yield curve to derive the discount rates. In other non-U.S. countries, where the markets for high-quality long-term bonds are not generally as well developed, a portfolio of long-term government bonds is used as a base, to which a credit spread is added to simulate corporate bond yields at these maturities in the jurisdiction of each plan, as the benchmark for developing the respective discount rates.

For the U.S. defined benefit pension plans, the changes in the discount rate assumptions impacted the net periodic (income)/cost and the PBO. The changes in the discount rate assumptions resulted in a decrease in 2018 net periodic income of \$124 million, a decrease in 2017 net periodic income of \$64 million and an increase in 2016 net periodic income of \$103 million. The changes in the discount rate assumptions resulted in a decrease in the PBO of \$3,239 million and an increase of \$1,962 million for the years ended December 31, 2018 and 2017, respectively.

For the U.S. nonpension postretirement benefit plans, the changes in the discount rate assumptions had no material impact on net periodic cost for the years ended December 31, 2018, 2017 and 2016 and resulted in a decrease in the APBO of \$153 million and an increase of \$88 million at December 31, 2018 and 2017, respectively.

For all of the company's retirement-related benefit plans, the change in the discount rate assumptions resulted in a decrease in the benefit obligation of approximately \$4.0 billion at December 31, 2018 and an increase of approximately \$2.5 billion at December 31, 2017.

Expected Long-Term Returns on Plan Assets

Expected returns on plan assets, a component of net periodic (income)/cost, represent the expected long-term returns on plan assets based on the calculated market-related value of plan assets. Expected long-term returns on plan assets take into account long-term expectations for future returns and the investment policies and strategies as described on pages 135 and 136. These rates of return are developed by the company and are tested for reasonableness against historical returns. The use of expected long-term returns on plan assets may result in recognized pension income that is greater or less than the actual returns of those plan assets in any 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 and cost recognition that more closely matches the pattern of the services provided by the employees. Differences between actual and expected returns are 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.

For the U.S. defined benefit pension plan, the expected long-term rate of return on plan assets for the years ended December 31, 2018, 2017 and 2016 was 5.25 percent, 5.75 percent and 7.0 percent, respectively. The change in the rate in 2018 resulted in a decrease in 2018 net periodic income of \$256 million. For the year ended December 31, 2017, the change in the rate resulted in a decrease in net periodic income of \$656 million. For the year ended December 31, 2016, the change in the rate resulted in a decrease in net periodic income of \$268 million. For 2019, the projected long-term rate of return on plan assets is 5.25 percent.

For the U.S. nonpension postretirement benefit plans, the company maintains a highly liquid trust fund balance to ensure timely payments are made. As a result, for the years ended December 31, 2018, 2017 and 2016, the expected long-term return on plan assets and the actual return on those assets were not material.

Rate of Compensation Increases and Mortality Rate

The rate of compensation increases is determined by the company, based upon its long-term plans for such increases. The rate of compensation increase is not applicable to the U.S. defined benefit pension plans as benefit accruals ceased December 31, 2007 for all participants. Mortality rate assumptions are based on life expectancy and death rates for different types of participants. Mortality rates are periodically updated based on actual experience. In the U.S., the Society of Actuaries released new mortality tables in 2014 and updated them in each of the years 2015 to 2018. The company utilized these tables in its plan remeasurements at December 31, 2018 and 2017. For the U.S. retirement-related plans, the change in mortality assumptions resulted in a decrease to the plan benefit obligations of \$27 million and \$345 million at December 31, 2018 and 2017, respectively.

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 assumption provides a basis for projecting the expected interest rate that 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.

For the PPP, the change in the interest crediting rate to 2.3 percent for the year ended December 31, 2018 from 1.6 percent for the year ended December 31, 2017 resulted in a decrease in 2018 net periodic income of \$25 million. The change in the interest crediting rate to 1.6 percent for the year ended December 31, 2017 from 1.3 percent for the year ended December 31, 2016 resulted in a decrease in 2017 net periodic income of \$14 million. The change in the interest crediting rate to 1.3 percent for the year ended December 31, 2016 from 1.1 percent for the year ended December 31, 2015 resulted in a decrease in 2016 net periodic income of \$7 million.

Healthcare Cost Trend Rate

For nonpension postretirement benefit plan accounting, the company reviews external data and its own historical trends for healthcare costs to determine the healthcare cost trend rates. However, the healthcare cost trend rate has an insignificant effect on plan costs and obligations as a result of the terms of the plan which limit the company's obligation to the participants. The company assumes that the healthcare cost trend rate for 2019 will be 6.25 percent. In addition, the company assumes that the same trend rate will decrease to 5 percent over the next five years. A one percentage point increase or decrease in the assumed healthcare cost trend rate would not have had a material effect on 2018, 2017 and 2016 net periodic cost or the benefit obligations as of December 31, 2018 and 2017.

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 pages 134 and 135. 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. During 2016 and 2017, the company changed its investment strategy, modifying the target allocation primarily by reducing equity securities and increasing debt securities. These changes were designed to reduce the potential negative impact that equity markets might have on the funded status of the plan. There were no significant changes to investment strategy made in 2018 or planned for 2019. 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 \$4,295 million of the Qualified PPP portfolio as of December 31, 2018 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 \$1,500 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 24 percent equity securities, 60 percent fixed-income securities, 4 percent real estate and 12 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, 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	\$ 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. Plan 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 \$29 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.

The following table presents the company's defined benefit pension plans' asset classes and their associated fair value at December 31, 2017. 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⁾	\$2,215	\$ 0	\$ —	\$ 2,215	\$3,508	\$ 0	\$ —	\$ 3,508
Equity mutual funds ⁽²⁾	108	—	—	108	24	—	—	24
Fixed income								
Government and related ⁽³⁾	—	19,762	—	19,762	—	10,103	8	10,111
Corporate bonds ⁽⁴⁾	—	17,864	372	18,236	—	2,000	—	2,000
Mortgage and asset-backed securities	—	619	4	623	—	5	—	5
Fixed income mutual funds ⁽⁵⁾	338	—	—	338	86	—	—	86
Insurance contracts	—	—	—	—	—	1,366	—	1,366
Cash and short-term investments ⁽⁶⁾	100	1,903	—	2,004	221	606	—	827
Real estate	—	—	—	—	—	—	356	356
Derivatives ⁽⁷⁾	21	(4)	—	17	20	744	—	764
Other mutual funds ⁽⁸⁾	—	—	—	—	60	—	—	60
Subtotal	2,782	40,144	376	43,302	3,918	14,824	365	19,107
Investments measured at net asset value using the NAV practical expedient ⁽⁹⁾	—	—	—	9,537	—	—	—	21,744
Other ⁽¹⁰⁾	—	—	—	(145)	—	—	—	(52)
Fair value of plan assets	\$2,782	\$40,144	\$376	\$52,694	\$3,918	\$14,824	\$365	\$40,798

⁽¹⁾ Represents U.S. and international securities. The U.S. Plan includes IBM common stock of \$14 million, representing 0.03 percent of the U.S. Plan assets. Non-U.S. Plans include IBM common stock of \$7 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 \$1 million, representing 0.002 percent of the U.S. Plan assets. Non-U.S. plans include IBM corporate bonds of \$1 million representing 0.002 percent of the non-U.S. Plan 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 \$18 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 \$70 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 tables present the reconciliation of the beginning and ending balances of Level 3 assets for the years ended December 31, 2018 and 2017 for the U.S. Plan.

(\$ 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

(\$ in millions)

	Corporate Bonds	Mortgage and Asset-Backed Securities	Total
Balance at January 1, 2017	\$101	\$5	\$106
Return on assets held at end of year	12	0	11
Return on assets sold during the year	1	0	1
Purchases, sales and settlements, net	259	(1)	258
Balance at December 31, 2017	\$372	\$4	\$376

The following tables present the reconciliation of the beginning and ending balances of Level 3 assets for the years ended December 31, 2018 and 2017 for the non-U.S. Plans.

(\$ 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

(\$ in millions)

	Government and Related	Corporate Bonds	Private Real Estate	Total
Balance at January 1, 2017	\$16	\$1	\$294	\$310
Return on assets held at end of year	2	0	24	26
Return on assets sold during the year	(3)	0	(1)	(4)
Purchases, sales and settlements, net	(2)	0	9	7
Transfers, net	(6)	0	—	(6)
Foreign exchange impact	2	0	30	31
Balance at December 31, 2017	\$ 8	\$—	\$356	\$365

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 2018 and 2017.

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

Defined Benefit Pension Plans

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 company contributed \$111 million in cash and \$213 million in U.S. Treasury securities to non-U.S. defined benefit pension plans as well as \$38 million in cash to multi-employer plans for the year ended December 31, 2018. For the year ended December 31, 2017, the company contributed \$192 million in cash and \$176 million in U.S. Treasury securities to non-U.S. defined benefit pension plans as well as \$40 million in cash to multi-employer plans. The contribution of U.S. Treasury securities is considered a non-cash transaction in the Consolidated Statement of Cash Flows. The cash contributions to multi-employer plans represent the annual cost included in net periodic (income)/cost recognized in the Consolidated Statement of Earnings. The company's participation in multi-employer plans has no material impact on the company's financial statements.

In 2019, 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 2019, the company estimates contributions to its non-U.S. defined benefit and multi-employer plans to be approximately \$400 million, the largest of which will be contributed to defined benefit pension plans in Japan, Spain and Belgium. This amount generally represents legally mandated minimum contributions.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Financial market performance in 2019 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.

Defined Contribution Plans

The company contributed \$1.0 billion in cash to the defined contribution plans during each of the years ended December 31, 2018 and 2017. In 2019, the company estimates cash contributions to the defined contribution plans to be approximately \$1.0 billion.

Nonpension Postretirement Benefit Plans

The company contributed \$385 million in U.S. Treasury securities to the nonpension postretirement and active employee medical

trusts for the year ended December 31, 2018 compared to \$394 million during the year ended December 31, 2017. In 2017, excess cash in the postretirement plan of \$70 million was transferred to the active employee medical trust. The contribution of U.S. Treasury securities is considered a non-cash transaction in the Consolidated Statement of Cash Flows.

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, 2018 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
2019	\$ 3,521	\$122	\$1,862	\$ 336	\$ 5,841
2020	3,537	123	1,874	343	5,877
2021	3,529	123	1,876	397	5,924
2022	3,489	122	1,911	414	5,937
2023	3,440	121	1,922	432	5,915
2024–2028	16,237	574	9,514	2,293	28,619

The 2019 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 Statement of Financial Position.

Nonpension Postretirement Benefit Plan Expected Payments

The following table reflects 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, 2018.

(\$ in millions)

	U.S. Plan Payments	Qualified Non-U.S. Plans Payments	Nonqualified Non-U.S. Plans Payments	Total Expected Benefit Payments
2019	\$ 377	\$ 7	\$ 33	\$ 416
2020	388	7	34	429
2021	397	7	36	440
2022	394	7	37	439
2023	377	7	39	423
2024–2028	1,587	41	218	1,846

The 2019 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 Statement of Financial Position.

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 131.

(\$ in millions)

	2018		2017	
	Benefit Obligation	Plan Assets	Benefit Obligation	Plan Assets
At December 31:				
Plans with PBO in excess of plan assets	\$30,059	\$16,783	\$31,416	\$18,711
Plans with ABO in excess of plan assets	29,312	16,522	27,751	15,607
Plans with assets in excess of PBO	63,524	68,190	70,139	74,782

NOTE U. SEGMENT INFORMATION

The company's major operations consist of five business segments: Cognitive Solutions, Global Business Services, Technology Services & Cloud Platforms, Systems and Global Financing. 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.

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 Technology Services & Cloud Platforms in outsourcing engagements are primarily sourced internally from the Systems segment and software is sourced from various segments. Software used by Technology Services & Cloud Platforms on external engagements is sourced internally through Cognitive Solutions and the Systems segments. For providing IT services that are used internally, Technology Services & Cloud Platforms 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. 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.

Notes to Consolidated Financial Statements

International Business Machines Corporation and Subsidiary Companies

Management System Segment View

(\$ in millions)

For the year ended December 31:	Cognitive Solutions	Global Business Services	Technology Services & Cloud Platforms	Systems	Global Financing	Total Segments
2018						
External revenue	\$18,481	\$16,817	\$34,462	\$8,034	\$1,590	\$79,383
Internal revenue	2,715	326	795	815	1,610	6,261
Total revenue	\$21,197	\$17,143	\$35,257	\$8,848	\$3,200	\$85,644
Pre-tax income from continuing operations	\$ 7,154	\$ 1,676	\$ 3,786	\$ 904	\$1,361	\$14,881
Revenue year-to-year change	0.5%	2.6%	0.9%	(1.1)%	1.0%	0.9%
Pre-tax income year-to-year change	5.3%	23.0%	(11.7)%	(19.9)%	6.5%	0.2%
Pre-tax income margin	33.8%	9.8%	10.7%	10.2%	42.5%	17.4%
2017						
External revenue	\$18,453	\$16,348	\$34,277	\$8,194	\$1,696	\$78,968
Internal revenue	2,647	363	657	750	1,471	5,889
Total revenue	\$21,100	\$16,711	\$34,934	\$8,945	\$3,168	\$84,857
Pre-tax income from continuing operations*	\$ 6,795	\$ 1,362	\$ 4,286	\$1,128	\$1,278	\$14,849
Revenue year-to-year change	1.4%	(2.3)%	(3.1)%	5.7%	(9.3)%	(1.3)%
Pre-tax income year-to-year change*	7.4%	(19.0)%	(7.7)%	21.9%	(22.8)%	(2.5)%
Pre-tax income margin*	32.2%	8.2%	12.3%	12.6%	40.3%	17.5%
2016						
External revenue	\$18,187	\$16,700	\$35,337	\$7,714	\$1,692	\$79,630
Internal revenue	2,630	409	715	750	1,802	6,307
Total revenue	\$20,817	\$17,109	\$36,052	\$8,464	\$3,494	\$85,936
Pre-tax income from continuing operations*	\$ 6,325	\$ 1,683	\$ 4,643	\$ 925	\$1,654	\$15,230
Revenue year-to-year change	3.8%	(3.1)%	0.6%	(18.0)%	(22.0)%	(2.7)%
Pre-tax income year-to-year change*	(12.5)%	(34.4)%	(17.4)%	(46.1)%	(30.0)%	(21.9)%
Pre-tax income margin*	30.4%	9.8%	12.9%	10.9%	47.3%	17.7%

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Reconciliations of IBM as Reported

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Revenue			
Total reportable segments	\$85,644	\$84,857	\$85,936
Other revenue	207	171	289
Elimination of internal transactions	(6,261)	(5,889)	(6,307)
Total IBM consolidated revenue	\$79,591	\$79,139	\$79,919

(\$ in millions)

For the year ended December 31:	2018	2017	2016
Pre-tax income from continuing operations			
Total reportable segments	\$14,881	\$14,849*	\$15,230*
Amortization of acquired intangible assets	(809)	(945)	(998)
Acquisition-related charges	(16)	(52)	(5)
Non-operating retirement-related (costs)/income	(1,572)	(1,341)*	(448)*
Elimination of internal transactions	(758)	(726)	(1,160)
Unallocated corporate amounts	(385)	(385)	(290)
Total pre-tax income from continuing operations	\$11,342	\$11,400	\$12,330

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

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.

Segment Assets and Other Items

Cognitive Solutions assets are mainly goodwill, acquired intangible assets and accounts receivable. Global Business Services assets are primarily goodwill and accounts receivable. Technology Services & Cloud Platforms assets are primarily goodwill, plant, property and equipment including the assets associated with the outsourcing business, deferred costs and accounts receivable. 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.

To ensure the efficient use of the company's space and equipment, several segments may share 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 on page 144. In those cases, there will not be a precise correlation between segment pre-tax income and segment assets.

Similarly, the depreciation amounts reported by each segment are based on the assigned landlord ownership and may not be consistent with the amounts that are included in the segments' pre-tax income. The amounts that are included in pre-tax income reflect occupancy charges from the landlord segment and are not specifically identified by the management reporting system. 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 pages 25 and 26, as well as the income from investment in cash and marketable securities. The explanation of the difference between cost of financing and interest expense for segment presentation versus presentation in the Consolidated Statement of Earnings is included on page 39 of the Management Discussion.

Management System Segment View

(\$ in millions)

For the year ended December 31:	Cognitive Solutions	Global Business Services	Technology Services & Cloud Platforms	Systems	Global Financing	Total Segments
2018						
Assets	\$24,244	\$8,404	\$24,624	\$4,030	\$41,320	\$102,622
Depreciation/amortization of intangibles*	987	102	2,501	315	229	4,135
Capital expenditures/investments in intangibles	363	57	2,678	241	274	3,612
Interest income	—	—	—	—	1,647	1,647
Interest expense	—	—	—	—	515	515
2017						
Assets**	\$24,828	\$8,713	\$24,619	\$3,898	\$41,096	\$103,153
Depreciation/amortization of intangibles*	1,121	101	2,359	341	267	4,190
Capital expenditures/investments in intangibles	373	50	2,290	189	364	3,265
Interest income	—	—	—	—	1,527	1,527
Interest expense	—	—	—	—	381	381
2016						
Assets**	\$25,514	\$8,627	\$24,085	\$3,812	\$36,492	\$ 98,530
Depreciation/amortization of intangibles*	1,228	104	2,224	375	317	4,248
Capital expenditures/investments in intangibles	495	55	2,382	453	380	3,764
Interest income	—	—	—	—	1,547	1,547
Interest expense	—	—	—	—	371	371

* Segment pre-tax income from continuing operations does not include the amortization of intangible assets.

**Recast to reflect adoption of the FASB guidance on restricted cash.

Reconciliations of IBM as Reported

(\$ in millions)

At December 31:	2018	2017	2016
Assets			
Total reportable segments	\$102,622	\$103,153*	\$ 98,530*
Elimination of internal transactions	(7,143)	(6,272)	(5,670)
Unallocated amounts			
Cash and marketable securities	10,393	10,162*	6,999*
Notes and accounts receivable	1,597	2,554	2,660
Deferred tax assets	5,089	4,746	5,078
Plant, other property and equipment	2,463	2,659	2,656
Pension assets	4,666	4,643	3,034
Other	3,695	3,712*	4,183*
Total IBM consolidated assets	\$123,382	\$125,356	\$117,470

* Recast to reflect adoption of the FASB guidance on restricted cash.

Major Clients

No single client represented 10 percent or more of the company's total revenue in 2018, 2017 or 2016.

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:	2018	2017	2016
United States	\$29,078	\$29,759	\$30,194
Japan	8,489	8,239	8,339
Other countries	42,024	41,141	41,386
Total IBM consolidated revenue	\$79,591	\$79,139	\$79,919

* Revenues are attributed to countries based on the location of the client.

Plant and Other Property—Net

(\$ in millions)

At December 31:	2018	2017	2016
United States	\$ 4,585	\$ 4,670	\$ 4,701
Other countries	5,774	5,985	5,607
Total	\$10,359	\$10,655	\$10,308

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:	2018	2017	2016
Cognitive Solutions			
Software	\$13,667	\$13,598	\$13,969
Services	4,708	4,752	4,111
Systems	106	103	107
Global Business Services			
Services	\$16,460	\$16,004	\$16,399
Software	151	179	179
Systems	206	165	121
Technology Services & Cloud Platforms			
Services	\$24,145	\$23,629	\$24,311
Maintenance	5,484	5,783	5,862
Software	3,713	3,610	3,818
Systems	1,119	1,254	1,346
Systems			
Servers	\$ 3,996	\$ 3,993	\$ 3,567
Storage	2,114	2,243	2,083
Software	1,498	1,520	1,586
Services	425	439	478
Global Financing			
Financing	\$ 1,223	\$ 1,167	\$ 1,231
Used equipment sales	366	530	461

NOTE V. SUBSEQUENT EVENTS

On January 29, 2019, the company announced that the Board of Directors approved a quarterly dividend of \$1.57 per common share. The dividend is payable March 9, 2019 to shareholders of record on February 8, 2019.

On January 31, 2019, the company issued \$5.7 billion of Euro bonds as follows: \$2.0 billion of 4-year fixed-rate bonds with a 0.375 coupon, \$1.1 billion of 6-year fixed-rate bonds with a 0.875 coupon, \$1.1 billion of 8-year fixed-rate bonds with a 1.25 coupon and \$1.4 billion of 12-year fixed-rate bonds with a 1.75 coupon.

(\$ in millions except per share amounts)

For the year ended December 31:	2018	2017	2016	2015	2014
Revenue	\$ 79,591	\$ 79,139	\$ 79,919	\$ 81,741	\$ 92,793
Income from continuing operations	\$ 8,723	\$ 5,758	\$ 11,881	\$ 13,364	\$ 15,751
Income/(loss) from discontinued operations, net of tax	\$ 5	\$ (5)	\$ (9)	\$ (174)	\$ (3,729)
Net income	\$ 8,728	\$ 5,753	\$ 11,872	\$ 13,190	\$ 12,022
Operating (non-GAAP) earnings*	\$ 12,657	\$ 12,807**	\$ 12,880**	\$ 14,519**	\$ 16,534**
Earnings/(loss) per share of common stock:					
Assuming dilution:					
Continuing operations	\$ 9.51	\$ 6.14	\$ 12.39	\$ 13.60	\$ 15.59
Discontinued operations	\$ 0.01	\$ 0.00	\$ (0.01)	\$ (0.18)	\$ (3.69)
Total	\$ 9.52	\$ 6.14	\$ 12.38	\$ 13.42	\$ 11.90
Basic:					
Continuing operations	\$ 9.56	\$ 6.17	\$ 12.44	\$ 13.66	\$ 15.68
Discontinued operations	\$ 0.01	\$ 0.00	\$ (0.01)	\$ (0.18)	\$ (3.71)
Total	\$ 9.57	\$ 6.17	\$ 12.43	\$ 13.48	\$ 11.97
Diluted operating (non-GAAP)*	\$ 13.81	\$ 13.66**	\$ 13.44**	\$ 14.77**	\$ 16.37**
Cash dividends paid on common stock	\$ 5,666	\$ 5,506	\$ 5,256	\$ 4,897	\$ 4,265
Investment in property, plant and equipment	\$ 3,395	\$ 3,229	\$ 3,567	\$ 3,579	\$ 3,740
Return on IBM stockholders' equity	48.0%	31.1%	74.0%	101.1%	72.5%

At December 31:	2018	2017	2016	2015	2014
Total assets	\$123,382	\$125,356	\$117,470	\$110,495	\$117,271
Net investment in property, plant and equipment	\$ 10,792	\$ 11,116	\$ 10,830	\$ 10,727	\$ 10,771
Working capital	\$ 10,918	\$ 12,373	\$ 7,613	\$ 8,235	\$ 7,797
Total debt	\$ 45,812	\$ 46,824	\$ 42,169	\$ 39,890	\$ 40,722
Total equity	\$ 16,929	\$ 17,725	\$ 18,392	\$ 14,424	\$ 12,014

* Refer to the table below for the reconciliation of non-GAAP financial information for 2015 and 2014. Also see "GAAP Reconciliation," on pages 41 and 58 for the reconciliation of non-GAAP financial information for 2018, 2017 and 2016.

**Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

GAAP Reconciliation

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 on pages 18 and 19 for the company'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*	Operating (non-GAAP)*
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
2014				
Income from continuing operations	\$15,751	\$ 670	\$ 112	\$16,534
Diluted earnings per share from continuing operations	\$ 15.59	\$0.67	\$0.11	\$ 16.37

* Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

Selected Quarterly Data

International Business Machines Corporation and Subsidiary Companies

(\$ in millions except per share amounts and stock prices)

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

(\$ in millions except per share amounts and stock prices)

2017	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Full Year
Revenue	\$18,155	\$19,289	\$19,153	\$22,543	\$79,139
Gross profit	\$ 7,944 ⁺	\$ 8,968 ⁺	\$ 8,981 ⁺	\$11,049 ⁺	\$36,943 ⁺
Income/(loss) from continuing operations	\$ 1,753	\$ 2,332	\$ 2,726	\$ (1,053)	\$ 5,758
Income/(loss) from discontinued operations, net of tax	\$ (3)	\$ (1)	\$ 0	\$ (1)	\$ (5)
Net income/(loss)	\$ 1,750	\$ 2,331	\$ 2,726	\$ (1,054)	\$ 5,753
Operating (non-GAAP) earnings*	\$ 2,224 ⁺	\$ 2,760 ⁺	\$ 3,045 ⁺	\$ 4,777 ⁺	\$12,807 ⁺
Earnings/(loss) per share of common stock— continuing operations**					
Assuming dilution	\$ 1.85	\$ 2.48	\$ 2.92	\$ (1.14)	\$ 6.14
Basic	\$ 1.86	\$ 2.49	\$ 2.93	\$ (1.14)	\$ 6.17
Earnings/(loss) per share of common stock—total**					
Assuming dilution	\$ 1.85	\$ 2.48	\$ 2.92	\$ (1.14)	\$ 6.14
Basic	\$ 1.86	\$ 2.49	\$ 2.93	\$ (1.14)	\$ 6.17
Diluted operating (non-GAAP)*	\$ 2.35 ⁺	\$ 2.94 ⁺	\$ 3.26 ⁺	\$ 5.14 ⁺	\$ 13.66 ⁺

* Refer to page 73 of the company's first-quarter 2018 Form 10-Q filed on April 24, 2018, page 89 of the company's second-quarter 2018 Form 10-Q filed on July 31, 2018, page 91 of the company's third-quarter 2018 Form 10-Q filed on October 30, 2018, and page 47 under the heading "GAAP Reconciliation" for the reconciliation of non-GAAP financial information for the quarterly periods of 2018 and 2017. Also see "GAAP Reconciliation," on page 41 for the reconciliation of non-GAAP financial information for full-year 2018 and 2017.

** 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.

⁺ Recast to reflect adoption of the FASB guidance on presentation of net benefit cost.

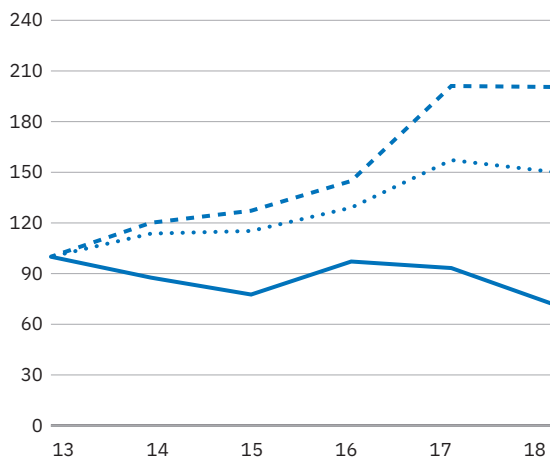
COMPARISON OF FIVE- AND TEN-YEAR CUMULATIVE TOTAL RETURN FOR IBM, S&P 500 STOCK INDEX AND S&P INFORMATION TECHNOLOGY INDEX

The following graphs compare the five- and ten-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

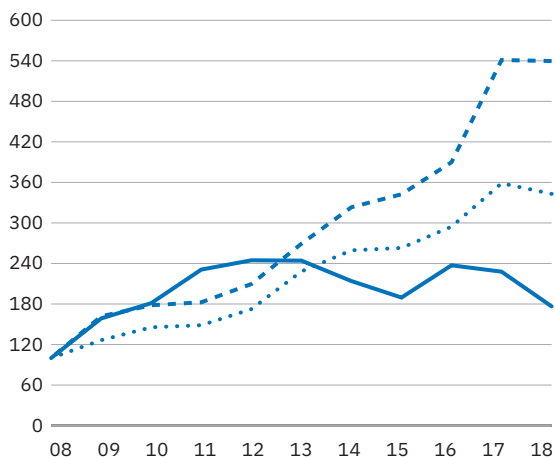
line-of-business index. The S&P Information Technology Index is such an index. IBM is also included in this index.

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.

Five-Year



Ten-Year



Five-Year

(U.S. Dollar)	2013	2014	2015	2016	2017	2018
— IBM Common Stock	\$100.00	\$ 87.61	\$ 77.61	\$ 97.16	\$ 93.29	\$ 72.26
.... S & P 500 Index	100.00	113.69	115.26	129.05	157.22	150.33
- - - S & P Information Technology Index	100.00	120.12	127.23	144.85	201.10	200.52

Ten-Year

(U.S. Dollar)	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
— IBM Common Stock	\$100.00	\$158.61	\$181.26	\$230.96	\$244.67	\$244.22	\$213.95	\$189.54	\$237.28	\$227.83	\$176.48
.... S & P 500 Index	100.00	126.46	145.51	148.59	172.37	228.19	259.43	263.02	294.47	358.76	343.03
- - - S & P Information Technology Index	100.00	161.72	178.20	182.50	209.55	269.13	323.26	342.41	389.84	541.22	539.66

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 Section 13(a) or 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 30, 2019, at 10 a.m. at the Charleston Area Convention Center, North Charleston, South Carolina.

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 2018 Annual Report will be available for sight-impaired stockholders in June 2019.

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.com/responsibility/report. The full Corporate Responsibility Report is available in printed form by downloading the report at www.ibm.com/responsibility/report.

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.

BOARD OF DIRECTORS

Michael L. Eskew

Retired Chairman and
Chief Executive Officer
United Parcel Service, Inc.

David N. Farr

Chairman and Chief Executive Officer
Emerson Electric Co.

Alex Gorsky

Chairman and Chief Executive Officer
Johnson & Johnson

Michelle J. Howard

Retired Admiral
United States Navy

Shirley Ann Jackson

President
Rensselaer Polytechnic Institute

Andrew N. Liveris

Retired Executive Chairman
DowDuPont Inc.

Retired Chairman and
Chief Executive Officer

The Dow Chemical Company

Hutham S. Olayan*

Chairman
The Olayan Group

James W. Owens*

Retired Chairman and
Chief Executive Officer
Caterpillar Inc.

Martha E. Pollack

President
Cornell University

Virginia M. Rometty

Chairman, President and
Chief Executive Officer
IBM

Joseph R. Swedish

Senior Advisor and
Retired Chairman, President
and Chief Executive Officer
Anthem, Inc.

Sidney Taurel

Chairman Emeritus
Eli Lilly and Company

Chairman
Pearson plc

Peter R. Voser

Retired Chief Executive Officer
Royal Dutch Shell plc

Chairman
ABB Ltd.

Frederick H. Waddell

Retired Chairman and
Chief Executive Officer
Northern Trust Corporation

SENIOR LEADERSHIP

Simon J. Beaumont

Vice President
Tax and Treasurer

Michelle H. Browdy

Senior Vice President
*Legal and Regulatory Affairs,
and General Counsel*

Erich Clementi**

Senior Vice President

Robert F. Del Bene

Vice President and Controller

Mark Foster

Senior Vice President
Global Business Services

Diane J. Gherson

Senior Vice President and
Chief Human Resources Officer

John Granger

Senior Vice President
Cloud Application Innovation

Martin Jetter

Senior Vice President
Europe

James J. Kavanaugh

Senior Vice President and
Chief Financial Officer
Finance and Operations

John E. Kelly III

Executive Vice President

Kenneth M. Keverian

Senior Vice President
Corporate Strategy

Arvind Krishna

Senior Vice President
Cloud and Cognitive Software

Robert W. Lord

Senior Vice President
Cognitive Applications

Christina M. Montgomery

Vice President
*Assistant General Counsel
and Secretary*

Michelle Peluso

Senior Vice President and
Chief Marketing Officer
Digital Sales and Marketing

Robert J. Picciano

Senior Vice President
Cognitive Systems

Virginia M. Rometty

Chairman, President and
Chief Executive Officer

Thomas W. Rosamilia

Senior Vice President
Systems

Martin J. Schroeter

Senior Vice President
*Global Markets, Global Financing,
Marketing and Communications*

Bridget A. van Kralingen

Senior Vice President
*Industry Platforms and
Global Industries*

Juan A. Zufiria Zatarain

Senior Vice President
Global Technology Services

* Term on the Board ends on April 30, 2019

**Retiring from the Company on March 31, 2019



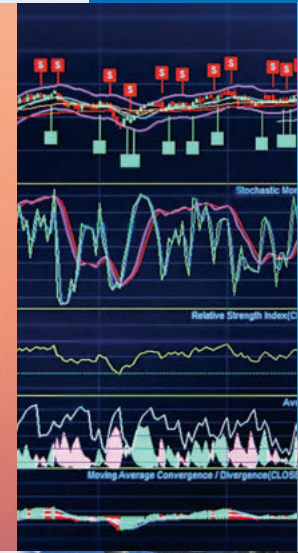
International Business Machines Corporation
New Orchard Road, Armonk, New York 10504
(914) 499-1900

AIX, Aperto, AppScan, BigFix, Bluewolf, Cognitive Enterprise, Db2, Domino, Global Business Services, Global Technology Services, IBM, IBM Cloud, IBM Garage, IBM iX, IBM Q, IBM Q Network, IBM Research, IBM Services, IBM Watson, IBM Z, Notes, POWER, POWER9, Promontory, P-TECH, Resilient, Sanovi, The Weather Company, Unica, Ustream, Watson, Watson Health, Watson IoT, Watson OpenScale, z14, z/OS and z Systems are trademarks or registered trademarks of International Business Machines Corporation or its wholly owned subsidiaries. Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both. UNIX is a registered trademark of the Open Group in the United States and other countries. Other company, product and service names may be trademarks or service marks of others.


The IBM Annual Report is printed on papers harvested to sustainable standards.

Printed in the U.S.A. COL03002-USEN-18

Printing: RR Donnelley



Let's put
smart
to work.™

The IBM logo, consisting of the letters "IBM" in a stylized, striped font.